

**One World, One Health Podcast  
Episode 14, Season 1- Transcript  
Guest: Loice Ombajo**

**Battling Superbugs with Limited Ammo**

**Maggie Fox (0:01)**

Hello and Welcome to One World One Health, a place to talk about ways to improve the health of our planet and its people. I'm Maggie Fox.

Our planet faces so many challenges: pollution, climate change and new and reemerging infectious diseases like COVID. This podcast is brought to you by the One Health Trust with bite sized conversations with people who are helping.

One big threat to people around the world is the emergence of drug resistant superbug infections that resist most of the drugs developed to treat them, and sometimes all of them. In this episode, we're talking to Dr. Loice Ombajo: Infectious Disease Specialist and Senior Lecturer at the University of Nairobi. She also heads the infectious disease unit at the Kenyatta National Hospital.

Dr. Loice thanks for joining us.

**Loice Ombajo (0:50)**

Thank you Maggie, for having me.

**Maggie Fox (0:52)**

Dr. Loice, you have some experience with these antimicrobial resistant organisms. Can you tell us about some you've had to deal with lately?

**Loice Ombajo (1:01)**

Thanks, Maggie.

So I think one of the things I noticed in my work as an infectious disease specialist, is that most of the infections I manage now, particularly in hospitals, and critical care settings, tend to be caused by bugs that are resistant to the commonly used antibiotics. And if I think about specific cases or specific situations where we've had a struggle, I think I'll go back to our critical care units. And we've had situations where patients have a true superbug that is resistant to every single antibiotic available to us here.

So I'll give you one example. Not too long ago, we had a patient who I was asked to help manage. This patient had an infection by a bacteria that we call *Pseudomonas aeruginosa*. It is one of those bacteria that's known to be truly resistant to multiple antibiotics. But in this particular case, the patient had been to multiple hospitals, had even been to another country to look for care for underlying cancer. And in the process of getting care, he also acquired an infection with his superbug. So at the time we were managing him, all the antibiotics that are available to us in the country could not treat this infection. And we had to go to the extent of asking the family to ship in another drug to try and see if it would work. Unfortunately, it did not work.

But one of the things that struck us was that the cost of taking care of him with the antibiotics that we had available, was extremely high. And I'll give an example here. There's one of the new antibiotics that you may use for resistant bugs but a dose of 10 days would cost about \$10,000. And while this patient had to bring a drug from another country, the cost went way above that one. So it's not just that these bugs cause death, managing them is very expensive.

**Maggie Fox (3:02)**

This is so interesting, because these cases cost resources across the board, right? Not just the family that was involved. But the hospital, the doctors, the other patients all got pulled into this. I think you put it very well that it's a burden for multiple people.

**Loice Ombajo (3:15)**

So for the patient because of the cost of care, the prolonged hospital stay, the family having to, you know, deal with having a close family member, a loved one in hospital, critically ill for so long, the financial burden on the family as well.

When you think about the hospital, it's not just the cost of taking care of one patient. When we have a patient who has a resistant bug, we have to be very careful to ensure that it is not spread within the hospital, which means all the health care workers have to wear what we call "protective clothing". They have to think about how they go into this room that has this patient; how they interact with the patient and come out of the room. And there's always that risk that they may be spread to other patients, which is truly disastrous, to a hospital in that context. Nationally, as we get bugs that are increasingly resistant, it means that the Ministries of Health have to rethink the sorts of antibiotics that are stopped in a country. And that comes with a significant cost.

**Maggie Fox (4:26)**

And sometimes despite all of these efforts, these infections end up spreading anyway.

**Loice Ombajo (4:31)**

That's true. So to give you sort of a snapshot of what happens when we have such a patient. So one, you want to make sure that this patient is in what we call isolation. They have to be nursed in a room on their own, which is of course more expensive than if you're nursed in a general ward with other patients. Every doctor, every nurse, every person who's taking care of his food, those who are coming in to take blood samples, those who are coming in to do X rays or other imaging, those who are coming to help with physiotherapy all have to be very knowledgeable in how to prevent spread. They all have to wear the right thing, wear it the right way, wear it at the right time and remove it at the right time. Which means if there is a break in that chain, then there's a risk of spread.

And globally, you will hear examples of outbreaks within a hospital unit where one patient has a resistant bug, and with time you begin to notice it in other patients because there's a break in that chain of infection prevention and control. And when that happens, and it means now you have multiple patients for whom you have to do the same thing that really takes up the cost, but also takes up a lot of time of the healthcare workers.

**Maggie Fox (5:49)**

That, in the end, even all of that effort didn't help the patient die.

**Loice Ombajo (5:54)**

Yes. It's very unfortunate, but what we know is that when someone has an infection with a superbug or a bug that is resistant to antibiotics, then the risk of dying is probably about three times as high as the risk of dying if someone had an infection that is not resistant. So already, even as you're beginning to expand these resources, you know that the risk of death is high. And this risk is on top of the risk that's brought about by the underlying diseases, whether that is cancer that brought this patient in or heart disease or whatever other disease.

So we're giving one person an extraordinarily high risk of dying. And after expending such resources, you can imagine the place where the family is at. They're always hopeful, always reaching for the next suggestion that the doctors have with the hope that this will work. But we know that when you have infection with the resistant bugs, the risk of death is significantly high.

**Maggie Fox (6:55)**

So Dr. Loice, what are you doing to help ? You've got some ideas and some plans ?

