

Curbing Inappropriate Antibiotic Prescribing: What Works?

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The Centers for Disease Control and Prevention has campaigned to reduce inappropriate antibiotic prescribing for more than 20 years, yet antibiotic prescriptions for acute respiratory tract infections, which generally do not require antibiotic treatment, have decreased only modestly for children and not at all for adults.^{1,2} Physicians are aware of the problem of resistance to antibiotics, but cite pressure from patients and the need to ensure patient satisfaction as reasons for continuing to prescribe antibiotics when they are unlikely to help.³ Recognizing that educational approaches alone do not adequately change prescribing habits, researchers have studied other ways of persuading physicians to adhere to judicious prescribing recommendations. Some have turned to a strategy known as behavioral economics, which endorses noncoercive interventions that make it more cumbersome and costly to pursue undesirable choices while making preferred options readily available, convenient, and rewarding.⁴ Could this approach be effective in reducing antibiotic prescribing?

A recent study suggests that it can. In a cluster randomized controlled trial, 47 primary care practices were assigned to one of three behavioral interventions or no intervention.⁵ The primary outcome was inappropriate antibiotic prescribing for upper respiratory tract infections. The interventions included (1) an electronic health record-generated message suggesting that antibiotics were not indicated, with a menu of alternative symptomatic treatments; (2) accountable justification, in which a message asking physicians who persisted in prescribing the antibiotic to

provide written justification or to choose “no justification given,” which would then become part of the patient record; and (3) peer-based feedback, in which physicians received a monthly e-mail notification ranking them as a “top performer” or “not a top performer.” A statistically significant reduction in antibiotic prescribing was noted in the accountable justification and peer-based feedback groups. The authors concluded that these interventions were successful because they involved social accountability, exposing physicians’ prescribing choices to the scrutiny and judgment of others, whereas the message about alternative treatments generated only electronic feedback. A British study found that a letter from England’s chief medical officer sent to 3,227 physicians informing them that they were prescribing more antibiotics than 80% of practices reduced antibiotic prescribing 3.3% compared with practices that did not receive a letter, representing an estimated 73,406 fewer antibiotics dispensed in one month.⁶

The results of these studies, which support the behavioral impact of social accountability, are consistent with yet another effective recommendation to reduce antibiotic prescribing: posters displayed in examination rooms, signed by the physician, committing to prescribe antibiotics appropriately.^{7,8} Social accountability is a subset of “nudging” techniques used to encourage rational antibiotic use. Another behavioral technique—this one actually targeting patients—is offering patients delayed antibiotic prescriptions, which gently compel patients to postpone and in many cases forego antibiotic treatment.⁹

The success of these interventions is not surprising. Physicians’ concern about patient satisfaction and aversion to negative patient responses are reactions to perceived social pressure from patients. Behavioral techniques that draw on social accountability also apply social pressure, but from different sources, such as physicians’ peers. That is not to say that other,

less manipulative techniques do not work. Although electronic-based decision support methods did not affect antibiotic prescribing in the previously discussed study, another study showed that they reduced the use of broad-spectrum antibiotics compared with preferred narrow-spectrum choices over 27 months.¹⁰ However, techniques such as these do not involve peer accountability, which could explain why they have shown only marginal benefit.¹¹ Educational interventions and point-of-care testing, such as C-reactive protein and procalcitonin testing in adults, have some evidence of effectiveness or at least warrant further study.¹² The reasons for antibiotic overprescribing are multifactorial, so efforts to reduce inappropriate antibiotic prescribing should combine shared decision making, incentives, quality-control measures, and similar interventions designed to improve clinical practice.¹³⁻¹⁵

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Author disclosure: No relevant financial affiliations.

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