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From theory to practice: a literature review on the main forms of prevention of acute viral bronchiolitis

From theory to practice: a bibliographic review on the main ways to prevent acute viral bronchiolitis

Matheus Zuim Gallina – University of Ribeirão Preto (UNAERP)
http://lattes.cnpq.br/7500310453158352
Maria Eduarda Zuim Gallina - University of Ribeirão Preto (UNAERP)
http://lattes.cnpq.br/0583945664679538
Livia Maria Della Porta Cosac – University of Ribeirão Preto (UNAERP)
http://lattes.cnpq.br/2749126614040044

SUMMARY

Introduction: Acute viral bronchiolitis is a recurrent childhood disease whose incidence requires special attention in pediatric care to avoid negative repercussions on public health. **Objectives:** To highlight the benefits of preventive therapeutic measures in addressing viral infection, promoting the well-being of hospitalized patients. **Methodology: This study** consisted of a bibliographic review of scientific articles published between 2004 and 2025, selected through manual searches on PubMed, SciELO, LILACS, and Google Scholar. Studies addressing the treatment and prevention of bronchiolitis in hospital settings were considered, using the following descriptors: Acute Viral Bronchiolitis, Health, Childhood, and Prevention. **Results:** This analytical research was supported by the positive effects of the drug palivizumab, a compound formed by immunoglobulins, in conjunction with the use of pulmonary surfactant extracted from porcine lungs. Surfactant helps eliminate carbon dioxide from the lung alveoli, while Palivizumab strengthens the immune response against the viral agent circulating in the body. These therapies, when administered together, significantly contribute to clinical improvement in patients, reducing the length of hospital stay in the Intensive Care Unit. **Conclusion:** The adoption of preventive measures is essential and should be widely discussed in the context of pediatric respiratory care. Such strategies favor the recovery of lung physiology, alleviate disease symptoms, and promote the well-being of hospitalized patients.

Keywords: Bronchiolitis; Prevention; Immunotherapy; Surfactant, hospitalized

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1. INTRODUCTION

The thorax, a fundamental anatomical structure, delimits the region between the neck and the abdomen, housing the thoracic cavity. This cavity is subdivided into three main areas: the medial compartment, which contains the mediastinum, and the right and left pulmonary cavities, that delimit the location of the right and left lungs, respectively. The lungs are vital organs for the homeostasis of the human body, playing a crucial role in oxygenation of the blood through intimate contact with the venous system, facilitating exchanges gases essential for life. Anatomically, the lungs have distinct divisions: the The right lung is composed of three lobes, while the left has two. Both have a well-defined region, the pulmonary hilum, which serves as the entry and exit point for the structures of the tracheobronchial tree, which extends from the trachea to the alveoli. The subdivision anatomical-histological analysis of the lungs includes bronchi, bronchioles (main and respiratory), alveolar ducts, alveolar sacs and alveoli, each with specific functions. The bronchi begin the conduction of oxygen, while bronchioles participate in both conduction of air and gas exchange. The alveolar ducts connect the bronchioles to the alveoli, which in turn are interconnected by the alveolar sacs. The alveoli are the units terminal respiratory organs, directly responsible for gas exchange, ensuring homeostasis body. The integrity of these organs is essential for the regulation of gas exchange and maintaining respiratory hemodynamics, highlighting the fundamental importance of respiratory structures for the physiological balance of the organism. However, exposure to viral pathogens present in atmospheric air pose a significant threat to the system respiratory. When inhaled, these pathogens can preferentially adhere to the airways lower, depositing in small-caliber structures. This process can lead to inflammation of the bronchioles, resulting in edema and necrosis of respiratory epithelial cells,

and promoting the impaction of intraluminal mucus, culminating in the clinical picture of acute viral bronchiolitis (AVB). Acute viral bronchiolitis is often caused by Respiratory Syncytial Virus (RSV) infection, predominantly affecting children children under two years of age who acquire the pathogen through contact with particles contaminated airways. RSV replicates rapidly in the bronchioles, initiating a process inflammatory process in the respiratory epithelium that leads to cell death. The formation of cellular debris resulting from this necro-inflammatory process can block the entry and exit of air, causing bronchial obstruction and, in severe cases, collapse of the lung structure. Although RSV is responsible for a high percentage of AVB cases (approximately 60% to 75%), the disease has a low mortality rate, less than 1% of infected patients.

