



Society must seize control of the antibiotics crisis

Pressure from the public could force firms to develop new drugs that treat resistant infections, says Carlos Amábile-Cuevas.

What are we to do about antibiotic resistance? Last week, another government report repeated stark warnings about the crisis, and offered some suggestions to improve the situation. The UK report, prepared by a panel chaired by the economist Jim O'Neill, naturally focused on financial incentives, including US\$1-billion prizes for pharmaceutical firms that develop new antimicrobial drugs (see go.nature.com/a8auos).

O'Neill, who in a previous job coined the term BRIC for the fast-growing economies of Brazil, Russia, India and China, suggested a different approach. As well as rewards for companies that invent new antibiotics, his report suggests punishments for those that do not try. Such firms, he writes, should pay a small fraction of annual sales into a fund to support rivals that invest in antibiotic research.

This is a welcome idea, but O'Neill does not go far enough. For too long, government moves to address the antibiotic-resistance crisis have focused on lucrative incentives: patent extensions, market exclusivity and higher prices. These mainly work to transfer public money into private hands, much in excess of what the research and development (R&D) actually costs. While we wait and see whether any of these interventions work, bacterial resistance continues to grow and spread, causing illness and death worldwide.

We need to take O'Neill's idea of a punitive levy and build on it. When it comes to the pharmaceutical industry and antibiotics, we need more sticks and fewer carrots.

Antibiotics are not like other drugs. The medical effects of prescribing and taking them are not restricted to one patient. In the words of the scientist Stuart Levy — one of the first to raise the public alarm over bacterial resistance — antibiotics are “societal drugs”. This societal impact justifies an approach to the development, marketing and use of antibiotics that is different from those of other medicines and consumer goods.

Ideally, governments would wield the sticks that would encourage this different approach — for example, by delaying or denying the approval of ‘me-too’ drugs from companies that do not invest in antibiotic research. That seems unlikely, but society can step in and act instead.

Take the agricultural overuse of antibiotics. Despite repeated warnings about the impact on human health, governments have failed to act. But consumer and campaign groups have had some success in pressuring fast-food chains not to buy meat from antibiotic-fed animals. Last year, McDonald's pledged to phase out meat from chickens treated with certain antibiotic drugs in its US restaurants by 2018.

This tactic of public pressure can be scaled up. Inaction that privileges other business over public interests has already been overturned in this way — people who choose wood and fish products labelled by the Forest Stewardship Council and Marine Stewardship Council are

rewarding companies that commit to public interests, and punishing those that do not.

We need to see antibiotics as another natural resource that demands careful stewardship. Most of these drugs are natural microbial products. Fundamentally, our ability to kill bacteria with old or new drugs depends on the microbes' natural susceptibility, which is non-renewable. Just like other ecological problems, antibiotic resistance is fuelled in part by the reckless behaviour of companies and a feeble response by regulators.

If the problem is the same, then perhaps we can borrow some ideas from the environmental movement to tackle antibiotic resistance.

Let's consider a ‘No Antibiotics, No Business’ initiative — NANBU for short. A campaign could issue a positive or negative NANBU rating to a pharmaceutical company depending, for example, on whether it invests in R&D of genuinely new antibiotics. Other factors could be whether it promotes unethical or unwarranted clinical use of antibiotics (for sinusitis and bronchitis, for example) and if it sells antibiotics for agricultural use beyond the treatment of sick animals.

Physicians, then, could choose to prescribe drugs from NANBU-certified firms. Consumers could do the same when they purchase medicines over the counter, and press their doctors to prescribe treatments from certified companies. As sales across their product range dropped, firms that did not invest in antibiotic research would feel a compelling financial — and shareholder — pressure to do so.

If successful, such an initiative could address a societal problem with societal action. Giving people a way to become involved — by making

informed choices — would also boost their sense of individual responsibility. This in turn could address the various forms of household antibiotic abuse, including a failure to complete a course of treatment.

To work, such a scheme would have to be kept out of the hands of governments and the companies themselves. It would need to be transparently managed, and more health-care professionals and consumers would need to be informed about what is at stake.

Just as with other societal problems, the extreme language of policymakers on the severity of the antibiotic crisis is not matched by action. It is time to seize control for ourselves. Infections really do affect everybody. They are not ‘lifestyle’ conditions like some diseases. They affect young and old, rich and poor — and more people will die as more multiresistant bacteria emerge. Drug companies and governments have not been up to the task. It is time for society to act. ■

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