

Maggie Fox

Hello and welcome to One World, One Health, with the latest ideas to improve the health of our planet and its people. I'm Maggie Fox. All of us here on planet Earth are facing problems such as pollution, climate change, and infectious diseases, both old and new. All of these problems are connected. This podcast is brought to you by the One Health Trust with bite-sized insights into ways to help.

Superbugs are among the biggest threats to humanity. Right now, evolving bacteria, viruses, and fungi kill more than a million people every year and contribute to the deaths of millions more. It's not an easy problem to fight, but people do know what to do. Careful use of antibiotics, antivirals, and antifungals can help prevent the pressures that drive microbes to evolve into resistant forms. Good hygiene can help prevent infections in the first place. Vaccines also protect against many infections, and new and better antimicrobial drugs can be developed to fight these infections. Together, these actions are called antimicrobial stewardship. But it's hard to be a good caretaker or steward of these precious drugs in low- and middle-income countries where the problem is worsening fastest.

In this episode, we're chatting with Dr. Azra Hasan, the Head of Academic Programs at the One Health Trust. She's a clinical microbiologist who's working to educate professionals about antimicrobial stewardship. Azra, thanks so much for joining us.

Azra Hasan

Thanks for having me, Maggie. Pleasure to be here.

Maggie Fox

Azra, research is showing that antimicrobial resistance is on the rise fastest in low- and middle-income countries. Why is this happening?

Azra Hasan

Drug resistance has been happening all over the world. Yes, with the low and middle income countries. So one reason in low- and middle-income countries is lack of legislation and the availability of over-the-counter antibiotics where anybody can go down and get antibiotics without a prescription. So that, I think, is one major issue to tackle. The other one is that a lot of spurious antibiotics are being manufactured.

Maggie Fox

What do you mean by spurious antibiotics?

Azra Hasan

Spurious antibiotics are antibiotics of low quality, counterfeit antibiotics, which do not have the required quantity to fight the bug. So, a patient would think, okay, I am taking the antibiotic in the correct dose, but, actually, the dose is not reaching. The bacteria or the bug there is having a nice time [and] doesn't get something that can kill it, but then it starts proliferating instead.

Other problems with drug resistance is that, because drug resistance is such a complicated topic. Anybody who says that [they] understand drug resistance actually hasn't, because this problem is multifactorial. It's not just injudicious use of antibiotics; there [are] so many things that affect drug resistance. It is sociopolitical factors, poverty, sanitation, literacy levels. All of these things, because they affect drug resistance, is a problem with low- and middle-income countries.

Maggie Fox

So can you tell us a little bit more about this term, antimicrobial stewardship, you hear it a lot. It's a term used as a shortcut for a whole suite of actions and policies, I think, is that right?

Azra Hasan

I'd start with WHO's Global Action Plan on Drug Resistance for Low- and Middle-Income Countries [which] has certain objectives, and one of them is [to] optimize the use of antimicrobial medicines -- basically, use antibiotics correctly. And antimicrobial stewardship is just that. A steward is somebody who takes responsibility for a task entrusted to them, and [an] antimicrobial steward would be somebody who would use antibiotics responsibly and take care of it, manage it well.

Maggie Fox

And why is it so hard? You would think that a physician or a pharmacist, this is literally their job? Why are they doing such a poor job now?

Azra Hasan

The pharmacist is not aware of stewardship practices. The pharmacist does not know that drug resistance is such a catastrophe, doesn't know that it is a crisis. So the first objective, like I was talking about WHO's Global Action Plan on AMR, the first objective is education, making people aware of what drug resistance can do, what the consequences can be. The impact can be so bad. That is why the pharmacist does not know that just lending out antibiotics like peanuts is going to affect our future so badly.

Maggie Fox

And I guess they're just trying to help. People want to help, they're just not helping in the right way.

Azra Hasan

Yeah. So the thing is that in a poor country, the pharmacist has the first access to medicines. A poor person may not be able to go to the hospital and just has to reach the drugstore and get whatever medicines he or she can. A lot of medicines dispensed out of a pharmacy are not wrong, because they have this experience and practice and even non-traditional practitioners of medicine sometimes are prescribing correctly, but a lot of times they are not.

Maggie Fox

Can you tell us a little bit about your work at the One Health Trust? Can we talk about the course that you're planning to conduct with the British Society for Antimicrobial Chemotherapy?

Azra Hasan

I'm the Head of Academic Programs, and we have a lot of educational programs which tackle and which deal with global health. The antimicrobial stewardship course is one of them that we're rolling [out] in a few months. This program basically addresses the cause of resistance, adding stewardship practices to it. And we have engaged a very experienced group of antimicrobial steward experts from around the world as faculty.

