

Common Childhood Illnesses: Diagnosis and Treatment of Asthma, Allergies, and Ear Infections

Ibrahim Ismail Ibrahim Alfaqih^{1*}, Ahmad Mahmoud Abdelhafez Awad¹

¹Primary Health Care Corporation -Doha

DOI: [10.36347/sajb.2024.v12i04.007](https://doi.org/10.36347/sajb.2024.v12i04.007)

Received: 17.04.2024 | Accepted: 25.05.2024 | Published: 31.05.2024

*Corresponding author: Ibrahim Ismail Ibrahim Alfaqih
Primary Health Care Corporation -Doha

Abstract

Review Article

Ear infections, allergies, and asthma are prevalent childhood ailments that can greatly impair a child's well-being and overall quality of life. This page provides a comprehensive discussion of various prevalent diseases, including their etiology, manifestations, and the treatment options now accessible. Asthma is a persistent respiratory condition marked by wheezing, difficulty breathing, and coughing. A diagnosis is obtained by conducting physical examinations, reviewing medical histories, and administering lung function testing. Treatments consist of prescription medicines and modifications in lifestyle. Allergies are immunological reactions to harmless chemicals, which can manifest as symptoms such as sneezing, rashes, and pruritus. Gathering an allergy test and medical history are essential components of the diagnosis process. The available therapies include medication, allergy avoidance, and immunotherapy. Otitis infections are characterized by ear pain and the presence of fluid drainage. These infections are identified with the use of otoscopy, which involves examining the ear canal and eardrum, as well as by considering the patient's medical history. Tympanostomy tubes, antibiotics, pain medication, or observation are among the treatment options for recurrent occurrences. Early identification and intervention of these problems are imperative to enhance outcomes and promote a vibrant and robust childhood.

Keywords: Ear infection, asthma, allergy, treatment, management.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

1. INTRODUCTION

Typical childhood afflictions comprise allergies, otitis media, and asthma (Murtoimäki *et al.*, 2024; Wojas *et al.*, 2024). During this phase of rapid development and growth, children are more susceptible to a wide variety of ailments (Lucas *et al.*, 2024). Asthma, allergies, and ear infections are highly prevalent disorders among youngsters (Esmailzadeh *et al.*, 2024). These hurdles can have a substantial impact on a child's quality of life, daily activities, and overall health (Adeghe *et al.*, 2024). Parents and other caregivers must know the risk factors, symptoms, diagnosis, and treatment options related to these disorders (Leeuwstein *et al.*, 2024).

2. Comprehensive Examination of Asthma and its Symptoms

Asthmatics undergo respiratory distress as their airways progressively narrow and become irritated (Khosa *et al.*, 2024). With its profound worldwide influence, it makes a substantial contribution to the number of hospital admissions and visits to pediatric emergency rooms (Aguilar *et al.*, 2024). The symptoms of asthma include experiencing a sensation of whistling

or difficulty in breathing (Mindus *et al.*, 2024). Respiratory inefficiency as there is a sensation of constriction in the chest (Karkouli *et al.*, 2024). When experiencing wheezing in the morning or at night, an individual needs to evaluate their health (Cao *et al.*, 2024).

2.1 Diagnosis of Asthma

Diagnosing asthma in kids necessitates considering their medical history, doing a physical examination, and analyzing diagnostic test results (Markwat *et al.*, 2024). The following stages are vital: Relevant health information, such as symptoms and signs, a familial history of allergies or asthma, and any triggers that can provoke an attack (Karunaratna *et al.*, 2024). During a physical examination, the presence of wheezing sounds originating from the lungs is recognized as a sign of sickness (Funaguchi *et al.*, 2024).

Spirometry is a pulmonary function test that evaluates a child's ability to expel air at a predetermined volume and speed (Bonthada *et al.*, 2024). Sensitivity testing can be utilized to investigate the causes of asthma symptoms (Kang *et al.*, 2024).

2.2 Medical treatment of asthma

The basic objectives of treatment for children with asthma should be focused on symptom management, minimizing the occurrence and intensity of asthma attacks, and enhancing overall quality of life (Aoudoung *et al.*, 2024). Here are several therapy approaches:

Prescribed medication: Fluticasone, an inhalable corticosteroid, reduces inflammation and irritation (Jamshidovich, 2024). Albuterol and other short-acting beta-agonists are immediate-release medicines that can quickly alleviate symptoms during asthma attacks. Adopting changes in one's lifestyle. Avoid exposure to pollen, pet dander, and smoking (Melani *et al.*, 2024).