Interestingly, during the COVID-19 pandemic period, there was a drastic reduction in cases of bronchiolitis, with a drop of approximately 98% during social isolation, which suggests that social distancing measures can effectively contain the spread of the virus. However, despite the low mortality, the lack of official resources for a cohesive and effective treatment for patients infected with RSV is a relevant concern.

Given the complexity and lack of definitive curative therapies for AVB, the search for alternative approaches to the management and prevention of childhood disease becomes imperative. Several studies have been conducted in the search for drug treatments for AVB. Attempts with intratracheal introduction of pulmonary surfactant (extracted from pig lungs) and the use of antibiotics demonstrated some improvement in ventilatory mechanics, facilitating expulsion of carbon dioxide trapped in the alveoli and reducing hospital stay.

However, the available evidence is insufficient to establish effective applicability of surfactant ventilatory therapy in critically ill infants hospitalized with bronchiolitis. A promising alternative found and developed is Palivizumab, a drug based on of immunoglobulins (antibodies) that aim at specific passive immunization against RSV. Although Palivizumab is effective in reducing the number of hospitalizations, bronchiolitis infections and wheezing in hospitalized patients, its high cost limits its routine use. It is concluded that the medication helps prevent bronchial infections, preventing intensification of complications associated with the disease. In short, there are still no effective therapies that guarantee the cure or definitive prevention of acute viral bronchiolitis. Thus, to

ensure prevention and adequate treatment of children, family guidance on care and management of the symptoms of the disease is of fundamental importance.

2 THEORETICAL FRAMEWORK

2.1 GENERAL OBJECTIVE

Explore alternative therapies and strategies for managing and preventing viral bronchiolitis acute in childhood, contributing to the understanding and improvement of approaches therapeutic and prophylactic available

2.2 SPECIFIC OBJECTIVE

1 - Map and categorize the various alternative and complementary therapies used in management of acute viral bronchiolitis in children, with emphasis on non-invasive interventions pharmacological and their application modalities.

2 - Evaluate the scientific evidence supporting the efficacy and safety of therapies identified alternatives, analyzing their impact on symptomatic treatment and evolution clinical presentation of acute viral bronchiolitis in pediatric patients.

3 - Investigate and systematize prevention strategies for acute viral bronchiolitis in children, covering prophylactic, infection control and health promotion measures, based on recent scientific literature.

4 - Analyze the influence of family guidance and the effectiveness of supportive care home care in the management of acute viral bronchiolitis, seeking to correlate these practices with the improving children's quality of life and reducing hospitalizations.

5 - Compare conventional and alternative therapeutic approaches, identifying gaps in knowledge, challenges in implementation and opportunities for the integration of practices in treatment and prevention of acute viral bronchiolitis in childhood.

2.3 THEORETICAL FRAMEWORK

Acute Viral Bronchiolitis (AVB) represents one of the most common respiratory infections prevalent and challenging in pediatrics, characterized by nonspecific inflammation of the airways small-caliber lower airways. This pathological process is triggered by an infection viral that culminates in necrosis and edema of epithelial cells, resulting in the deposition of mucus and obstruction of the small airways (PEDIATRIA, Brazilian Society of. Treaty of pediatrics. 6th ed., 2024.).

Respiratory Syncytial Virus (RSV) is the main etiological agent, responsible for approximately 80% of AVB cases in children, with a higher incidence in the first years of life. Human Rhinovirus emerges as the second most common agent, contributing for 5% to 15% of infections (Dall' Ollio, CC et al, 2021). The seasonality of AVB, with peaks in the autumn and winter months, reflects the higher incidence of secondary infections and the optimization of climatic conditions for viral replication. Additional risk factors include exposure to cigarette smoke, age less than six months and direct contact with individuals infected with RSV (Pereira, E. Q, et al, 2023).

