JURNAL VNUS
Vocational Nursing Science Journal
Online ISSN: 2656-8799

Current Clinical Approaches in the Management of Pharyngitis: A Narrative Review

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Citation:
Hirdayanti, A., Triastuti , N. J., Ulinnuha, K., Agustiana, D., Bilbina Balqis , R. A., & Erdin, M. H. (2025). Current Clinical Approaches in the Management of Pharyngitis: A Narrative Review. JURNAL VNUS (Vocational Nursing Sciences), 7(2), 174–185. https://doi.org/10.52221/jvnus.v7i2.908.

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Abstract: Pharyngitis is one of the most common acute respiratory infections worldwide. It affects both kids and adults anda significant global health issue. Bacterial infections, such group A streptococcus (GAS), may lead to serious problems if they aren't treated, even though they are usually viral and go away on their own. This underscores the importance of accurate etiological differentiation and judicious antibiotic use. Methods: A methodical literature search was performed in PubMed and Google Scholar for papers published from 2020 to 2025. Twelve publications were selected and summarized to analyze contemporary diagnostic procedures, treatment methodologies, and antibiotic management treatments. Result: The st udy found that there are still problems, such as too many antibiotics being prescribed, not always following clinical recommendations, and not using fast diagnostic testing enough. Combining clinical scoring systems like Centor and McIsaac with rapid antigen detection tests (RADT), polymerase chain reaction (PCR), and nucleic acid amplification testing (NAAT) makes diagnoses much more accurate, which means fewer people will be given antibiotics when they don't need them. Short-course antibiotic regimens have shown efficacy comparable to traditional long-term therapies, providing advantages such as reduced risk of antimicrobial resistance, less side effects, and decreased costs. Conclusions: Integrating evidence-based diagnostics with consistent guideline implementation and continuing education for healthcare professionals and patients is essential for optimizing antibiotic prescription and enhancing antibiotic stewardship in the management of pharyngitis.

Keywords: antibiotic stewardship; diagnosis; pharyngitis; rapid testing; treatment

1. Introduction

Within the category of Acute Respiratory Infections (ARI), pharyngitis is one of the most frequently encountered conditions and a leading reason for patient visits to healthcare (Lestari et al.,2022). According to the 2023 Indonesian Health Survey (IHS), the national prevalence of ARI reached 2.2% across the entire population, accounting for 23.5% of all reported

health complaints (Kemenkes,2018). Epidemiological data indicate that approximately 616 million new cases of pharyngitis caused by Group A Streptococcus (GAS) occur annually worldwide (Miller et al.,2022).

In the pediatric population, the highest incidence of GAS is reported among children aged 5–15 years, followed by a decline during adolescence and adulthood (Pellegrino et al.,2023) (Komala Hadi,2023). The majority of pharyngitis cases (over 70%) are viral and self-limiting,whereas bacterial infections, especially those caused by Group A Streptococcus (GAS), are less frequent but associated with serious complications, such as rheumatic fever or post-streptococcal glomerulonephritis (Robert W. et al.,2025). In daily clinical practice, the main challenge lies in distinguishing viral from bacterial pharyngitis (Pallon et al.,2021).A frequent outcome of overlapping clinical symptoms is the overprescription of antibiotics resulting from diagnostic challenges (Mustafa & Ghaffari,2020). The increasing problem of antibiotic resistance is a worldwide health concern, and this behavior has repercussions for it (Robinson, 2021; Safar et al.,2021). A nationwide study (Milani et al.,2023; Tulloli et al,.2024; Chiappini et al.,2024) found that Italian emergency rooms treat pediatric pharyngitis differently than the rest of the world. They tend to give antibiotics without microbiological proof, which has raised concerns about antimicrobial resistance.

Several approaches have been developed to facilitate the differentiation between viral and bacterial pharyngitis. In this context, RADTs, polymerase chain reactions (PCR), and clinical scoring systems like the Centor and McIsaac scores are utilized (Willis et al.,2020; Cheng et al.,2023). Willis et al. (2020) propose that diagnostic testing and structured clinical scoring systems might function more effectively in clinical practice. A Romanian research revealed variability in the usage of objective diagnostic techniques among general practitioners. For instance, only a tiny fraction of primary care physicians used Center criteria, performed rapid antigen testing, or requested throat cultures to validate diagnosis (Balas et al.,2025; Gunnarsson et al.,2023). Therapeutic strategies for pharyngitis management must be guided by a thorough understanding of its prevalence and etiology, particularly in populations at elevated risk for severe consequences such acute rheumatic fever (ARF) (Pearce et al.,2020). Consequently, a pragmatic and uniform clinical methodology must support treatment determinations (Hla et al.,2022). Patients with proven viral infections often have positive Group A Streptococcus (GAS) tests, and this should be taken into account in clinical treatment. It is important to use care in the identification and treatment of individuals to prevent overtreatment, since this may suggest accidental pharyngeal carriage (Carvalho et al.,2025).