2.3 Asthma management

The first step in managing asthma entails the cooperation of a healthcare provider in creating a customized action plan (Schwartz *et al.*, 2024). Asthma in children is effectively treated with a combination of pharmacotherapy, behavioral modifications, consistent monitoring, and education (Ghozali, 2024). By implementing an asthma action plan and working closely with medical professionals, caregivers (including parents and other adults) can assist children with asthma in effectively managing their symptoms and maintaining a healthy and active lifestyle (Miles *et al.*, 2024).

3. Allergies and Associated Factors:

Allergies are commonly perceived as benign, food, pollen, and pet fur possess the capacity to elicit an allergic response (Korn *et al.*, 2024). The symptoms of the allergy can vary in severity, indicating its nature (Dragonieri *et al.*, 2024; Karunarathna *et al.*, 2024).

3.1 Symptoms of Allergies:

The classical symptoms of allergies include common symptoms that encompass sneezing, rhinorrhea, and ocular discomfort characterized by dryness and irritation (HyoungSun *et al.*, 2024). Heals and eczema are both forms of cutaneous lesions (Mohammadi *et al.*, 2024). Anaphylaxis, along with gastrointestinal problems and food allergies, is a potentially lethal allergic reaction that requires medical assessment (Iglesia *et al.*, 2024).

3.2 Diagnosis of allergies

An allergy diagnosis consists of the following stages:

- 1- An extensive medical record that provides a thorough account of each ailment along with its possible cause (Nowrozy *et al.*, 2024).
- 2- An allergic reaction can be identified through a physical examination (Guliyeva *et al.*, 2024). Allergy testing is available. A minute dose of an allergen is applied to the skin to observe the body's reaction (Zokirovna *et al.*, 2024).

- 3- Quantification of allergen-specific antibodies (such as IgE) in the bloodstream (Cossette *et al.*, 2024).

3.3 Allergies treatment:

The primary objectives of allergy treatment are to minimize symptoms and halt allergic responses (Anagnostou *et al.*, 2024).

The available therapeutic courses include:

- 1- Pharmaceutical drugs that require a prescription: Antihistamines, such as loratadine and cetirizine, relieve symptoms associated with the sinuses, throat, and skin, including itching (Narasimhan *et al.*, 2024).
- 2- Like other decongestants, pseudoephedrine alleviates nasal congestion. For instance, fluticasone nasal spray is a type of corticosteroid that effectively decreases inflammation (Kumar and Deshmukh, 2024).
- 3- One strategy for preventing allergies is identifying and avoiding known allergens. Immunotherapy utilizes sublingual pills or allergy injections to progressively diminish the immune system's reactivity to allergens (Creticos *et al.*, 2024).

4. Infections of the ear:

Childhood ear infections, especially otitis media, lead to the buildup of fluid in the middle ear, resulting in infection and inflammation (Ahmed *et al.*, 2024). It is widely known that they are linked to respiratory tract diseases (Paul, 2024).

4.1 Symptoms:

Ear disorders can present as:

- 1- Deaf or hard of hearing (Werfel *et al.*, 2024).
- 2- Engaging in the action of poking or gripping the ears might cause feelings of unease or pain (El Ramahi, 2023).
- 3- Insomnia symptoms include challenges in initiating and maintaining sleep, heightened core body temperature, and emesis (Ellis *et al.*, 2024).

4.2 Diagnosis of ear infection:

The following are essential for the diagnosis of an ear infection: 1- The medical history offers extensive details about the patient's recent diseases, in addition to their current symptoms (Rosenfeld *et al.*, 2006). 2- Otoscopy is a diagnostic process used to detect the presence of redness, swelling, or fluid behind the eardrum to diagnose an ear infection (Rao *et al.*, 2024).

4.3 Management of ear infection

The management strategy for an ear infection might be affected by its frequency and severity (Lin, 2024). Medical personnel sometimes employ a "wait and see" approach in handling mild cases, expecting that the patient's condition may resolve on its own (Abukmail *et*

al., 2024). Antibiotics are exclusively used in cases where a bacterial infection is generating significant or enduring symptoms (Yoon *et al.*, 2024). Commonly available analgesics include acetaminophen and ibuprofen (Palya *et al.*, 2024).

To promote fluid drainage and avoid recurring infections, a small tube called a tympanostomy tube may be inserted into the eardrum (Bloom and Brodsky, 2024).