We partnered with the British Society for Antimicrobial Chemotherapy to provide very useful resources and educational material. We are coming up with a web page where all these resources will be available for free. During the course we have on site faculty coming in and teaching and training the participants. So the participants will learn about scientific and behavioral aspects of how stewardship works and how to use antibiotics judiciously in their work settings, in their hospitals when they go back, and how they can set up an antimicrobial stewardship program in their hospitals.

Maggie Fox

It's one thing to teach doctors to do this on the ground, but one of the things you have been talking about is that governments have to get on board with this too. Do doctors have a role in convincing their governments to do more?

Azra Hasan

I wish that would happen. I do not think that they really have done a good job until now. Governments need to engage themselves further with us, with doctors, and with people who care about drug resistance. But the commitment falls short. Funding that the government uses on health is really low. They have to increase funding, they have to increase their dedication, interest, and [their] priority should be aligned with the priorities of fighting drug resistance.

So the Indian government has come up with a lot of legislation, such as the National Task Force, or the Chennai Declaration, and surveillance programs, etc. They weren't effective because the governments keep changing every five years, and then the commitment starts wearing out. One government is interested in something, the other one is interested in something else. So basically, things just fade out before getting implemented well. The government spent, this time, it's going to spend just 3.2 percent of its GDP on health, even lower than what it was previously. As political commitment fades out, so do laws and programs like this, [they] cannot [gain] momentum.

Maggie Fox

Azra, you're in India. Where you live, what have you seen happen when people are overusing or abusing antibiotics?

Azra Hasan

When my father was here, I had a physiotherapist coming in, and he said, oh, he needs to go back to the village. And then he said, oh, somebody's ill, I need to just go. So I said, who's the

doctor over there? And he said, I'm the doctor. So what are you going to give the person? He said, I'm going to give vancomycin, and vancomycin is one of those drugs, which are like the [WHO] Reserve drugs and we just cannot use it without proper prescription, and [it's] toxic and the PKPD (pharmacokinetic/pharmacodynamic) has to be measured. So he said, we prescribe vancomycin very easily in the villages, and he's a physiotherapist. So we have a huge problem with unregulated prescriptions.

Maggie Fox

That story really illustrates the problem right there, because he wants to help, right? This guy wants to help. He thinks he's helping, but he doesn't have all the knowledge he needs. He knows enough to know that vancomycin is a very powerful antibiotic, and it would be only natural to think, powerful antibiotics.

Azra Hasan

He would have seen a few people get better with those antibiotics and he thinks, okay, now I have a wonder drug in my hand.

Maggie Fox

Exactly. And he doesn't know he's actually doing harm, or could be doing harm, anyway.

Azra Hasan

The impact of drug resistance has not registered even with people who are educated. Somebody had come visiting, and I was just talking of drug resistance. And he said, yeah, we know, if you take a drug, then we become resistant to the drug, so then we have to take another option. These are educated people we're talking [about] and so we have so many people who live in poverty and have not got a formal education. So you could imagine the problem.

Maggie Fox

Right, and they don't understand, it's not you becoming resistant, it's the bacteria in your body becoming resistant, yeah.

Azra Hasan

Yeah. This is coming from educated people with certificates. They think that they are resistant to the bacteria and so they need to move to the next antibiotic, or need to go to another private practitioner who will write another antibiotic [prescription] for them. So this is how it's going. And the private practitioners when you go and talk to them, they say, if we don't write down antibiotics for a viral infection, for example, the patient will walk down to the next private practitioner and we lose our money.

Maggie Fox

That's a problem in developed countries as well. Patients demand antibiotics and physicians, eventually you can watch them walk out and go to someone else, or you can give them what they want.

Azra Hasan

That's true. So private practitioners usually start prescribing as wanted by the patient. And a lot of them don't even go for lab tests because lab tests are expensive. A lot of it is based just on clinical judgment, and that judgment may be wrong.

Maggie Fox

So that's the overall problem there, indeed, because especially in low- and middle-income countries, you can't get the test to see what the patient is infected with to even know if an antibiotic is appropriate, or if they should get an antiviral, or if there's nothing you can do. Then you don't even know which one they're infected with to know which antibiotic to use. And there's not the overall surveillance to even know what's circulating.

Azra Hasan

No, we don't have enough data. We don't have funding to conduct that surveillance. And then how do you follow up because there is no record? There's no documentation. And that's why, like I said, the government should go step by step. Let them first regulate the tertiary government hospitals, they are huge: 2600-bed, 3000-bed hospitals with a footfall of almost 20,000 patients coming in and going out. So at least those hospitals are regulated. And our course is aiming to train doctors coming from those government medical colleges.

Maggie Fox

Azra, thank you so much for joining us.

Azra Hasan

Thank you, Maggie. Pleasure to be here.

Maggie Fox

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Ramanan Laxminarayan

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