**Loice Ombajo (6:59)**

We are trying and we have done some work around trying to reduce antimicrobial resistance. So just the emergence of these resistant bugs. And we have to go back to understanding what causes the emergence of bugs. And one of the biggest causes is excessive use of antibiotics. You see, bugs are pretty clever. You expose them to an antibiotic, they develop mechanisms to

survive in the presence of that bug. And the mechanism to survive is what we call resistance. So the more antibiotics you expose bugs to, the more resistance they acquire in order that they may continue to survive.

So for us, some of the biggest challenges are excessive antibiotic use, not just within hospitals, but also in the community, and excessive antibiotic use in the communities brought about by several factors. One we have a context where someone can buy an antibiotic over the counter without having seen a doctor without getting a prescription. And you may end up taking the wrong antibiotic for the wrong indication, or taking it for too long. We also have people who may decide, I used this antibiotic last time and it worked. So I won't finish my dose because I've gotten better. But next time, I feel a little worse, I'll take the remnant of this antibiotic, or share antibiotics at home. So that is a big deal, because it means we begin to select for these resistant bugs in the home.

When you come into hospitals, just by virtue of the fact that people are quite sick within the hospital. There's high antibiotic use. And one of the ways of protecting antibiotics is what we call antibiotic stewardship: that we use this antibiotic so well, that they're available for future patients, and for a long time to come. So we're doing a lot of work around antimicrobial stewardship. Her initial focus within hospitals is helping health care workers to use antibiotics only when necessary, use the right antibiotics and for the right duration of treatment.

If we do this consistently, then we reduce the emergence of these superbugs. And going forward is thinking about how we ensure that people sitting at home do not use antibiotics and they do not need to. So antimicrobial stewardship is really the cornerstone of preventing these infections. The other area that you work in is around infection prevention and control. And this is a package of measures that we use within health care facilities to prevent people from getting infections. And if we prevent you from getting infections, then we don't have to use antibiotics, which goes back to the issue of stewardship. But beyond preventing people from getting infections, it's around ensuring that infections do not spread while in the hospital. So those two really are the anchor for prevention of emergence of superbugs

### **Maggie Fox (9:51)**

And both of these factors go against basic human nature, right? So if there's a pill that works, doctors want to use it to help patients and of course the patients want to have it.

### **Loice Ombajo (10:00)**

Varies. And I mean, as you say, it goes against human nature. And I probably recall when we were at the height of the COVID, 19 pandemic, and that be all this meets around what works and what doesn't work. And one of the elements of that is that a certain type of antibiotic would help reduce, you know, the symptoms and cure COVID-19. And with that, everybody went wild, and everybody wanted to buy this antibiotic. And we saw very high use of antibiotics during that time, it was really around self preservation. If we know this is going to work, we want to use it.

But the truth was, this antibiotic did not work. So it really calls for a lot of educating people that antibiotics don't work, where they're not indicated that antibiotics have the potential to be harmful, if used in the wrong way.

**Maggie Fox (10:52)**

Because COVID is a virus, of course, and antibiotics don't work against viruses, although that's sometimes hard to remember or understand.

**Loice Ombajo (11:00)**

That's true, because when people think of infections, we think every infection is caused by the same things. But if you think of common infections, like the common cold or a sore throat, you know, those are caused by viruses and antibiotics only treat bacteria, they don't read viruses. Yet some of these infections are the commonest reasons for antibiotic use.

**Maggie Fox (11:22)**

Are these methods that will work elsewhere in the world ?

**Loice Ombajo (11:25)**

These are fairly standard methods. So antimicrobial stewardship is a concept that really should be embraced by every single hospital or healthcare facility globally. Infection Prevention should be at the forefront of management of every single patient wherever they may be in the world. So these are things that should be done everywhere. There are challenges in some contexts. I work in a resource limited setting, where enforcement of some of these measures may be difficult. So for example, control of antibiotic purchase from community pharmacies, even though it's a policy, it is not enforced. So we really are trying to work with the ministers of health to see how this can be enforced. There are many countries globally, where you cannot just walk up to a pharmacy and buy an antibiotic. And that has to be the standard that we all aim for.

**Maggie Fox (12:23)**

Dr. Loice, what can the average person do for someone who's not a doctor like you ?

**Loice Ombajo (12:27)**

I think it starts from home, like all good things start from home. So how we teach people good manners at home, we probably have to start thinking of what are the things that will ensure that we live a healthy life for a long time. And one of those is beginning to remember that antibiotics can be harmful, even though they're excellent drugs that save lives, used wrong, they can be harmful. So from home, people need to think about how to avoid using antibiotics, if I have an infection. You know, some of the common infections that you talked about, like a common cold or a sore throat, you probably just need something to reduce a fever, maybe something to

soothe the throat, you don't need an antibiotic. If you're feeling worse than that, then you need to see a health care worker who can then give you the right medication. So starting from home, there's a role of governments around enforcement of things like ensuring antibiotics are not available over the counter without prescriptions. And of course, then the role of the hospitals in ensuring infection is prevented.

**Maggie Fox** (13:34)

Dr. Loice thanks so much for taking the time to chat with us.

**Loice Ombajo** (13:38)

Thank you so much, Maggie. It was great talking to you.

**Maggie Fox** (13:42)

Listeners can share this podcast, which is brought to you by the One Health Trust by email, Twitter or your favorite social media platform.

And let us know what else you'd like to hear about at [owoh@onehealthtrust.org](mailto:owoh@onehealthtrust.org)

Thanks for listening !