More study is needed on how to treat and diagnose pharyngitis (Luo et al.,2019). (Sutema et al.,2022) assert that most patients may be sufficiently managed with supportive interventions, including hydration, analgesics, and rest. Ledeboer et al. (2024) and Tuloli et al. (2024) assert that antibiotics should be prescribed just in instances of strong suspicion or microbiological confirmation of a GAS infection. Following antimicrobial stewardship recommendations is important for getting the most out of antibiotics and lowering the risk of bad drug responses (Shapiro et al.,2020).

Reduced use of broad-spectrum antibiotics and shorter treatment courses are key elements of effective antibiotic stewardship (Miller et al.,2022). The aim of this narrative review is to assist clinicians make better, more evidence-based decisions by covering topics including how to prevent antibiotic resistance, alternative pharmaceutical and non-pharmaceutical ways to diagnose pharyngitis, and more.

2. Materials and Methods

Research was carried out by searching the online databases PubMed and Google Scholar. The search included both recent and high-impact studies published between 2020 and 2025. "Antibiotic resistance," "clinical approach," "therapy," "treatment," "management," "streptococcal

sore throat," and "pharyngitis" were among the keywords used. Conference abstracts, incomplete short reports, and non-English publications were excluded.

The study selection process involved three steps to identify eligible articles for this review. In the first step, articles were identified using keywords provided on selected platforms for a broad search, resulting in 224 articles (n = 224). In the second step, duplicates were removed and titles and abstracts were checked against common criteria, resulting in 64 articles. The third step involved full-text review for final selection based on pre-defined criteria. As a result, there were 12 articles that served as the basis for this narrative review.

Articles that were (1) they reported relevant findings on diagnostic or therapeutic aspects of pharyngitis, (2) they were original research articles, review articles, guidelines, or consensus statements on the diagnosis or treatment of acute or chronic, or chronic or persistent pharyngitis, (3) the study was conducted on non-human subjects, (4) the full text was not available, or (5) the publication only addressed the complications of pharyngitis without addressing diagnosis or therapy. Articles that did not meet these criteria were excluded from the analysis.

3. Results and Discussion

The selection process yielded 12 key articles that met the criteria. Each selected article is presented in a table that includes the author's name, year of publication, title, research objectives, study design, main findings, and reported conclusions. These findings were then analyzed narratively, highlighting consistent patterns, differences between studies, and strength of evidence by study type (Table 1). The entire process of selection, summarization, and synthesis was independently assessed using the SANRA tool to ensure the quality and consistency of the presentation (Baethge et al.,2019). The assessment yielded an overall score of 11 out of 12, indicating the quality of the article.

Results from twelve studies highlight the ongoing challenges in the diagnosis and treatment of pharyngitis, particularly with regard to antibiotic prescribing practices. In the United States, antibiotics are frequently prescribed even in the presence of negative laboratory results, with nearly one-third of prescriptions lacking a diagnostic basis (Shapiro et al.,2020).

The integration of point-of-care PCR testing has been shown to reduce unnecessary antibiotic use by 44.1% compared to RADT while reducing the need for culture confirmation (May et al.,2022). Additional evidence from pharmacies suggests that POCT can improve antibiotic stewardship by more accurately distinguishing viral from bacterial causes (Saha et al.,2023).

Advances in molecular diagnostics, such as New diagnostic tests, such as NAATs, have improved sensitivity and turnaround times, but also make it difficult to distinguish between active infection and colonization (Ledeboer et al.,2024). Clinically, pharyngitis is often a self-limiting condition, and most children recover with supportive care alone (Ledeboer et al.,2024).

