

# Interventions stem antibiotic prescribing rates in telemedicine

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Two different interventions both worked to significantly reduce the rate of inappropriate antibiotic prescriptions made by physicians in a telemedicine practice, a new study led by Children's National Hospital researchers shows. This finding, published Aug. 26 in the *Journal of General Internal Medicine*, could offer a new way to stem the growing problem of antibiotic resistance, particularly as telemedicine grows due to the ongoing COVID-19 pandemic.

According to the Centers for Disease Control and Prevention, more than 2.8 million antibiotic resistant infections occur in the U.S. each year. One way to help prevent this problem from growing is to prescribe [antibiotics](#) only when they're appropriate. Interventions meant to reduce unnecessary antibiotic prescribing have shown some success at brick-and-mortar [medical practices](#). However, says Rana Hamdy, M.D., M.P.H., M.S.C.E., infectious diseases specialist and director of the Antimicrobial Stewardship Program at Children's National, these efforts have largely ignored direct-to-consumer telemedicine practices, even though they're one of the fastest growing health care sectors.

"Telemedicine has the potential for even more inappropriate antibiotic prescribing than brick-and-mortar facilities because doctors aren't physically examining patients and may not have the tools to accurately diagnose bacterial infections, such as looking in a patient's ears to diagnose an ear infection, or performing a throat swab to accurately diagnose strep throat," she says.

To test whether interventions that have reduced unnecessary antibiotic prescribing in brick-and-mortar facilities might also work for telemedicine practices, Dr. Hamdy and her colleagues worked with Doctor on Demand, a national direct-to-patient video visit medical practice providing primary and mental health care. Patients who use this service are connected online either "on demand" or at a scheduled appointment to an on-shift physician licensed in the state in which the patient is physically located. Each visit is documented in a proprietary electronic health record system.

The researchers focused on acute respiratory tract infections, a common reason for telemedicine visits and the most common diagnoses for antibiotic prescriptions in in-person medical facilities. They were specifically interested in four target conditions: bronchitis, sinusitis, pharyngitis and upper respiratory tract infections (a non-specific diagnosis that includes the common cold).

Dr. Hamdy and her team tracked the prescribing habits of 45 physicians within the practice for these common conditions for patients seen between Jan. 1, 2018 and Nov. 30, 2018. Midway through this period, in April 2018, the physicians were divided into two groups: One received [education](#) about appropriate antibiotic prescriptions through a one-hour slides presentation and a continuing medical education course. The other received this education plus feedback on the dashboard they saw when they logged onto their Doctor on Demand physician page. This feedback included their current antibiotic prescribing statistics compared to practice-wide statistics for the same condition.

The doctors provided more than 55,000 visits for patients diagnosed with any of the four target conditions during the study period. When the researchers compared antibiotic prescribing rates pre- and post-intervention, they saw decreases in both the education and education-plus-feedback groups. For bronchitis, a condition in which antibiotics

should never be prescribed, antibiotic prescription rates fell from about 64% to 32% in the education-plus-feedback group and from about 47% to 35% in the education group. For sinusitis, a condition in which patients need to meet specific criteria to receive antibiotics, prescribing rates fell from about 87% to 77% in the education-plus-feedback and from 84% to 77% in the education group. For pharyngitis, a condition that requires a lab test not available through telemedicine for antibiotic prescribing, rates fell from 75% to 65% in the education-plus-feedback group and 81% to 75% in the education group. And for upper respiratory tract infections, another condition in which antibiotics aren't warranted, rates fell from 15% to 8% in the education-plus-feedback group and 18% to 13% in the education group.

Although education-plus-feedback appeared to be slightly more successful than education alone, Dr. Hamdy notes that either intervention significantly reduced inappropriate antibiotic prescriptions. These reductions were often minor; however, she adds, even small drops in the percentages of unnecessary prescribing rates can add up to millions of prescriptions per year—a boon to fighting antibiotic resistance.

Doctor on Demand considered these interventions so useful, Dr. Hamdy says, that they've continued to include antibiotic prescribing statistics on physicians' dashboards since the study ended.

"We hope these results elevate the importance of antibiotic stewardship for quality of care and that all direct-to-consumer companies rise to the occasion to implement effective antibiotic stewardship interventions in their practice," she says.

Provided by Children's National Hospital

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