

“Like clean water”

Ramanan Laxminarayan argues that antibiotic effectiveness is a shared resource.

Standard: There is a concern about the overuse of antibiotics – what proportion isn't justified?

Laxminarayan: In the United States, at least half -- either because it concerns a virus or something else unrelated to an infection. The bulk of inappropriate prescriptions are for children under five years old. In hospitals, patients are treated with many antibiotics to reduce the risk of not recovering from an infection, many of which are drug resistant.

Standard: What are the causes of overuse?

Laxminarayan: In the U.S., hospitals have incentives that encourage the use of medicines, but lack similar incentives to invest in infection prevention even though this would be much more effective. Unfortunately investing in infection prevention takes several years to pay off while the costs of antibiotics are typically borne by patients. By overprescribing antibiotics, we accelerate the development of resistant strains. We should see antibiotic effectiveness as public good and manage it as a shared resource – like clean water.

Standard: What would help?

Laxminarayan: Infection control is helpful. Hospitals should be subsidized for infection check, because antibiotic effectiveness is a public good. It may sound odd because it concerns viruses, but I would promote flu inoculation. Antibiotics use shoots up in the winter because of flu-related infections that are often treated with antibiotics.

Standard: What is the role for the development of new antibiotics?

Laxminarayan: New drugs are needed because resistance is inevitable and can only be delayed. But these should be novel and not result in cross-resistance with existing drugs. It does not help public health if there is cross-resistance. If a company invents, however, a new class of antibiotics, one could grant it a period of exclusivity, when no other drug is approved for that indication, similarly to incentives for medicines against rare diseases. The U.S. Congress has sent clear signals to the Food and Drug Administration to take steps to promote the development of new antibiotics. We will have to see what steps they decide to take.

Standard: Are there estimates of the costs of antibiotic resistance?

Laxminarayan: The estimates range from \$300 million to \$30 billion for the United States. It's not a straightforward question, unlike, say, the costs of smoking. From a public health perspective, smoking has no benefits, only damages. But antibiotics have significant public health benefits and we have to take these into account.

Standard: Are there costs to me of taking an antibiotic, in terms of resistance?

Laxminarayan: It is more likely that this antibiotic and others in its class will not work quite as well for you next time. The reason is that while the antibiotic is killing the bacteria causing your current infection, it is also selecting for resistance in other commensal bacteria in your skin, nasal passage and other locations. They all learn to become resistant.

Ramanan Laxminarayan is senior Fellow with Resources for the Future in Washington. The interview was conducted by Stefan Löffler