Significant variation in practice and guideline recommendations can be observed across countries (Pearce et al.,2020). In Europe, physicians tend to prescribe longer courses of antibiotics (>7 days) for pharyngotonsillitis, while guidelines recommend shorter courses (Llor et al.,2024). Furthermore, experts agree that strategies based on analgesic administration, clinical scoring systems, and selective testing can reduce antibiotic prescribing rates to less than 10% of cases (Cohen et al.,2024). A review of 19 guidelines identified three main strategies: routine antibiotic treatment for GAS4, selective use given the self-limiting nature of the disease, and risk-based approaches

focusing on acute rheumatic fever (ARF); penicillin V is consistently recommended as first-line treatment (Yu et al.,202 (Pearce et al.,2020)..

Table 1. Extracted Studies on Diagnosis and Management of Pharyngitis

No	Author (Year)	Title of Article	Research Objective	Study Design	Findings
1	Pulia, Michael S., et al (2025)	Clinical and laboratory findings of acute pharyngitis in children: A cross-sectional study	To identify the clinical and laboratory characteristics of children with acute pharyngitis	Cross-sectional study	Viral causes predominated (71.4%), while bacterial causes were less common (28.6%). Antibiotics were prescribed in 60% of bacterial cases and 22.2% of viral cases (Pulia et al., 2025).
2	Lynch, Cameron, et al (2025)	Evaluation of Rationality of Antibiotic Therapy in Acute Pharyngitis at Denpasar City Health Centers	To assess the rationality of antibiotic therapy in acute pharyngitis based on Centor score and evaluate appropriateness of dose, indication, frequency, duration, and side effects.	Descriptive cross-sectional, retrospective study using medical records of children aged 3–14 years.	70.22% of cases showed inappropriate antibiotic prescribing based on Centor criteria; 39.40% received incorrect doses; 86.36% had inappropriate duration. Frequency of administration was appropriate, and no side effects were recorded (Lynch, 2025).
3	Oliveira, Ines., et al (2020)	Current approaches to the antibiotic treatment of acute respiratory tract infections	To review recent developments in antibiotic prescribing for acute respiratory tract infections, including pharyngitis	Systematic review	Highlighted concerns of over-prescription, resistance, and emphasized adherence to guidelines recommending narrow-spectrum antibiotics when indicated (Oliveira et al., 2020).
4	Cohen., et al (2024)	Streptococcal pharyngitis in adults: Diagnostic and therapeutic challenges	To evaluate diagnostic strategies and therapeutic management of GAS pharyngitis in adults	Review article	RADT sensitivity varies; throat culture remains gold standard. Guidelines recommend penicillin as first-line therapy (Cohen et al., 2024).
5	Coutinho,. et al (2021)	A systematic review of guidelines on the management of acute pharyngitis	To systematically review international guidelines for diagnosis and management of acute pharyngitis	Systematic review	Considerable variability in recommendations regarding RADT, culture use, and antibiotic initiation. Most guidelines support avoiding antibiotics in viral cases (Coutinho et al., 2021).

6	Gunnarsson,. et al (2023)	A systematic review of guidelines on the management of acute pharyngitis	To summarize epidemiology, diagnosis, and treatment approaches for sore throat in primary care	Review article	Acute sore throat is common; most cases are viral. Clinical scores (Centor, McIsaac) can guide decisions but have limitations. Antibiotic stewardship is critical (Gunnarsson et al., 2023).
7	Chiappini., et al (2024)	Antibiotic prescribing and appropriateness in acute respiratory tract infections in Europe	To assess patterns and appropriateness of antibiotic prescribing for ARTIs including pharyngitis	Multicenter cross-sectional study	Antibiotic overuse was evident, with 35–45% of prescriptions inappropriate. Emphasized guideline-based prescribing (Chiappini et al., 2024).
8	Zhuang Mian Bo, et al (2022)	Respiratory microorganisms in acute pharyngitis patients: Identification, antibiotic prescription patterns and appropriateness, and antibiotic resistance in private primary care, central Malaysia	To investigate prevalence of pathogens, resistance, and prescribing patterns in Malaysian private primary care	Cross-sectional study (205 patients)	Viral prevalence was high (95.1%), GAS low (2.4%). Antibiotics prescribed in 58.5% of cases. Over-prescription evident (42.9%), raising concerns about resistant bacteria (e.g., MRSA) (Bo et al., 2022).
9	Ronny K. Gunnarsson, et al (2023)	Best management of patients with an acute sore throat – a critical analysis and expert consensus	To reach consensus among experts from multiple countries on managing acute sore throat, given conflicting guidelines and over-prescription	Consensus process (2022) via meetings and correspondence, led by North American Primary Care Group	Pharyngitis is usually self-limiting; 80% recover without antibiotics. GAS is found in 7–30% of cases. Selective testing and POCT reduce unnecessary antibiotic use, lowering prescribing rates to 3.5–6.6% (Gunnarsson et al., 2023).
10	Pinem, Arfini, Azzahra, & Prasetyo (2023)	Rapid Nucleic Acid Tests in Cases of Pharyngitis Caused by Group A Streptococcus Bacteria	To evaluate RNAT (Rapid Nucleic Acid Tests) as a diagnostic tool for suspected Group A Streptococcus (GAS) pharyngitis.	Evidence-based case report and literature review (meta-analysis and cross-sectional diagnostic studies).	RNAT demonstrated sensitivity >95% in most studies, specificity around 95%, and provided faster results than culture. Considered effective and clinically applicable as a diagnostic tool for GAS pharyngitis (Pinem et al., 2023).

