

Antibiotic stewardship reduces unnecessary prescriptions

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An antibiotic stewardship program was associated with a 50% reduction in antibiotic prescribing at clinical visits, according to a recent Northwestern Medicine study published in *JAMA Network Open*.

Monitoring antibiotic prescriptions and giving clinicians the tools to speak with patients about the decision is a low-cost intervention that has the potential to improve [patient safety](#) and stave off new strains of antibiotic-resistant bacteria, according to Jeffrey Linder, MD, MPH, the Michael A. Gertz Professor of Medicine, chief of general internal medicine in the Department of Medicine and senior author of the study.

"There are many social and organizational factors that drive physicians to prescribe antibiotics when we really shouldn't," Linder said. "These findings demonstrate that these interventions work."

Bacteria gain resistance to antibiotics through a simple evolutionary process: introducing antibiotics into a population of bacteria allows bacteria that have gained random mutations conferring resistance to survive and reproduce. Excessive

use of antibiotics spurs more strains of drug-resistant bacteria which sicken 3 million Americans and kill 35,000 every year, according to the Centers for Disease Control.

While antibiotics are the treatment of choice for many conditions, one common usage is in patients who likely have respiratory viruses that are wholly unaffected by antibiotics. Patients often expect medication for these kinds of illnesses, Linder said, but antibiotic usage in this context contributes both to [antibiotic resistance](#) and presents an unnecessary danger to a patient.

"It has virtually zero chance of helping you and has the possibility of an allergic reaction, interaction with other medicines and other problems," Linder said.

In the trial, investigators evaluated a quality improvement intervention in nearly 400 ambulatory care practices from December 2019 to November 2020. Interventions included measurement of antibiotic usage, comparisons of clinicians to peers, toolkits to guide [clinicians](#) through patient conversations and patient-facing signage highlighting a practice's commitment to reducing unnecessary antibiotic prescriptions.

"This way, we get doctors to commit to the practice of reducing unnecessary prescriptions," Linder said.

Of the 467 practices enrolled in the program, 75% completed the program and submitted complete data, totaling more than 6,500,000 visits. Between September 2019 and November 2020, antibiotic prescribing at clinic visits decreased from 18% to 9%, and [antibiotic prescribing](#) for acute respiratory infection visits decreased from 39% to 25%.

In another recent study conducted at Northwestern Memorial Hospital and published in the journal *Infection Control & Hospital Epidemiology*, similar results were seen. With the help of a stewardship

program, the rate of [antibiotic prescriptions](#) in that study dropped from 34% in 2019 to 12% in 2021.

"These studies show that when patients have mild respiratory viruses, we need to tell them to take time off from work and rest," said Linder, who was also senior author of the second study.

In the future, Linder said he's interested in targeting patients who are frequently overprescribed—so far, much of the work in this realm has been clinician-facing, but there's potential to educate these frequent patients about the harms of antibiotic overprescription, as well.

Further, [respiratory viruses](#) are not the only indication for which antibiotics are overprescribed—as many as 80% of [patients](#) with sinus infections receive antibiotics, yet guidelines only recommend antibiotics in fewer than half of those cases.

"We want to enlarge the scope of what we're looking at," Linder said.

More information: Dharmesh Patel et al, Antibiotic stewardship to reduce inappropriate antibiotic prescribing in integrated academic health-system urgent care clinics, *Infection Control & Hospital Epidemiology* (2022). [DOI: 10.1017/ice.2022.164](#)

Sara C. Keller et al, Assessment of Changes in Visits and Antibiotic Prescribing During the Agency for Healthcare Research and Quality Safety Program for Improving Antibiotic Use and the COVID-19 Pandemic, *JAMA Network Open* (2022). [DOI: 10.1001/jamanetworkopen.2022.20512](#) , [jamanetwork.com/journals/jaman.../fullarticle/2793912](#)

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