

# European trial confirms commonly prescribed antibiotic ineffective for treating cough

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The antibiotic amoxicillin, that doctors typically prescribe for common lower respiratory tract infections (LRTI) such as cough and bronchitis, is no more effective at relieving symptoms than the use of no medication, even in older patients. The findings from the largest randomised placebo controlled trial of antibiotics for acute uncomplicated LRTI to date are published Online First in *The Lancet Infectious Diseases*.

"Patients given [amoxicillin](#) don't recover much quicker or have significantly fewer symptoms", explains Paul Little from the University of Southampton in the UK who led the research. "Using amoxicillin to treat respiratory infections in patients not suspected of having pneumonia is not likely to help and could be harmful. [Overuse of antibiotics](#) (which is dominated by primary care prescribing), particularly when they are ineffective, can lead to side effects (eg, diarrhoea, rash, vomiting) and the development of resistance."

A cough that is accompanied by [lower respiratory tract](#) symptoms is one of the most common acute illnesses treated in primary care. Although viruses are believed to cause most of these infections, whether or not antibiotics are beneficial in the treatment of LRTI, particularly in older patients, is still hotly debated. Research so far has produced conflicting results.

In this study, 2061 adults with acute uncomplicated LRTI from primary

care practices in 12 European countries (England, Wales, Netherlands, Belgium, Germany, Sweden, France, Italy, Spain, Poland, Slovenia, and Slovakia) were randomly assigned to receive either amoxicillin or a placebo three times a day for 7 days. Doctors assessed symptoms at the start of the study and participants completed a daily symptom diary.

Little difference in severity or duration of symptoms was reported between the two groups. This was true even for older patients (aged 60 or more) who were generally healthy, in whom antibiotics appeared to have a very limited effect.

Although significantly more patients in the placebo group experienced new or worsening symptoms (19.3% vs 15.9%), the number of people that needed to be treated to prevent one case of worsening symptoms was high (30), and just two patients in the placebo group and one in the antibiotic group required hospitalisation.

What is more, patients taking antibiotics reported significantly more side effects including nausea, rash, and [diarrhoea](#), than those given placebo (28.7% vs 24%).

According to Little, "Our results show that most people get better on their own. But, given that a small number of patients will benefit from antibiotics the challenge remains to identify these individuals."

Writing in a linked Comment, Philipp Schuetz from the Kantonsspital Aarau in Switzerland says, "Little and colleagues have generated convincing data that should encourage physicians in primary care to refrain from antibiotic treatment in low-risk patients in whom pneumonia is not suspected. Whether this one size- fits-all approach can be further improved remains to be seen. Guidance from measurements of specific blood biomarkers of bacterial infection might help to identify the few individuals who will benefit from antibiotics despite the

apparent absence of pneumonia and avoid the toxic effects and costs of those drugs and the development of resistance in other patients."

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