

Pharmaceutical conservation key to slowing rise of antibiotic-resistant infections

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The United States must focus on conserving the use of antibacterial drugs, or face a public health crisis from rapidly rising rates of antibiotic-resistant infections, according to an analysis out today.

Evidence indicates that our nation's supply of antibiotics is being depleted by resistance, which occurs when infection-causing microbes mutate or change so that they no longer respond to widely-used treatments. Most proposals to solve this problem focus on giving pharmaceutical companies financial incentives to develop [new drugs](#) that could replace those that are no longer working.

But a new report published today in the September issue of *Health Affairs* suggests that approach won't work for long. New drugs will face microbial foes that figure out how to evade treatment, say two medical [policy experts](#).

"This is a war we cannot win unless we adopt a two-pronged strategy: one that would boost the supply of new drugs and at the same time preserve the ones we have left," says Aaron Kesselheim, M.D., J.D., M.P.H., one of the paper's co-authors. He conducted the analysis of [antibacterial drugs](#) and their impact on public health through a grant from Public Health Law Research (PHLR), a national program of the Robert Wood Johnson Foundation (RWJF).

The current pharmaceutical reimbursement system gives companies an incentive to oversell antibiotics, says Kesselheim, who is also an

instructor in medicine in the Division of Pharmacoepidemiology and Pharmacoeconomics at Brigham and Women's Hospital and Harvard Medical School in Boston. Companies that have spent large sums of money on research and development for a new drug often seek to turn a profit on that product as quickly as possible—before resistance sets in, he says.

But the practice of aggressively marketing antibiotics actually adds to the resistance problem, says co-author Kevin Outterson, J.D., a professor at Boston University Law School. Overselling and overuse create an environment in which microbes are awash in antibiotics, which speeds the process of resistance, he says.

"Right now, pharmaceutical companies are rewarded for actions that conflict with the [public health](#) goal of reducing [antibiotic resistance](#)," Outterson says. "That has to stop."

The analysis in [Health Affairs](#) crafts an innovative solution to the problem, one that gives pharmaceutical companies financial incentives to market drugs in a way that would keep resistance rates at low levels.

Specifically, Kesselheim and Outterson suggest that government experts study the rates of resistance and set "effectiveness targets" for newly approved antibiotics. To meet those goals, which the authors say would be based on factors related to the disease targeted by the antibiotic, such as lower resistance rates, drug companies would need to coordinate with physicians and hospitals so that the drugs are prescribed only when clinically indicated. Such action would remove the current incentive to oversell.

Companies that met the predetermined targets (achieved through responsible use of the drugs) would be rewarded. For example, the authors suggest that Medicare could pay a bonus to companies producing

drugs that meet their resistance targets. Or policy-makers could grant such companies extended market exclusivity so they could continue to earn revenues—as long as the drug use remained within the target zone.

Such a policy could help slow development of resistance in microbes and ensure new antibiotics have a longer shelf life, a bonus that would help not just individual patients but society as a whole, Kesselheim and Outterson predict.

The authors, and other experts, say that the United States must adopt more comprehensive strategies that give drug companies and others incentives to reduce antibiotic resistance. For example, hospitals should be financially rewarded for adhering to strict infection-control practices, which can reduce the spread of antibiotic-resistant microbes, says Ramanan Laxminarayan, Ph.D., principal investigator for Extending the Cure, an RWJF-funded project on antibiotic resistance.

Provided by Burness Communications

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