

Critically Appraised Topic (CAT): Acute Cholangitis and Antibiotic Duration

Specific Care Question

In pediatric patients with underlying liver disease, such as biliary atresia, and acute cholangitis without bacteremia, does a longer antibiotic course (>14 days) compared to a shorter course (≤14 days) reduce treatment failure or complication rates while maintaining clinical resolution?

Rationale for Question Asked

Antimicrobial therapy is central to the management of acute cholangitis. However, optimal antibiotic duration in pediatric patients with underlying liver disease remains undefined.¹⁻³ Current practice demonstrates wide variation, with frequent prolongation of therapy based on perceived relapse risk, prior recurrence, or biliary anatomy rather than evidence.¹⁻³ Many children continue intravenous antibiotics despite defervescence and normalization of laboratory values.¹⁻³ This approach increases the risk of antimicrobial resistance, microbiome disruption, and catheter-related harm.¹⁻³

Guidance on antibiotic duration largely relies on adult data or expert opinion.³⁻⁵ Adult studies support shorter courses following clinical improvement and source control.^{4,5} However, pediatric cholangitis differs from adult disease in etiology, immune response, and recurrence risk.¹⁻³ In addition, many children lack a clearly correctable obstructive source.¹⁻³ These differences limit the direct application of adult findings and leave clinicians without clear guidance on safe and effective antibiotic duration.

Children with underlying liver disease experience high cumulative antibiotic exposure.¹⁻³ The lack of pediatric-specific evidence on antibiotic duration represents a critical knowledge gap. Addressing this gap would support antimicrobial stewardship, reduce avoidable harm, and strengthen clinical decision-making. A focused review of existing pediatric data is needed to clarify what is known and to identify where evidence remains limited.

The intent of this review is not to provide a clinical recommendation, but rather to summarize the available evidence to inform clinical decision-making. Such decisions should consider not only the evidence presented but also potential benefits and harms, patient and family values, feasibility, and acceptability within clinical practice.

Evidence Gaps

Available pediatric literature on cholangitis, particularly in populations such as those with biliary atresia or post-Kasai patients, primarily focuses on epidemiology, risk factors, diagnosis, and severity rather than on treatment duration. Antibiotic duration recommendations are largely extrapolated from adult data, which do not provide pediatric-specific or nonbacteremic-specific duration guidance.³⁻⁵

Study characteristics.

The literature search time frame was determined a priori based on disease-specific guidelines, with the intent of capturing evidence most relevant to current guideline-informed practice. The search for suitable studies was completed on February 12, 2026. A. Wirtz screened the 130 titles and/or abstracts identified through the search and selected two guidelines, five secondary reviews, and six primary studies for full-text review.^{1,3-15} The literature was further evaluated to identify additional studies that might address the question of interest. Through this reference searching, 15 additional articles were obtained for full-text review.^{2,16-29}

Following a detailed evaluation, none of the included articles directly addressed the specific question of interest.³⁰ Specifically, no studies compared longer-course antibiotic duration (>14 days) with shorter-course antibiotic duration (≤14 days). The identified guidelines were based primarily on adult literature, while the eligible primary studies focused on comparisons between culture-positive and culture-negative cholangitis, mild or moderate versus severe cholangitis, simple versus intractable cholangitis, bile samples from patients with and without cholangitis, or outcomes associated with prolonged (> 6 weeks) antibiotic therapy.

Identification of Studies

Search Strategy and Results (see Figure 1)

- 1) "Cholangitis"[Mesh] OR cholangitis[tiab] OR cholangitis[tw]

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- 2) "Anti-Bacterial Agents"[Mesh] OR "Antibiotic Prophylaxis"[Mesh] OR antibiotic*[tiab] OR antibiotic*[tw]
 - 3) ("Biliary Atresia"[Mesh] OR "biliary atresia" OR "Liver Diseases"[Mesh] OR "liver disease" OR hepatoportoenterostomy OR portoenterostomy OR "Portoenterostomy, Hepatic"[Mesh] OR "chronic liver disease" OR "chronic hepatic disease") NOT "Chemical and Drug Induced Liver Injury"[Mesh]
 - 4) #1 AND #2 AND #3
 - 5) #4 NOT (elderly OR geriatric OR gerontology)
 - 6) #5 limited to 2011-2026
- Search Dates: 2011-Current
 Records identified through database searching, $n = 130$
 Additional records identified through other sources, $n = 15$

Studies Not Included in this Review with Exclusion Rationale

Citation	Reason for exclusion
Aziz et al. (2025)	Wrong comparator: Compared infants with culture-positive cholangitis to culture-negative cholangitis
Baek et al. (2020)	Wrong comparator: Compared children who developed cholangitis to children who did not
Calinescu et al. (2022)	Descriptive review
Calinescu and Wildhaber (2024)	Descriptive review
Cheung et al. (2018)	Descriptive review
Chung et al. (2018)	Wrong comparator: Compared children with simple cholangitis to those with intractable cholangitis
Chung et al. (2020)	Wrong comparator: Compared children following Kasai portoenterostomy across two historical periods (1980–2007 vs. 2008–2016) with heterogeneous surgical timing and prophylaxis protocols
Chung et al. (2021)	Wrong comparator: Examined survival outcomes following Kasai portoenterostomy without relevant treatment or route comparison
de Vries (2011)	Descriptive review (thesis)
El-Shabrawi and Kamal (2011)	Descriptive review
Forster et al. (2023)	Wrong comparator: Compared bile samples from children meeting criteria for acute cholangitis with those not meeting criteria
Gomi et al. (2017)	Guidelines based primarily on adult literature (antimicrobial therapy)
Haal et al. (2020)	Wrong population: Systematic review combining adult and pediatric studies without stratified analysis; included bacterial acute cholangitis
Jeropoulos et al. (2024)	Descriptive review
Johnson et al. (2021)	Wrong population: Adult-only study
Kogure et al. (2011)	Wrong comparator: Compared moderate versus severe cholangitis
Lee et al. (2014)	Wrong outcome: Focused on causative organisms and cost of care rather than treatment strategy
Liu et al. (2019)	Wrong comparator: Compared children who experienced cholangitis to those who did not
Mahajan et al. (2023)	Wrong population: Intractable cholangitis treated with prolonged (> 6 weeks) IV antibiotics
Miura et al. (2018)	Guidelines based primarily on adult literature (treatment of acute cholangitis)