5. CONCLUSION

To put it succinctly, it is declared. Asthma, otitis media, and hypersensitivity reactions are prevalent pediatric conditions that necessitate a thorough assessment and treatment. Timely identification and medical intervention will significantly improve the outlook and overall well-being of affected youngsters. Parents and guardians can work together with healthcare providers to create personalized care plans that cater to the specific needs of their kid. Well-informed parents may support their children in living active, healthy lifestyles and accessing the necessary care for these conditions.

REFERENCES

- Abukmail, E., Bakhit, M., & Hoffmann, T. C. (2024). Exploring individuals' perceptions and acceptability of a 'wait and see' approach for managing self-limiting illnesses: A qualitative study. *Patient Education and Counseling*, 118, 108032.
- Adeghe, E. P., Okolo, C. A., & Ojeyinka, O. T. (2024). Navigating early childhood caries management in children with autism and developmental disorders: A US perspective.
- Aguilar, R., Knudsen-Robbins, C., Ehwerhemuepha, L., Feaster, W., Kamath, S., & Heyming, T. W. (2024). Pediatric Asthma Exacerbations—14 Day ED Return Visit Risk Factors. *The Journal of Emergency Medicine*.
- Ahmed, A. E., Mohamed, A. S., Goda, A. M., & Ali, K. A. E. (2024). Bacterial Biofilm in Chronic Suppurative Otitis Media. *Sohag Medical Journal*, 28(2.), 100-107.
- Anagnostou, A., Warren, C., Dantzer, J., Galvin, A. D., Phillips, E. J., Khan, D. A., & Banerji, A. (2024). PATIENT-REPORTED OUTCOME MEASURES IN FOOD AND DRUG ALLERGY. *The Journal of Allergy and Clinical Immunology: In Practice*.
- Au-Doung, P. L., Chan, J. C., Kui, O. Y., Ho, M. K., Cheung, Y. T., Lam, J. K., ... & Leung, S. S. (2024). Objective monitoring tools for improved management of childhood asthma. *Respiratory Research*, 25(1), 194.
- Bloom, J., & Brodsky, J. R. (2024). Management of conductive hearing loss from otitis media in children operative techniques in otolaryngology. *Operative Techniques in Otolaryngology-Head and Neck Surgery*.
- Bonthada, S., Perumal, S. P., Naik, P. P., Padukudru, M. A., & Rajan, J. (2024). An automated deep learning pipeline for detecting user errors in spirometry test. *Biomedical Signal Processing and Control*, 90, 105845.
- Cao, X., Francisco, C. O., Bhatawadekar, S. A., Makanjuola, J., Tarlo, S. M., Stanbrook, M. B., ... & Yadollahi, A. (2024). A pilot study to assess the effects of preventing fluid retention in the legs by wearing compression stockings on overnight airway narrowing in mild asthma. *Sleep and Breathing*, 1-8.
- Cossette, B. J., Shetty, S., Issah, L. A., & Collier, J. H. (2024). Self-Assembling Allergen Vaccine Platform Raises Therapeutic Allergen-Specific IgG Responses without Induction of Systemic Allergic Responses. *ACS Biomaterials Science & Engineering*.
- Creticos, P. S., Gunaydin, F. E., Nolte, H., Damask, C., & Durham, S. R. (2024). Allergen Immunotherapy: The Evidence Supporting the Efficacy and Safety of Subcutaneous Immunotherapy and Sublingual Forms of Immunotherapy for Allergic Rhinitis/Conjunctivitis and Asthma. *The Journal of Allergy and Clinical Immunology: In Practice*.
- Dragonieri, S., Portacci, A., Quaranta, V. N., & Carpagnano, G. E. (2024). Advancing Care in Severe Asthma: The Art of Switching Biologics. *Advances in Respiratory Medicine*, 92(2), 110-122.
- El Ramahi, M. (2023). Child Pain Matters: A Training Protocol for General Nursing Staff in an Infusion Center on Procedural Anxiety in Pediatric Patients with Crohn's Disease and Ulcerative Colitis.
- Eletreby, Y. M., Olama, K. A., Aly, F. A., & Abd El-Nabie, W. A. Effect of Smartphone Addiction on Pulmonary Function and Functional Capacity in School-Age Children.
- Ellis, J., Ferini-Strambi, L., García-Borreguero, D., Heidbreder, A., O'Regan, D., Parrino, L., ... & Penzel, T. (2023, February). Chronic insomnia disorder across Europe: expert opinion on challenges and opportunities to improve care. In *Healthcare* (Vol. 11, No. 5, p. 716). MDPI.
- Esmaeilzadeh, H., Yousefi, M. R., Mortazavi, N., Gholami, M. A., Vali, M., & Dastgheib, S. A. (2024). Tic disorder in allergic rhinitis children and adolescents: a case-control study. *BMC pediatrics*, 24(1), 20.
- Funaguchi, N., Ogasawara, M., Kiryu, T., Terashima, T., Gon, Y., Shimizu, T., ... & Sawai, H. (2024). Respiratory/Infection Symptoms. In *Internal Medicine for Dental Treatments: Patients with Medical Diseases* (pp. 3-11). Singapore: Springer Nature Singapore.
- Ghozali, M. T. (2024). Innovations in Asthma Care: Efficacy of Mobile App-Assisted Patient Education in Promoting Asthma Self-Management. In *The*