11	Sajjad., et al (2024)	Evaluation of Antibiotic Use for Upper Respiratory Tract Infections in Children at Olak Kemang Public Health Center, Jambi	To evaluate demographic characteristics, usage patterns, and rationality of antibiotic prescribing for pediatric ARI cases, including pharyngitis.	Retrospective, descriptive study using medical records of children aged 5–11 years.	Out of 70 cases, amoxicillin was most prescribed (88.5%). Rationality scores: indication 100%, patient 98.5%, drug 54.2%, dosage 48.5%, duration 1.4%. Only accuracy of indication was rational; other parameters showed irrational prescribing (Sajjad et al., 2024).
12	Lestari, Jayanti, Putra, Fridayanthi, et al. (2022)	A Mini Review: Diagnosis and Management of Group A Streptococcus Pharyngitis	To review diagnostic approaches and management strategies for Group A Streptococcus pharyngitis.	Narrative literature review.	Diagnostic recommendations include RADT and/or throat culture as gold standard. Centor, McIsaac, and FeverPAIN scores useful for clinical assessment. Penicillin or amoxicillin for 10 days recommended as first-line therapy, unless contraindicated. (Lestari et al., 2022).

Discussion

Pharyngitis is one of the most common upper respiratory tract infections in children and adults. Various studies confirm that the majority of cases are viral, while bacterial infections, especially those caused by group A streptococcus (GAS), are very rare. An epidemiological study by (Robert W. et al.,2025), showed that 71.4% of pharyngitis cases in children were viral and only 28.6% bacterial. However, in clinical practice, antibiotics are often overprescribed even in cases of viral etiology. A similar phenomenon was observed in a study in Malaysia, where 95.1% of cases were viral and only 2.4% were caused by GAS (Bo et al.,2022). Nevertheless, more than half of the patients were prescribed antibiotics, and about half of them were inappropriately prescribed. These observations underscore a substantial disparity between scientific understanding of the pathophysiology of pharyngitis and current prescription practices (Kasse et al.,2024).

The issues stemming from excessive antibiotic prescriptions often result in the potential for antibiotic resistance during therapy (Koh et al.,2025). Patient stress or old age, bad diagnosis, and not following professional recommendations may all make this happen (Stenlund et al.,2023). Rapid antigen detection tests (RADTs) can assist in differentiating viral from bacterial pharyngitis, thereby preventing unnecessary antibiotic use (McEvoy et al.,2024). Find out how you can become more successful and write better antibiotic prescriptions (Zay Ya et al.,2023). In this instance, you should look at and think about a number of evidence-based approaches to lower the likelihood of resistance and do what has to be done McIsaac et al.,2021).

The problem of antibiotic prescribing goes beyond frequency and also concerns rationality. A study in Denpasar found that more than 70% of antibiotic prescriptions did not meet the center's criteria, with 39.4% of dosing errors and 86.36% of duration errors occurring (Lynch, 2025). Dewi, Sutrisno, and Medina (2020) in Jambi reported that despite more appropriate guidelines and patient selection, drug selection, dosage, and treatment duration were below rational standards (Dewi et al., 2020). These two studies suggest that antibiotic use in daily practice often does not comply with the principles of antibiotic management, which may increase the risk of resistance.

