

The resistance against resistance

Microbiologist Laura Piddock talks about her efforts to raise the profile of antibiotics research.

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Faced with the continuing rise of infections resistant to common treatments and a dearth of new antibiotics to fight them, Laura Piddock is taking action.

Piddock, a microbiologist at the University of Birmingham, UK, is chair in public engagement and former president of the British Society for Antimicrobial Chemotherapy (BSAC), as well as director of Antibiotic Action, a BSAC initiative to raise awareness of this problem. Last week in London, Antibiotic Action convened its first meeting, to discuss what lessons can be learned from recent failures to develop new antibiotic drugs.

Why did you set up Antibiotic Action?

I was at a meeting in the United Kingdom and Ian Chopra, a microbiologist at the University of Leeds, came up and asked me what I was going to do about antibiotic resistance and lack of new drugs. I asked him, did he mean me personally, or as president of the BSAC? He looked at me and said, "Both."

We knew what the problems were, but no one had really been starting to seek solutions. The real issue was among medics and scientists: we had all been talking to each other, but we had not been talking to anyone outside of our own group. We felt the best thing that the BSAC could do was to start a public-awareness initiative. And that's what Antibiotic Action is.

But doesn't everyone know already that antibiotics are overused?

It's so much more than overusing. Overusing is just one facet of the problem. How do we know we're overusing them? Who has actually quantified this? There is sometimes inappropriate use, but that is not the same as overuse. I think we have to be very careful when we use that phrase.

The medics will blame the vets, the vets will blame the medics, and if they are together they'll blame another group. The reality is that society has vastly undervalued antibiotics: We use them in areas we wouldn't dream of using other therapeutic compounds.

Do you feel you have made political headway?

Yes. The reason for that is not just because of Antibiotic Action, but because Antibiotic Action is working with other groups in other countries and together we are gaining momentum. And we really are trying to work together. I genuinely believe that is why things are now coming out — because we're all able to present this united front.

It was discussed at the World Health Assembly last week. Antibiotic Action and other groups had a joint letter in the *Financial Times* last November. I have been speaking at meetings I would not normally be invited to speak at. Antibiotics are getting onto the agenda at all sorts of meetings that they would not have done normally. But more importantly, the general public is becoming aware.

What was the take-home message from the Antibiotic Action meeting?

I think it was very clear where discovery needs to be. And that is in understanding resistance and how it is mediated. So not the epidemiology or the genomics of resistance, but the biology. In particular, when you're working in discovery with new molecules or ways to treat infection, you need to understand how the pathogen is going to try to get around that new strategy or molecule or whatever it is. If you don't do that to exhaustion, then that's how it's going to fail in clinical trial.

We can start talking about what we are going to do when we have new drugs — and not just in terms of economic returns for whoever makes them, but in terms of who gets those drugs. But if we're not even funding the discovery, it's almost putting the cart before the



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Laura Piddock says it is necessary to act now, before the problem of antibiotic resistance become even more deadly.

horse. We've got to start thinking of filling the pipeline, or putting things into the pipeline.

Could it already be too late?

I don't think any of us know the answer. I'm a born optimist. I would like to believe that we're just in time. That's why we have to act now.

If we do not get new treatments to patients within the next 20 years, patients will start dying of bacterial infections in greater numbers than they are today. There's absolutely no doubt about that.

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