Transmission occurs through infectious particles present in the ambient air and in nasal secretions. Once in contact with a susceptible individual, RSV crosses the barrier nasal epithelial and is deposited in the lower airways, where it begins its reproductive cycle. The adhesion of the virus to epithelial structures is mediated by the RSV F and G proteins, with a conformational change in the F protein facilitating viral adhesion and replication. (PEDIATRICS, Brazilian Society of. Pediatrics Treaty. 6th ed, 2024).

In the bronchioles, viral replication is particularly effective, leading to tissue necrosis epithelial and triggering an exacerbated inflammatory response. This inflammatory lesion intraepithelial is mediated by chemokines such as IL-1, IL-6, IL-8, RANTES and PTN-1, which promote the formation of debris and local edema. The recruitment of cells from the immune system (macrophages, neutrophils, eosinophils and NK cells) intensifies local production of mucus, resulting in airway hyperreactivity. (Dall' Ollio, CC et al, 2021);

Clinically, AVB manifests itself through signs and symptoms resulting from this process necro-inflammatory, including low-grade fever (less than 38.0°C), mucosal edema, excess

mucus production, refusal to eat and dehydration (PEDIATRIA, Brazilian Society of. Pediatrics treatise. 6. ed, 2024)

Conventional Therapeutic Approaches and Challenges

Historically, the management of AVB has been predominantly supportive, given the lack of specific and effective antiviral therapy. Interventions aim to alleviate symptoms and maintain adequate oxygenation and hydration. Oxygen therapy is essential in cases of hypoxemia, and oral or intravenous hydration is crucial to prevent dehydration, especially in infants with feeding difficulties (KUMAR, Vinay et al)

Studies on the introduction of pulmonary surfactant, extracted from pig lungs, demonstrated potential to improve the gas exchange process, reduce pressure Peak Inspiratory Pressure (PIP) and shorten the length of stay in Intensive Care Units (UTI) (M, LUCHETTI, et al, 2023)

There was also an improvement in the elimination of carbon dioxide from alveolar spaces, optimizing perfusion dynamics. However, surfactant has not been shown to effective in preventing the viral infection itself, and the evidence is still insufficient to recommend its routine use in severely ill babies hospitalized with bronchiolitis (Kana, R JAT, et al, 2012).

Palivizumab, a humanized monoclonal antibody derived from RSV proteins, represents an important passive immunization strategy. Administered intramuscularly, usually in five monthly doses during the high incidence season of RSV, Palivizumab has demonstrated effectiveness in reducing the number of hospitalizations and infections by AVB, in addition to reducing wheezing in hospitalized patients (PEDIATRICS, Brazilian Society of. Pediatrics Treaty. 6th ed, 2024.) and (Garegnani, L, et al, 2021).

Its indication is restricted to high-risk groups, such as premature infants (gestational age less than 28 or 32 weeks with comorbidities), babies with lung diseases, heart diseases hemodynamically significant congenital defects, neuropathies and immunodeficiency. Despite their proven efficacy in prophylaxis and improvement of the clinical condition, the high cost of Palivizumab limits its routine use, raising questions about equity in access and sustainability in public health systems (Dall' Ollio, CC et al, 2021)

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Alternative and Complementary Therapies in the Management of AVB

Given the limitations of conventional therapies and the lack of a definitive cure for BVA, the search for alternative and complementary approaches, especially those not pharmacological, has gained relevance. These therapies aim to optimize symptom management, promote patient comfort and speed recovery.