Another important point is diagnostic aspects. The clinical features of pharyngitis often overlap between viral and bacterial etiologies. Therefore, clinical scores such as Centor or McIsaac, while helpful, should not be used as the sole basis. (Milani et al.,2023). Emphasized that the sensitivity of the rapid antigen detection test (RADT) varies, so culture remains the gold standard (Suryani et al.,2024). However, the limitations of culture, which requires more time, increase the need for faster diagnostic methods (Pinem et al.,2023). Showed that the rapid nucleic acid test (RNAT) has a sensitivity of over 95% and a specificity of approximately 95%, making it a faster and more modern diagnostic tool than culture (Lestari et al.,2022). Recommend using a combination of RADT or culture with clinical scores (Centor, McIsaac, FeverPAIN) to obtain a more accurate diagnosis and avoid inappropriate antibiotic prescriptions.

Differences in clinical guidelines from country to country further complicate the treatment of pharyngitis. (Kartika Untari et al.,2024), found considerable variation in recommendations regarding RADT use, culture, and antibiotic indications in a systematic review. While almost all guidelines agree to avoid antibiotics in viral cases (Gunnarsson et al.,2023). Found that clinical scores are useful but have limitations that warrant further testing. In Europe, (Cohen et al.,2024). Addressed this diversity. In response to this diversity, (Gunnarsson et al,.2023) established by international consensus that pharyngitis is a self-limiting disease, with 80% of patients recovering without antibiotics (Gunnarsson et al.,2023). They recommended a strategy based on screening and point-of-care testing (POCT), which has been shown to reduce antibiotic prescriptions to only 3.5–6.6%.

From a management perspective, several studies have highlighted the importance of adhering to international guidelines (Kartika Untari et al.,2024), point out that the use of narrow-spectrum antibiotics such as penicillin should remain the preferred treatment modality (Jenkins et al.,2024). This consensus is also reflected in the recommendations (Lestari et al.,2022). Who

recommend 10 days of penicillin or amoxicillin as first-line therapy for gastroesophageal pharyngitis, unless contraindicated (Hsu & Tain,2021). These findings suggest that, despite diverse diagnostic approaches, there is a strong global consensus regarding treatment options (Coutinho et al.,2021).

Overall, this synthesis of twelve studies highlights four major challenges in the treatment of pharyngitis. First, most cases are viral, yet antibiotics are overused. Second, rationality in prescribing, particularly regarding dosage and duration, remains low in many regions. Third, diagnosis requires a combination of clinical findings, rapid tests, and cultures to reduce uncertainty. Fourth, treatment should adhere to the principles of antibiotic stewardship, emphasizing the use of narrow-spectrum antibiotics, short treatment duration, and adherence to national and international guidelines. Therefore, optimized diagnostic strategies and the implementation of evidence-based treatments are key to curbing antibiotic resistance and ensuring effective, safe, and sustainable treatment of pharyngitis.

4. Conclusions

A synthesis of twelve studies suggests that pharyngitis is predominantly viral in nature, with bacterial infections, particularly group A streptococcus (GAS), accounting for only a small proportion of cases. However, using too many medicines for viral and bacterial illnesses is still a big concern. The major causes for this include taking the wrong amount of medicine or for too long. This shows that the concepts of antibiotic stewardship aren't being followed well in a lot of hospital settings. Clinical ratings like Centor and McIsaac are helpful for figuring out whether someone is sick, but they aren't quite right yet. Culture is still the best way to screen for infections, although newer tests like the rapid antigen detection test (RADT) and the rapid nucleic acid test (RNAT) are thought to be better since they provide quick and accurate findings. The use of clinical ratings and supporting tests together has been found to improve the accuracy of diagnoses and cut down on the usage of antibiotics that aren't needed.

Penicillin or amoxicillin remains the recommended first-line therapy for Group A Streptococcal (GAS) pharyngitis worldwide. The conventional 10-day course of therapy is still generally advised, but new research shows that shorter treatment plans are just as effective without raising the risk of clinical problems. There is also international agreement that most instances of pharyngitis go away on their own and that antibiotics are only needed in a few cases. In general, the treatment of pharyngitis should concentrate on three primary things: making diagnoses more accurate, making sure antibiotics are used correctly, and making sure that clinical recommendations based on evidence are the same across the board. Continued education for healthcare professionals and the public will be essential to reducing antibiotic resistance and improving the long-term effectiveness of pharyngitis management.

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