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RISK PERCEPTION DRIVES CLINICIAN DECISIONS TO PRESCRIBE ANTIBIOTICS

Researchers at CDDEP, Cornell University, and The George Washington University reveal psychology behind why clinicians prescribe antibiotics that may not be needed

Washington, DC – Antibiotic resistance is a serious threat to public health, driven by overprescription of antibiotics by clinicians. New research shows that doctors who perceive the risks of antibiotics as negligible are more likely to prescribe them than those who are more mindful of potential side-effects and the development of antibiotic resistance.

The research, published in *The Journal of General Internal Medicine*, involved a survey of 69 emergency department clinicians about their perceptions of potential harms of antibiotic use and how they frame their decisions to prescribe antibiotics. The researchers then correlated clinicians' survey responses with their actual antibiotic prescribing practices for patients with acute respiratory infections over 17 months, beginning in August 2014.

To interpret the prescribing behavior of clinicians, researchers used “fuzzy-trace theory,” an innovative approach to evaluating decision-making under risk, developed by study co-author Dr. Valerie Reyna. According to fuzzy-trace theory, providers prefer to rely on simple “gists” to make medical decisions, even though they are able to make decisions involving complex tradeoffs between benefits and harms. When deciding whether or not to prescribe an antibiotic for a particular patient, two gists dominated: (1) “why not take a risk,” in which providers perceived the risks from antibiotics as negligible compared to the patient’s current illness, and (2) “antibiotics may be harmful,” in which the provider agreed that the side effects of antibiotic therapy could be significant.

The clinicians who treated patients in this study followed a well-documented history of overprescribing in the United States: overall, antibiotics were prescribed for three-quarters of patients with diagnoses sometimes requiring them, according to guidelines; and antibiotics were prescribed for half the patients with diagnoses for which antibiotics are definitely not indicated.

But clinicians were true to their gists: those in the “why not take a risk” group were about fifty percent more likely to prescribe antibiotics than those in the “antibiotics may be harmful” group. This was especially true when patients were diagnosed with conditions that, according to prescribing guidelines, do not actually require antibiotics. Patients with pneumonia—where antibiotics are almost always indicated—were prescribed the drugs in almost all cases, regardless of gist.

The findings could inform the design of antibiotic stewardship strategies and educational tools that aim to reduce inappropriate prescribing and preserve the effectiveness of antibiotics. Until now, most stewardship interventions have assumed that clinicians are poorly informed about treatment guidelines and have focused on education to improve guideline adherence. However, these educational

interventions have only been modestly effective. This study may provide an explanation for why interventions of this type are not more effective.

According to CDDEP Fellow and study author Eili Klein, “What’s needed are interventions that change the mental calculus of clinicians. The ‘just to be safe’ mentality of many clinicians doesn’t recognize the potential harms of antibiotic treatment or consider the further development of antimicrobial resistance.”

“Interventions that explicitly focus on changing providers’ gists, such as by emphasizing that even rare side effects can happen eventually, or that antibiotic resistance may hurt the patient in the event of a future illness, are more likely to be effective,” added co-author David Broniatowski.

The study is available online from *The Journal of General Internal Medicine*:
<https://link.springer.com/article/10.1007/s11606-017-4099-6>

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