

Critical Review Form

Meta-analysis

[de Korte N, Unlü C, Boermeester MA, Cuesta MA, Vrouwenreats BC, Stockmann HB. Use of antibiotics in uncomplicated diverticulitis. Br J Surg. 2011 Jun;98\(6\):761-7.](#)

Objectives: "to investigate the overall effect of antibiotics in the treatment of diverticulitis, the effect of administration route and the effect of different types of antibiotic in the treatment of acute mild (uncomplicated) diverticulitis of the sigmoid colon in adult patients." (pp. 761-762)

Methods: This systematic review was conducted using the [Preferred Reporting Items for Systematic Reviews and Meta-Analyses \(PRISMA\) guidelines](#). MEDLINE, Embase, the Cochrane Database of Systematic Reviews, the Cochrane Clinical Trials Register, and the Database of Abstracts on Reviews and Effectiveness (DARE) were searched (last search on June 1, 2010) for articles published in English, German, or Dutch. The bibliographies of relevant articles were also searched to identify additional studies. All comparative trials evaluating conservative treatment of uncomplicated diverticulitis of the sigmoid colon to the use of antibiotics in adults (over 18 years of age) were included. They included studies comparing antibiotics to observation alone, different types of antibiotics, and oral versus intravenous antibiotics. Two authors independently assessed for bias using the [Jadad score](#).

The search resulted in a total of 549 articles from all databases. Only four of these were found to specifically address the use of antibiotics in mild colonic diverticulitis and met inclusion criteria. Two of these were randomized controlled trials and two were cohort studies. For the specific comparison of observation without antibiotics to antibiotics, no randomized controlled trials were found. A single retrospective case-control study was identified ([Hjern 2007](#)).

Guide	Question	Comments
I	<i>Are the results valid?</i>	
1.	Did the review explicitly address a sensible question?	Yes. Antibiotics have been the mainstay of management in uncomplicated diverticulitis for decades. Given the rising rate of antibiotic resistance, the risk of C. diff infection, and the cost associated with hospitalization for IV antibiotics, it is admirable that the authors chose to look at this evidence and ask whether antibiotics are beneficial at all, and if so, what route provides the best outcomes.
2.	Was the search for	Yes. MEDLINE, Embase, the Cochrane Database of

	relevant studies detailed and exhaustive?	Systematic Reviews, the Cochrane Clinical Trials Register, and the Database of Abstracts on Reviews and Effectiveness (DARE) were searched, as were the bibliographies of relevant articles. Unpublished data, such as from conference abstracts, was not included.
3.	Were the primary studies of high methodological quality?	No. Only two of the identified studies were RCTs. For the comparison of antibiotics to no antibiotics, a single retrospective cohort study was identified. In this study, group allocation was made at the discretion of the treating physician, resulting in a significant imbalance in baseline characteristics. There was significant loss to follow-up in this study (~20%).
4.	Were the assessments of the included studies reproducible?	No. The authors used the Jadad score to evaluate for bias in RCTs, but did not use any reproducible system to evaluate for bias in the two cohort studies they identified, such as the ROBINS-I (Risk of Bias in Non-randomized Studies - of Interventions) tool .
II.	<i>What are the results?</i>	
1.	What are the overall results of the study?	<ul style="list-style-type: none"> • Four guidelines were identified from the Society for Surgery of the Alimentary Tract, the American Society of Colon and Rectal Surgeons, the European Association for Endoscopic Surgery, and the American College of Gastroenterology, all of which recommended the use of antibiotics without referencing any original research. • In the single case-control study comparing antibiotics with no antibiotics: <ul style="list-style-type: none"> ○ Success rate was similar between the two groups: 97.5% in the antibiotics group vs. 96.4% in the no antibiotics group. This resulted in an odds ratio for success of treatment without antibiotics of 1.44 (95% CI 0.37 to 5.69). ○ Time to recovery was similar between the two groups. ○ Hospital stay was significantly shorter in the no antibiotics group: median 3 vs. 5 days, $p < 0.001$). ○ The risk of a recurrent event during follow-up was similar between the two groups: 29% in the antibiotics group vs. 28% in the no antibiotics group. Multivariable analysis showed that the risk of a further event was not influenced by whether or not the patients received antibiotics: OR 1.03 (95% CI 0.61-1.74).
2.	How precise are the	See above.

	results?	
3.	Were the results similar from study to study?	N/A. Only one study was identified.
III.	<i>Will the results help me in caring for my patients?</i>	
1.	How can I best interpret the results to apply them to the care of my patients?	There is currently very limited evidence to either support or refute the use of antibiotics in the management of uncomplicated diverticulitis. Currently, guidelines unanimously recommend the use of antibiotics, albeit based on no evidence whatsoever. The results of a single, non-randomized, case-control study demonstrated that in patients selected by clinical discretion to not receive antibiotics, outcomes were good overall, and were similar to outcomes in those chosen to receive antibiotics. This suggests that there are at least some patients with uncomplicated diverticulitis that can be safely treated without antibiotics. Further research should seek to identify those patients that do not benefit from antibiotics and should demonstrate similar outcomes in such patients compared to antibiotic administration.
2.	Were all patient important outcomes considered?	No. The authors were forced to rely on the outcomes reported in the study. The primary outcome was "success rate," but this was somewhat poorly defined and open to significant bias. Cost, quality of life, and patient satisfaction were not considered.
3.	Are the benefits worth the costs and potential risks?	Uncertain. Based on the limited data available, it is impossible to draw any firm conclusions. For now, it seems most prudent to continue to treat uncomplicated diverticulitis with antibiotics as per the current recommendations.

Limitations:

- 1. The authors did not search for unpublished data, which would increase the risk of [publication bias](#).**
- 2. Only one study addressing our clinical question was identified, making a meta-analysis impossible. The results of a single trial rarely, if ever, change clinical practice.**
- 3. See the answer key for the single article [here](#) for a detailed critical appraisal.**

Bottom Line:

This systematic review of antibiotics in the management of acute diverticulitis was able to identify only one article addressing the clinical question of whether routine antibiotics are necessary. This single article was not randomized, resulting in a significant imbalance in baseline prognostic factors between the group. Overall, patients treated with antibiotics fared well, suggesting that there may be select patients with uncomplicated diverticulitis for whom antibiotics are unnecessary.