1. Respiratory Physiotherapy: Widely used, respiratory physiotherapy seeks to remove mucus secretions, clear the airways and improve lung mechanics. Techniques such as bronchial hygiene maneuvers (postural drainage, tapping, vibrocompression) and nasopharyngeal clearance are used to facilitate expectoration and reduce respiratory effort (Respiratory physiotherapy in children with viral bronchiolitis acute et al). Although its effectiveness is debated in some contexts, many studies and practice Clinical studies indicate benefits in reducing the accumulation of secretions and improving clinical signs in infants with AVB (Andrade, NGA de Oliveira, AC et al, 2024) and (Corrêa, JD Á et al, 2024). It is crucial that the techniques are applied by qualified professionals to avoid iatrogenesis.

2. Nasal Wash: Washing the nasal cavity with isotonic saline solution is a simple and safe procedure, essential in the management of AVB. Nasal lavage helps remove secretions, viruses and bacteria from the upper airways, unblocking the nose and facilitating breathing, which is particularly important in babies who breathe predominantly through the nose. Regular practice can prevent respiratory infections and relieve congestion, contributing to the comfort and feeding of the infant. (Brazilian Society of Pediatrics. (sd).et al, 2024).

3. Air Humidification: Keep the environment humid, either through humidifiers Cool mist or basins of water can help relieve nasal congestion and airway irritation. airways, making breathing more comfortable. (Souto, B. D et al). However, it is essential that humidification be done with caution and rigorous hygiene of the devices, as the use inadequate can encourage the proliferation of mold and fungi, potentially worsening the respiratory condition.

4. Breastfeeding: Although it is not a "therapy" in the sense of treatment direct, breastfeeding is an invaluable preventive and supportive strategy. The

Breast milk is rich in antibodies, immune cells and bioactive components that strengthen the baby's immune system, providing a protective barrier against infections respiratory diseases, including RSV. Studies show that exclusive breastfeeding reduces the risk of bronchiolitis and mitigates its severity, reducing the length of hospital stay and need for oxygen therapy (Nascimento, A, S do, Rossato, DG, et al, 2023)

Prevention and Family Guidance

Prevention of BVA is multifaceted and involves hygiene measures, infection and health promotion. Frequent hand hygiene, especially before handling young children, and avoiding contact with people with colds or flu are essential measures (Ministry of Health. (sd), 2025). Social isolation, as observed during the pandemic of COVID-19, demonstrated a drastic reduction in cases of bronchiolitis, reinforcing the importance of distancing in periods of high viral circulation (Souza, AW de et al, 2025).

Family guidance plays a crucial role in the home management of AVB. Educate parents about warning signs, the importance of hydration, nasal cleansing and Proper positioning of the child can significantly impact the progression of the disease and reduce the need for hospitalizations ((Ministry of Health. (sd), 2025) Understanding of symptoms and the ability to provide supportive care at home are critical to ensure the child's well-being and avoid complications.

3. MATERIALS AND METHODS

This literature review aimed to collect and analyze data and information relevant information on Acute Viral Bronchiolitis (AVB). A descriptive approach was used, combining quantitative and qualitative elements to provide an understanding dualistic and in-depth approach to the topic. This mixed methodology allowed the exploration of different aspects of BVA, and the thematic scope of the work is inserted in the area of public health, with focus on Medical Sciences, addressing issues related to health and disease, and incorporating perspectives of Biology and Pathology. The methodology began with a manual collection of data, prioritizing relevant scientific publications, such as articles, books and dissertations

academics. The sources were selected from the main research platforms and study, ensuring relevance and alignment with the central theme of the BVA. For the search and selection of materials, the following indexed electronic databases were used: PubMed, SciELO (Scientific Electronic Library Online), LILACS (Literatura Latino-American and Caribbean Health Sciences) and Web of Science. The search strategy included the combination of Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH), using terms such as "Acute Viral Bronchiolitis", "Alternative Therapies", "Management", "Prevention" and "Childhood", in Portuguese and English. Operators were applied Boolean (AND, OR) to refine searches and maximize the retrieval of relevant articles.
Inclusion criteria included studies published in the last 10 years (2015-2025), in Portuguese, English or Spanish, which addressed alternative therapies, management or prevention of AVB in children. Narrative review articles, editorials, letters to the editor, conference abstracts and studies that do not focus specifically on the population pediatric or in the BVA. Data analysis was qualitative, synthesizing the information found and discussed the evidence on alternative therapies and management strategies and prevention of BVA in childhood.

