

Better medical record-keeping needed to fight antibiotic overuse, studies suggest

May 18 2024



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A lack of detailed record-keeping in clinics and emergency departments may be getting in the way of reducing the inappropriate use of antibiotics, a pair of new studies by a pair of University of Michigan

physicians and their colleagues suggests.

In one of the studies, about 10% of children and 35% of adults who got an antibiotic prescription during an office visit had no specific reason for the antibiotic in their record.

The rate of this type of prescribing is [especially high in adults treated seen in emergency departments](#) and in [adults seen in clinics who have Medicaid coverage or no insurance](#), the studies show. But the issue also occurs in children.

Without information about what drove these inappropriate prescriptions, it will be even harder for clinics, hospitals and health insurers to take steps to ensure that antibiotics are prescribed only when they're really needed, the researchers say.

Overuse and misuse of antibiotics raise the risk that bacteria will evolve to resist the drugs and make them less useful for everyone. Inappropriately prescribed antibiotics may also end up doing more harm than good to patients.

"When clinicians don't record why they are prescribing antibiotics, it makes it difficult to estimate how many of those prescriptions are truly inappropriate, and to focus on reducing inappropriate prescribing," said Joseph Ladines-Lim, M.D., Ph.D., first author of both of the new studies and a combined internal medicine/pediatrics resident at Michigan Medicine, U-M's academic medical center.

"Our studies help contextualize the estimates of inappropriate prescribing that have been published previously," he added. "Those estimates don't distinguish between [antibiotic prescriptions](#) that are considered inappropriate due to inadequate coding and antibiotic prescriptions truly prescribed for a condition that they can't treat."

Ladines-Lim worked with U-M pediatrician and health care researcher Kao-Ping Chua, M.D., Ph.D., on the new studies. The one on outpatient prescribing by insurance status is in the *Journal of General Internal Medicine* and the one on trends in emergency department prescribing is in *Antimicrobial Stewardship and Health care Epidemiology*.

Building on previous research

Chua and colleagues recently published findings about trends in inappropriate antibiotic prescribing in outpatients under age 65, suggesting [about 25% were inappropriate](#). But that number includes antibiotic prescriptions written for infectious conditions that antibiotics don't help, such as colds, and antibiotic prescriptions that aren't associated with any diagnoses that could be a plausible antibiotic indication.

The new studies add more nuance to that finding, by looking more closely at these two different types of inappropriate prescriptions.

Most antibiotic stewardship efforts to date have focused on reducing the use of the first type of inappropriate prescription—those written for infectious but antibiotic-inappropriate conditions like colds. The new studies show such patients still account for 9% to 22% of all antibiotic prescriptions, depending on the setting and age group.

But since doctors and other prescribers aren't required to run a test for a [bacterial infection](#) or list a specific diagnosis in order to prescribe antibiotics, symptoms provide potential clues to why they might have written a prescription anyway.

So some of those 9% to 22% of all people receiving antibiotics may have also had a secondary bacterial infection that the clinician suspected based on symptoms.

However, it's impossible to know.

As for those with no infection-related diagnoses or symptoms in their records who got antibiotics, the researchers suggest that clinicians may not have bothered to add these diagnoses or symptoms to the patient record inadvertently—or even deliberately, to try to avoid the scrutiny of antibiotic watchdogs.

But the researchers also speculate that the lower rate of diagnosis documentation in patients in the health care safety net may also have to do with the way health care organizations are reimbursed.

Often, clinics and hospitals receive a fixed amount from Medicaid to care for all their patients with that type of coverage. So they aren't incentivized to create records that are as detailed as for privately insured patients, whose care traditionally is reimbursed under a fee-for-service model.

"This could actually be a matter of health equity if people with low incomes or no insurance are being treated differently when it comes to antibiotics," says Ladines-Lim, who has also studied antibiotic use related to immigrant and asylum-seeker health and will soon begin a fellowship in infectious diseases.

He said that private and public insurers, and [health systems](#), may need to incentivize accurate diagnosis coding for antibiotic prescriptions—or at least make it easier for providers to document why they're giving them.

That might even include steps such as requiring providers to record the reason for antibiotic prescribing before prescriptions can be sent to pharmacies through electronic health record systems.

After all, Ladines-Lim said, physicians often have to list a diagnosis that

justifies tests they order, such as CT scans or X-rays. With [antibiotic resistance](#) posing an international threat to patients who have antibiotic-susceptible conditions, similar steps to justify prescriptions of antibiotics might be advisable.

In addition to Ladines-Lim and Chua, the other authors of the two articles are Michael A. Fischer, M.D., M.S. of Boston Medical Center and Boston University, and Jeffrey A. Linder, M.D., M.P.H. of Northwestern University Feinberg School of Medicine.

More information: Joseph Benigno Ladines-Lim et al, Appropriateness of Antibiotic Prescribing in US Emergency Department Visits, 2016–2021, *Antimicrobial Stewardship & Healthcare Epidemiology* (2024). [DOI: 10.1017/ash.2024.79](https://doi.org/10.1017/ash.2024.79)

Joseph B. Ladines-Lim et al, Prevalence of Inappropriate Antibiotic Prescribing with or without a Plausible Antibiotic Indication among Safety-Net and Non-Safety Net Populations, *Journal of General Internal Medicine* (2024). [DOI: 10.1007/s11606-024-08757-z](https://doi.org/10.1007/s11606-024-08757-z)

Provided by University of Michigan

Citation: Better medical record-keeping needed to fight antibiotic overuse, studies suggest (2024, May 18) retrieved 22 June 2024 from <https://medicalxpress.com/news/2024-05-medical-antibiotic-overuse.html>

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