Conservation versus innovation in the fight against antibiotic resistance

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Credit: NIH

"Antibiotic resistance is a problem of managing an open-access resource, such as fisheries or oil," writes Ramanan Laxminarayan, a research scholar at Princeton University and the director of the Center for Disease Dynamics, Economics & Policy in Washington, D. C., in today's issue of the journal *Science*. He goes on to say that individuals have little incentive to use antibiotics wisely, just as people have little incentive to conserve oil when it is plentiful.

As with many other natural resources, maintaining the effectiveness of antibiotics requires two approaches: conserving the existing resource and exploring new sources, Laxminarayan says. These two approaches are linked, however. "Just as incentives for finding new sources of oil reduce

incentives to conserve oil," Laxminarayan writes, "large public subsidies for new drug development discourage efforts to improve how existing antibiotics are used." Yet new antibiotics tend to cost more than existing ones due to the expense of clinical trials and the fact that the easiest-to-find drugs may have already been discovered.

Laxminarayan's analysis reveals that the benefits of conserving existing drugs are significant, and argues that the proposed increases in public subsidies for new antibiotics should be matched by greater spending on conservation of antibiotic effectiveness through public education, research and surveillance.

Ramanan Laxminarayan is a research scholar at the Princeton Environmental Institute. His perspective, "Antibiotic effectiveness: Balancing conservation against innovation," appeared in the September 12, 2014 issue of *Science*.

More information: "Antibiotic effectiveness: Balancing conservation against innovation." Ramanan Laxminarayan. *Science* 12 September 2014: DOI: 10.1126/science.1254163