

Without a nudge, old prescribing habits die hard for clinicians

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Low-cost approaches that nudge physicians to reduce unnecessary prescriptions for antibiotics could have a significant impact if clinics adopt them for the long term, a USC-led study finds.

Unnecessary antibiotics can harm patients and have contributed to the rise of drug-resistant "superbugs." Initial efforts to curb unnecessary prescriptions of antibiotics have relied on traditional approaches including education, reminders and alerts—none of which were very successful. So for a study published last year, researchers at USC and other institutions studied three evidence-based psychological approaches known as "nudges" on 248 physicians in Boston and Los Angeles.

Results of the initial study revealed two interventions significantly reduced inappropriate antibiotic prescribing compared to the control group. One intervention was "peer comparison," in which physicians were updated via a monthly email about their rate of inappropriate prescribing and informed whether they were a "top performer" in comparison to their peers. The other, "accountable justification," required clinicians to report the reason for prescribing antibiotics in the patient's record.

The two interventions collectively prevented on average one inappropriate prescription for every eight patients seen.

Months later, researchers from USC, RAND Corp., Northwestern University and other partner institutions evaluated what would happen when the interventions were removed: Would bad habits return or would physicians continue to thrive as better prescribers?

Their follow-up study, published on Oct. 10 in the *Journal of the American Medical Association*, shows that indeed, some clinicians may slip into bad prescription habits without a strategic nudge to motivate them. However, their latest findings also indicate that "nudging" interventions could continue to work if adopted long term.

"These interventions are low-cost and allow the prescribing clinician to retain their decision-making authority while nudging them toward better

practices," said Jason Doctor, director of informatics at the USC Schaeffer Center for Health Policy & Economics and corresponding author of the recent study.

Their research is part of a growing field in which researchers consider how human behaviors may factor into economics. The research area received its due this week when the Nobel Memorial Prize of Economic Sciences was awarded to economist Richard D. Thaler, a University of Chicago professor and author of the economics book "Nudge."

The new study shows that 12 months after the peer comparison intervention had ended, clinicians increased their antibiotic prescription rate from 4.8 to 6.3 percent. The rate also increased among clinicians who were the subject of the "accountable justification" intervention, from 6.1 to 10.2 percent.

In contrast, the overall rate of inappropriate antibiotic prescribing decreased in control clinics by about 2 percentage points, from 14 to 12 percent.

"Given the impact during the study period and the relatively low cost of the interventions, it may make sense for clinics to permanently retain the interventions," said Jeffrey Linder, the latest study's lead author and a professor of medicine at the Northwestern University Feinberg School of Medicine.

The authors suggested that this enduring effect from peer comparison may be because this intervention did not rely on electronic medical record prompts. Further, the authors said that physicians may have made "judicious prescribing part of their professional self-image" after the study.

However, they also noted that the persistence of the peer comparison

intervention could further diminish as time passes.

The initial study, published in JAMA in 2016, followed 248 primary care clinicians in Boston and Los Angeles, evaluating whether the three research-based "nudging" interventions impacted physician prescribing. The interventions included:

Peer Comparison, in which, based on their rate of inappropriate antibiotic prescriptions, clinicians were told in a monthly email either "you are a top performer" or "you are not a top performer."

Accountable Justification, in which a prompt requested the clinician to justify a prescription as it is being entered in a patient's electronic record. The written justification was added to the chart, unless the clinician cancelled the prescription.

Suggested Alternative, in which a pop-up box encouraged alternative, non-antibiotic treatments whenever a clinician ordered an antibiotic for acute respiratory infection in a patient chart.

During the active phase, each physician received none or some combination of the nudging interventions. The researchers found peer comparison and accountable justification each significantly reduced inappropriate antibiotic prescribing in comparison to the control group by 16 to 18 percentage points. The third nudge, suggested alternative, had no statistically significant effect.

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