

Video messages may help spread the word about antibiotic risks

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Antibiotics are important drugs that can save lives, but using them too often can lead to dangerous strains of antibiotic-resistant bacteria. New Penn State research explores how to communicate risk while encouraging people to seek information on their own.

The researchers found that a brief animated [video](#) was effective in convincing participants that [antibiotic use](#) can be risky, which in turn resulted in participants viewing antibiotics as less positive or useful, and also made them feel that they needed more [information](#) about antibiotics.

Yanmengqian Zhou, a graduate assistant in communication arts and sciences, said the study—recently published in the *Journal of Health Communication*—will help support future efforts to educate the public about the risks of antibiotics

and [antibiotic-resistant bacteria](#).

"Instead of seeing public apathy toward antibiotic stewardship as just a knowledge problem, we thought it might be more useful to see it as an information-seeking problem," Zhou said. "Our video promotes viewers' interest in gaining more information about the risks associated with antibiotics, and can help to develop public norm around information seeking."

According to the researchers, [antibiotic resistance](#) happens when certain bacteria survive exposure to antibiotics and then multiply, leading to antibiotic-resistant strains. This eventually leads to antibiotics becoming ineffective against certain bacteria, making infections much harder to treat.

Erina MacGeorge, professor of communication arts and sciences, said that additional recent research has suggested that the COVID-19 pandemic is increasing antibiotic use, which could promote antibiotic resistance even more. She said this could threaten the ability for antibiotics to treat the secondary bacterial infections that often kill COVID-19 patients, as well as their utility for everyone else.

"Antibiotic-resistant bacteria are already infecting at least 2.8 million Americans and killing 35,000 of them yearly, and those numbers are growing rapidly as bacteria evolve to develop greater resistance to antibiotic drugs," MacGeorge said. "The best solution we have currently is to use existing antibiotics as little as possible—only when they are truly needed—because the bacteria are less likely to evolve resistance when they are not under threat."

While there are many factors that contribute to antibiotics being overprescribed, MacGeorge said that if a patient expects or asks for antibiotics, a doctor may feel pressured to prescribe them. The researchers wanted to explore what influences

people to seek information about the risks of using antibiotics and whether a video intervention could help increase the likelihood that they would look for information before seeking antibiotics.

In a previous study published in *Science Communication* and led by Dave Brinker, a senior researcher at Tufts University and Penn State alumnus, the researchers used a theory called the Risk Information Seeking and Processing (RISP) model to develop a video they hoped would encourage people to seek more information about the risks involved in using antibiotics.

"Seeking or avoiding information, and paying attention to it or not," Brinker said, "are both related to a person's attitudes about the seriousness of the risk, what they think the social expectations are for knowing about the risk, and how equipped they feel to actually understand and act upon risk information."

He added that generally, if people think they have enough information for their purposes, they won't seek out new information or pay much attention to information presented to them.

For the current study, the researchers at Penn State recruited 1000 participants to test the video message developed in the first study. The participants watched either the researchers' video, a video from the CDC, or no video.

Participants then completed questionnaires designed to measure several factors, such as how harmful participants thought antibiotics were, positive and negative feelings about antibiotics, how knowledgeable participants thought they were about the subject, and whether they were likely to seek more information about antibiotics, among others.

After analyzing the data, MacGeorge said the results showed that the video designed by the research team was effective at encouraging people to seek information about antibiotic resistance.

"Compared to study participants in the control group who watched no video, participants who saw our video perceived [antibiotics](#) as more risky and

had less-positive feelings about them," MacGeorge said. "They also believed they knew more about them and were more capable of gathering information about them, and thought others would want them to know more, too."

MacGeorge said she and the other researchers were encouraged by the results since, even during restrictions due to the COVID-19 pandemic, videos are easily delivered to patients.

"A brief video intervention can be sent to patients on their phones or computers prior to primary care visits—including telehealth visits—or shown in the clinical context, like in a waiting or exam room," MacGeorge said. "Providers, practices, healthcare systems and public health practitioners could potentially use this video to easily help promote antibiotic stewardship."

More information: Yanmengqian Zhou et al, Targeting Perceptions of Risk from Injudicious Antibiotic Use: An Application of the Risk Information Seeking and Processing Model, *Journal of Health Communication* (2020). DOI: [10.1080/10810730.2020.1762140](https://doi.org/10.1080/10810730.2020.1762140)

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