

# Comparing Antibiotics and Surgery for Appendicitis

## A PLAIN LANGUAGE SUMMARY OF

The CODA Collaborative. A Randomized Trial Comparing Antibiotics with Appendectomy for Appendicitis. N Engl J Med. DOI: 10.1056/NEJMoa2014320.

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## What was this study about?

Appendicitis occurs when the appendix, a part of the intestine, becomes infected. Appendicitis stomach pain on the right side. In the United States (US), appendicitis is usually treated with surgery to remove the appendix. This surgery is called an appendectomy. In Europe, patients with appendicitis are sometimes treated with antibiotics instead of surgery.

The two treatments differ in important ways. An appendectomy is surgery that requires general anesthesia. With antibiotics, patients receive medicine through an IV and then take pills for 10 days and may not require hospitalization for their initial treatment. Both treatments require a few days to recover. After surgery, the appendix is gone, and there's no chance of getting appendicitis again. After antibiotics, infection could happen again.

In this study, the team compared the two treatments to learn more about the treatment effects in a large number of US patients. The team also wanted to learn how patients felt about the two treatments. The study was called the CODA Trial (Comparison of Outcomes of antibiotic Drugs and Appendectomy, CODAStudy.org).

## What did the study team find?

The CODA study is still collecting information from all patients, but first results are available. In the short term, antibiotics were as good as surgery based on a measure of overall health. The time until symptoms of appendicitis were gone was similar in both groups.

In the group of patients that got antibiotics, 3 in 10 patients had to have surgery within 90 days. Some of these patients had an appendicolith, or stone in their appendix. About 4 out of 10 of these patients had surgery within 90 days. Patients with stones also had a higher rate of complications, like infections after treatment.

Patients who took antibiotics visited the emergency room and hospital more than those who had surgery. However, patients who took antibiotics missed fewer days of work.

After the study is complete, there will be information about how patients are doing in the years after they chose antibiotics or surgery.

## What did the study team do?

The study team enrolled 1552 adults with appendicitis at 25 medical centers across the US. Patients agreed to be assigned by chance to receive surgery or antibiotics. Patients could change their minds and switch treatments at any

point. Patients answered questions about their health 30 days after treatment. The study team is collecting other data on patients for three years after treatment, but is sharing results that describe the first 3 months after treatment.

This study is the largest to date to compare the two treatments. It is the first study to include patients with all degrees of appendicitis severity. The study focuses on a range of outcomes that are important to patients.

The study team hoped the results would apply to as many patients as possible. Patients were diverse in age, race, ethnicity, education, insurance type, and spoken language. The study also included patients with both simple and more complex cases of appendicitis.

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## How can you use the results of this study?

Results from this study show that surgery and antibiotics are both good options to treat appendicitis. Healthcare providers can work with patients to choose the treatment that makes the most sense for their situation. Some patients may prefer surgery because it solves the problem permanently. Others may want to avoid surgery and what might be a longer recovery at home. Age, caregiver duties, and upcoming life events may affect treatment decisions. Also, patients may make decisions based on the type of health insurance they have and expected out of pocket costs.

## Things you should know:

The study team hasn't reported what happens to patients in this study after 90 days. These findings may change the way that patients weigh the decision between surgery and antibiotics. The study team will share these results as soon as possible.

During the COVID-19 pandemic, patients and providers may be concerned about in-person health care. Some patients may prefer taking antibiotics to limit the chance of hospitalization.

There is a small chance that patients treated with antibiotics may have a missed or delayed diagnosis of a cancer of the appendix. This type of cancer is very rare, with approximately 1 case per 200 people with appendicitis. It is important to learn more about the impacts of not diagnosing the cancer right away. The study team will report on this type of cancer as more results become available.