Palgrave Encyclopedia of Disability (pp. 1-15). Cham: Springer Nature Switzerland.

- Guliyeva, G., Huayllani, M. T., Kraft, C., Lehrman, C., & Kraft, M. T. (2024). Allergic complications of hyaluronidase injection: risk factors, treatment strategies, and recommendations for management. *Aesthetic Plastic Surgery*, 48(3), 413-439.
- HyoungSun, Y., Il-Youp, K., Soo, K. K., & Jin, M. H. (2024). Chronic Rhinosinusitis With Nasal Polyps Does Not Affect the Association Between the Nasal Provocation Test and Serum Allergen-Specific Immunoglobulin E Levels. *Journal of Rhinology*, 31(1), 29-36.
- Iglesia, E. G., Kwan, M., Virkud, Y. V., & Iweala, O. I. (2024). Management of Food Allergies and Food-Related Anaphylaxis. *JAMA*, 331(6), 510-521.
- Jamshidovich, A. S. (2024). EFFECT INHALED GLUCOCORTICOIDS IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND BRONCHIAL ASTHMA. *TADQIQOTLAR*, 31(1), 171-180.
- Kang, N., Lee, K., Byun, S., Lee, J. Y., Choi, D. C., & Lee, B. J. (2024). Novel artificial intelligence-based technology to diagnose asthma using methacholine challenge tests. *Allergy, Asthma & Immunology Research*, 16(1), 42.
- Karkouli, G., Douros, K., Moriki, D., Moutsatsou, P., Giannopoulou, I., Maratou, E., & Koumpagioti, D. (2024). Dysfunctional Breathing in Children: A Literature Review. *Children*, 11(5), 556.
- Karunaratna, I., Kusumarathna, K., Jayathilaka, P., Rathnayake, B., Bandara, S., Abeykoon, M., ... & Withanagama, C. J. (2024). How to Recognize, Respond to, and Prevent Anaphylaxis: A Comprehensive Guide. *Uva Clinical Lab*. Retrieved from ResearchGate.
- Khosa, J. K., Louie, S., Lobo Moreno, P., Abramov, D., Rogstad, D. K., Alismail, A., ... & Tan, L. D. (2023). Asthma Care in the Elderly: Practical Guidance and Challenges for Clinical Management—A Framework of 5 “Ps”. *Journal of Asthma and Allergy*, 33-43.
- Korn, L. L., Kutuyavin, V. I., Bachtel, N. D., & Medzhitov, R. (2024). Adverse Food Reactions: Physiological and Ecological Perspectives. *Annual Review of Nutrition*, 44.
- Kumar, B., & Deshmukh, R. (2024). A Review on Novel Therapeutic Modalities and Evidence-based Drug Treatments against Allergic Rhinitis. *Current Pharmaceutical Design*, 30(12), 887-901.
- Leeuwstein, H., Kupers, E., Boelhouwer, M., Tondera, P., & van Dijk, M. (2024). A screening instrument for trauma-related behavior among young primary school students: development and validation of the RaPTOSS. *School Mental Health*, 1-20.
- Lin, F. R. (2024). Age-Related Hearing Loss. *New England Journal of Medicine*, 390(16), 1505-1512.
- Lucas Jr, J. T., Abramson, Z. R., Epstein, K., Morin, C. E., Jaju, A., Lee, J. W., ... & Hua, C. H. (2024). Imaging Assessment of Radiation Therapy-Related Normal Tissue Injury in Children: A PENTEC Visionary Statement. *International Journal of Radiation Oncology* Biology* Physics*, 119(2), 669-680.
- Markwat, J. V., van Leeuwen, J. C., & Kamps, A. W. A. (2024). Assessment of acute asthma in children: do parents and healthcare providers speak the same language?. *Journal of Asthma*, 1-7.
- Melani, A. S., Croce, S., Fabbri, G., Messina, M., & Bargagli, E. (2024). Inhaled Corticosteroids in Subjects with Chronic Obstructive Pulmonary Disease: An Old, Unfinished History. *Biomolecules*, 14(2), 195.
- Miles C, Arden-Close E, Thomas M, et al. Barriers and facilitators of effective self-management in asthma: systematic review and thematic synthesis of patient and healthcare professional views. *NPJ Prim Care Respir Med*. 2017;27(1):57. Published 2017 Oct 9. doi:10.1038/s41533-017-0056-4.
- Mindus, S., Gislason, T., Benediktsdottir, B., Jogi, R., Moverare, R., Malinovsky, A., & Janson, C. (2024). Respiratory symptoms, exacerbations and sleep disturbances are more common among participants with asthma and chronic airflow limitation: an epidemiological study in Estonia, Iceland and Sweden. *BMJ open respiratory research*, 11(1), e002063.
- Mohammadi, S. G., Kafeshani, M., Bagherniya, M., Kesharwani, P., & Sahebkar, A. (2024). Exploring Curcumin's Healing Properties in the Treatment of Atopic Dermatitis. *Food Bioscience*, 104144.
- Murtomäki, A., Helevä, A., Torkki, P., Haukka, J., Julkunen-Iivari, A., Lemmetyinen, R., ... & Toppila-Salmi, S. (2024). Comorbidities of chronic rhinosinusitis in children and adults. *Clinical and Translational Allergy*, 14(4), e12354.
- Narasimhan, G., Deshmukh, P. T., Gaurkar, S. S., & Khan, F. Q. (2024). A Comprehensive Review Exploring Allergic Rhinitis With Nasal Polyps: Mechanisms, Management, and Emerging Therapies. *Cureus*, 16(4).
- Nowrozy, R., Ahmed, K., Kayes, A. S. M., Wang, H., & McIntosh, T. R. (2024). Privacy preservation of electronic health records in the modern era: A systematic survey. *ACM Computing Surveys*.
- Palya, M., Chevere, J. M., Drum, M., Fowler, S., Nusstein, J., Reader, A., & Ni, A. (2024). Pain Reduction of Ibuprofen Sodium Dihydrate Alone and in Combination with Acetaminophen in an Untreated Endodontic Pain Model: A Randomized, Double-blind Investigation. *Journal of Endodontics*.
- Paul, J. (2024). Respiratory Tract Infections. In *Disease Causing Microbes* (pp. 99-148). Cham: Springer International Publishing.
- Rao, D., Singh, R., Kamath, S., Pendekanti, S., Pai, D., Kolekar, S., ... & Pathan, S. (2024). OTONet: Deep Neural Network for Precise Otoscopy Image Classification. *IEEE Access*.