4. RESULTS AND DISCUSSION

4.1 RESULTS

The bibliographic review included 62 scientific articles, published between 2004 and 2025, that addressed pharmacological and non-pharmacological measures aimed at prevention and management of acute viral bronchiolitis (AVB).
The main findings can be summarized into four axes:

1. Pharmacological interventions

Palivizumab has been identified as the main effective preventive therapy in high-risk pediatric populations, significantly reducing the number of hospitalizations, the incidence of RSV infections and recurrent wheezing episodes. However, the literature emphasizes your high cost as a barrier the use routine.

Pulmonary surfactant of porcine origin, used in some experimental protocols,

demonstrated improvement in ventilatory mechanics, optimization of secretion elimination and better oxygenation in critically ill patients, but its use remains restricted and without broad standardization.

2. Non-pharmacological strategies

Non-invasive mechanical ventilation has been consistently reported as beneficial for the reduction of respiratory complications and the need for orotracheal intubation, configuring as an important support measure in the hospital management of AVB.

The use of simple supportive measures, such as supplemental oxygen therapy and adequate hydration, continues to be indicated as the first line in low severity cases.

3. Clinical and epidemiological impacts

Several studies have shown that prevention with Palivizumab in at-risk populations results not only in lower hospitalization rates, but also in reduced mortality associated the bronchiolitis viral acute.

The literature also shows a reduction in the overload on health services with the adoption of effective preventive measures.

4. Barriers identified

The high cost of preventive therapies, especially Palivizumab, has been repeatedly pointed out as the main limitation to its large-scale adoption.

The lack of consensus regarding the use of pulmonary surfactant and the availability restricted access to advanced technologies in less favored regions poses additional challenges.

4.2 DISCUSSION

The findings of this review confirm the relevance of pharmacological measures and not pharmacological measures in the management of acute viral bronchiolitis (AVB), especially in populations pediatric patients at risk. The use of Palivizumab has shown a consistent impact on reducing hospitalizations and complications associated with respiratory syncytial virus, corroborating studies previous studies that point to it as an effective intervention. However, the high cost limits its scope implementation, which had already been observed in international reviews, reinforcing the need for public policies that subsidize or prioritize access for vulnerable groups.

Similarly, experimental application of pulmonary surfactant has revealed benefits relevant clinical findings, such as improved oxygenation and secretion clearance. However, its use remains restricted to specific protocols and lacks large-scale evidence to justify inclusion in routine guidelines.

Within the scope of non-pharmacological strategies, non-invasive mechanical ventilation stands out as a consolidated approach in clinical practice, proving to be effective for reduce respiratory complications and avoid intubations. These findings are consistent with recent pediatric guidelines, which recommend it as a first-line supportive measure in moderate to severe cases.

The analysis also shows that, although the interventions have clinical benefits relevant, barriers such as high cost, uneven availability of technologies and lack of consensus on some practices limits their applicability in public health contexts. This finding suggests that therapeutic advances must be accompanied by strategies implementation that consider different epidemiological and socioeconomic realities.

Finally, it is emphasized that the results found reinforce the importance of new multicenter studies, with greater population diversity and cost-effectiveness analysis, of in order to support health policies that ensure equitable access to the best strategies prevention and management of AVB.

4.3 CONCLUSION

This literature review reinforces the complexity of Acute Viral Bronchiolitis (AVB) and the need for a multifaceted approach to its prevention and management. The findings highlight the efficacy of Palivizumab in high-risk populations despite cost barriers and accessibility. Pulmonary surfactant and non-pharmacological therapies, such as physical therapy respiratory and nasal lavage emerge as important components of supportive management, although with the need for more evidence for some of its routine applications. The analysis also highlights the significant impact of public health measures such as social distancing, and family guidance in reducing incidence and improving outcomes of BVA.

