

# Repeat antibiotic prescribing linked to higher risk of hospital admissions

2 March 2020



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Epidemiologists at The University of Manchester have discovered an association between the number of prescriptions for antibiotics and a higher risk of hospital admissions.

The study, published in *BMC Medicine* and funded by The National Institute for Health Research and the Connected Health Cities Programme, is based on the data of 2 million patients in England and Wales.

Patients who have had 9 or more [antibiotic prescriptions](#) for common infections in the previous 3 years are, say the team, 2.26 times more likely to go to hospital with another infection in three or more months.

The patient records, from 2000 to 2016, covered common infections such as [upper respiratory tract](#), [urinary tract](#), ear and chest infections and excluded long term conditions such as [cystic fibrosis](#) and [chronic lung disease](#).

It not clear why hospital admissions are linked to higher prescriptions and, the team say, research is

needed to show what or if any [biological factors](#) exist.

The risks of going to hospital with another infection were related to the number of the antibiotic prescriptions in the previous three years.

Patients who had 2 antibiotic prescriptions were 1.23 times more likely, patients who had 3 to 4 prescriptions 1.33 times more likely and patients who had 5 to 8 1.77 times more likely to go to hospital with another infection.

A course is defined by the team as being given over a period of one or two weeks.

Professor Tjeerd van Staa from The University of Manchester, said: "GPs care about their patients, and over recent years have worked hard to reduce the prescribing of antibiotics.

"But it is clear GPs do not have the tools to prescribe antibiotics effectively for common infections, especially when patients already have previously used antibiotics.

"They may prescribe numerous courses of antibiotics over a several years, which according to our study increases the risk of a more serious infection. That in turn, we show, is linked to hospital admissions."

He added: "We don't know why this is, but overuse of antibiotics might kill the good bacteria in the gut (microbiota) and make us more susceptible to infections, for example.

"Prescribing antibiotics for a common [infection](#), even though it's not certain whether it's viral—where antibiotics are not indicated—or bacterial—where they are—might be easier when there is little time.

"And in a large practice, where there is no named GP, doctors may be less likely to know their

patients and less tuned in to their history and circumstances to make informed decisions."

Clinical project manager Francine Jury also from The University of Manchester said: "GPs often have little time to get to grips with the detail of a patient's history.

"But what makes it even more difficult is that little official guidance exists for patients who already in the recent past had several courses of antibiotics for common infections.

"Our hope is that, however, a tool we are working for GPs, based on patient history, will be able to calculate the risks associated with taking multiple courses of [antibiotics](#)."

**More information:** Tjeerd Pieter van Staa et al, The effectiveness of frequent antibiotic use in reducing the risk of infection-related hospital admissions: results from two large population-based cohorts, *BMC Medicine* (2020). [DOI: 10.1186/s12916-020-1504-5](#)

Provided by University of Manchester

APA citation: Repeat antibiotic prescribing linked to higher risk of hospital admissions (2020, March 2) retrieved 5 October 2022 from <https://medicalxpress.com/news/2020-03-antibiotic-linked-higher-hospital-admissions.html>

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