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Pandurangi et al. (2023)	Wrong comparator: Historical comparison of infants undergoing Kasai portoenterostomy with differing surgical timing and prophylaxis protocols
Ramachandran et al. (2019)	Wrong comparator: Compared children who developed cholangitis after Kasai portoenterostomy to those who did not
Salvador et al. (2017)	Wrong comparator: Compared children who developed cholangitis to those who did not
Samanta and Sarma (2025)	Descriptive review
Shin et al. (2011)	Wrong population: Children with intractable cholangitis receiving home-based IV antibiotic therapy
Stagg et al. (2017)	Wrong comparator: Compared the management of biliary atresia between surgeons and gastroenterologists
Wang et al. (2023)	Wrong comparator: Compared mild versus severe cholangitis using heterogeneous broad-spectrum antibiotic regimens and adjunctive therapies

Question Originator

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Findings from this review were presented to the question originator, K. Berg, MD, FAAP, and J. Dusin, PhD, RD, CPHQ, on March 23, 2026.

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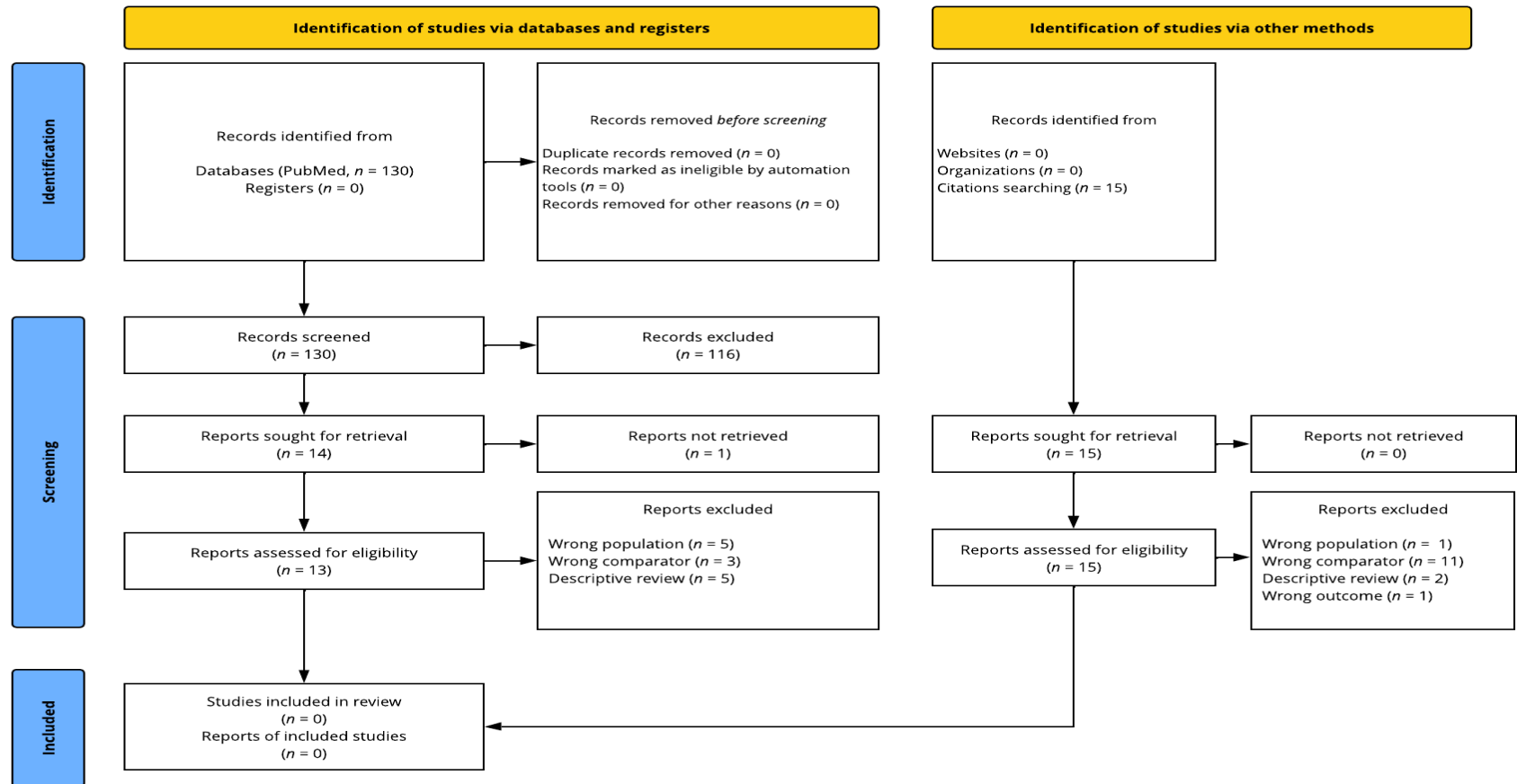
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Figure 1. PRISMA 2020 Flow Diagram of Study Selection

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)³¹



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. doi:10.1136/bmj.n71

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