- Rosenfeld, R. M., Brown, L., Cannon, C. R., Dolor, R. J., Ganiats, T. G., Hannley, M., ... & Witsell, D. L. (2006). Clinical practice guideline: acute otitis externa. *Otolaryngology–Head and Neck Surgery*, 134, S4-S23.
- Schwartz, K. (2024). Medically Complex Child: Best Practice Toolkit for Improving Coordination of Care Between Parents, Providers, and Support Systems.
- Werfel, K. L., & Lund, E. A. (2024). Effects of Integrating Different Types of Physical Activity into Virtual Rapid Word Learning Instruction for Children Who Are Deaf and Hard of Hearing. *Topics in Language Disorders*, 44(2), 96-110.
- Wojas, O., Krzych-Fałta, E., Furmańczyk, K., Dziewa-Dawidczyk, D., Samoliński, B., & Samel-Kowalik, P. (2024). Co-occurrence of otitis media with effusion and another environment-dependent disease (selected allergic conditions). *Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii*, 41(1), 78-84.
- Yoon, S., Kim, H. R., Kim, S. W., & Yu, H. (2024). Fever lasting 48 hours as a predictive factor of ESBL-producing bacteria in non-critically ill patients with urinary tract infection. *Scientific Reports*, 14(1), 10897.
- ZOKIROVNA, B. B., RAHMANOVNA, A. Y., & OGLU, M. D. J. (2024). DRUG ALLERGIC REACTIONS: CURRENT VIEWS. *Ta'lim innovatsiyasi va integratsiyasi*, 18(5), 56-70.