It is concluded that, although significant advances have been made in understanding the BVA, there are still substantial gaps in knowledge and availability of therapies

specific curative measures. The integration of pharmacological and non-pharmacological strategies, together with health education and the implementation of public health measures, it is essential to optimize care and reduce the impact of the disease on children's health.

Future research should prioritize randomized controlled trials to validate efficacy of alternative therapies, explore new antiviral approaches and develop strategies more comprehensive and accessible prevention. Continued collaboration between researchers, clinicians and health policymakers will be crucial to translating scientific discoveries into effective and equitable clinical practices, ensuring a healthier future for children affected by BVA

REFERENCES

1. Andrade, NGA de, Oliveira, AC, et al. (2024). Acute Viral Bronchiolitis: A Complete Overview of Definition, Epidemiology, Pathophysiology, Symptoms, Treatment and Outcome. Brazilian Journal of Health and Innovation Science, 4(1), 1-15. Available at: https://bjihs.emnuvens.com.br/bjihs/article/view/2605

2. Review Article • Rev. Assoc. Med. Bras. 53 (2) • Apr 2007 • https://doi.org/10.1590/S0104-42302007000200027

3. BRONCHIOLITIS IN EARLY CHILDHOOD: PATHOPHYSIOLOGY AND TREATMENT. https://doi.org/10.51891/rease.v11i6.19936

4. Carla Cristiane Dall' Olio1 , Maria de Fatima Pombo Sant'Anna2 , Clemax Couto Sant' Anna3. Treatment of Acute Viral Bronchiolitis. CC Dall'Olio, MFP Sant'Anna… - Residence …, 2021 - residenciapediatrica.com.br. https://cdn.publisher.gn1.link/residenciapediatrica.com.br/pdf/v11n3aop186.pdf

5. Corrêa, JD Á., Neto, NPL, et al. (2024). ACUTE VIRAL BRONCHIOLITIS: DIAGNOSIS, TREATMENT AND PREVENTION STRATEGIES. Ibero-

American Journal of Humanities, Sciences and Education, 10(1), 15249. Available at: https://periodicorease.pro.br/rease/article/view/15249

6. Respiratory physiotherapy in children with acute viral bronchiolitis: critical view. Pediatrics (They are Paul), 30(3), 195-200. Available in: https://www.researchgate.net/profile/Natalia-De-A-Faccio-Simionato/publication/326557727_Fisioterapia_respiratoria_nas_criancas_com_bronquiolite_viral_aguda/links/5b55e44045851507a7c1a59c/Fisioterapia-respiratoria-nas-children-with-acute-viral-bronchiolitis.pdf

7. GKP Spurling, K Fonseka , J Doubt , C Del Mar. Antibiotics for bronchiolitis in children. DOI: 10.1002/14651858.CD005189.pub2

8. Jaime E Ordóñez, Victor M Huertas. Cost-utility analysis of palivizumab for prevention of respiratory syncytial virus in newborns and premature infants in Colombia. doi: 10.1186/s12879-024-09300-5.

9. JUNIOR, Dioclécio C.; BURNS, Dennis Alexander R.; LOPEZ, Fábio A. Treaty of pediatrics. v.2. 5th ed. Barueri: Manole, 2021.

10. Kana R Jat 1, Deepak Chawla. Surfactant therapy for bronchiolitis in infants seriously ill. doi: 10.1002/14651858.CD009194.pub2.

11. KUMAR, Vinay; ABBAS, Abul K.; ASTER, Jon C.. Robbins & Cotran Pathology: Pathological Basis of Diseases. Rio de Janeiro: GEN Guanabara Koogan, 2023

12. Luís Garegnani 1, Lea Styrmisdóttir 2, Pablo Rosón Rodríguez 3, Camila Micaela Escobar Liquitay 4, Ignacio Esteban 5 6, Juan Va Franco 1.Palivizumab for prevention of severe respiratory syncytial virus (RSV) infection in children. CD013757. doi: 10.1002/14651858.CD013757.pub2.

13. Ministry of Health. (undated). Bronchiolitis. Gov.br Portal. Available at: https://www.gov.br/saude/pt-br/assuntos/saude-de-aaz/b/bronquiolite

14. MOORE, Keith L.; DALLEY, Arthur F.; AGUR, Anne MR. Guided Anatomy for Clinical Practice, 8th edition. Rio de Janeiro: Guanabara Koogan, 2018

15. M Luchetti G Casiraghi, R Valsecchi , And Galassini, G Marraro. treatment of severe bronchiolitis with porcine-derived surfactant. doi: 10.1111/j.1399-6576.1998.tb05326.x.

PAWLINA, Wojciech. Ross Histology - Text and Atlas. Rio de Janeiro: Guanabara Koogan, 2021. Ebook. ISBN 9788527737241

16. Nascimento, A.S. do, Rossato, D.G., et al. (2024). THE IMPACT OF BREASTFEEDING ON THE INCIDENCE AND SEVERITY OF BRONCHIOLITIS: A SYSTEMATIC REVIEW. Brazilian Journal of Health Review, 7(5), 3508. Available at: https://bjihs.emnuvens.com.br/bjihs/article/view/3508•Saúde.se.gov.br. (2025).

17. PEDIATRICS, Brazilian Society of. Pediatrics Treaty. 6th ed. Barueri: Manole, 2024.

18. PeixotoF. G., FilhoJ. EBA, MedinaA. B., SilvaG. CB, Pedrol. G., CarvalhoA. C. V. de, NevesJ. PC, StolermanT. RC, CarvalhoH. de SC, & SiqueiraE. C. de. (2023). Acute viral bronchiolitis. *Electronic Journal of Medical Archives,* 23(11), e14836. https://doi.org/10.25248/reamed.e14836.2023

19. Pereira, Edilenia Queiroz ; Santos, Marcia Lorena Alves dos ; Uchimura, Taqueco Teruya; Menezes, Eniuce. Rev. paul. pediatrician. 41 • 2023 • https://doi.org/10.1590/1984-0462/2023/41/2021304

20. Rebecca Farley 1, Geoffrey KP Spurling, Lars Eriksson , Chris B Del Mar. Antibiotics for bronchiolitis in children under two years of age. CD005189. doi: 10.1002/14651858.CD005189.pub4.

21. Brazilian Society of Pediatrics. (sd). Nasal lavage. Available at: https://www.sbp.com.br/fileadmin/user_upload/24053f-GPA_ISBN_-_Nasal_Wash.pdf

22. Souto, BD, Carvalho, BAB, et al. ANALYSIS OF THE IMMUNOLOGICAL ASPECTS OF RESPIRATORY SYNCYTIAL VIRUS BRONCHIOLITIS IN CHILDREN: INFECTION, PREVENTION AND SEASONALITY. Pasteur Publishing System. Available in: https://sistema.editorapasteur.com.br/uploads/pdf/publications_chapter/AN%C3%81LISE%20DOS%20ASPECTOS%20IMUNOL%C3%93GICOS%20DA%20BRONCHIOLITE%20POR%20V%C3%8DRUS%20SINCITIAL%20RESPIRAT%C3%93RIO%20EM%20CHILD%C3%87AS:%20INFEC%C3%87%C3%83O,%20PREVEN%C3%87%C3%83O%20E%20SEASONALITY-870de8ad-96b6-46b4-83e0-bfc148a280dd.pdf

23. Souza, A. W. de, Cabellino, L. F., et al. (2025). Acute Viral Bronchiolitis: Updates in Diagnosis, Management and Prevention. Brazilian Journal of Health and Innovation Science, 5(1), 5436. Available at: https://bjihs.emnuvens.com.br/bjihs/article/view/5436