Steve Peios:

Welcome to Detect and Protect the Australian biosecurity podcast. In today's episode, we are talking about antimicrobial resistance. Now, World Antimicrobial Awareness Week is celebrated from 18 to 24 November each year. And this week is an opportunity to highlight the challenges and risks associated with antimicrobial resistance or AMR. Now, this is a great topic and one that I'm very, very interested to learn more about over the course of this podcast. It's also going to include how it can impact on human and also animal health. So, please stay tuned and listen very carefully to our wonderful guest today that is joining me, that is Dr Mark Schipp. He is Australia's chief veterinary officer who works to address major animal health issues of national interest, such as the threat of antimicrobial resistance. Thank you very much for joining me on the podcast today, Mark.

Dr Mark Schipp:

Thank you very much. It's great to be here.

Steve Peios:

Yeah. Great to see you, Mark. This is a very important topic and I can't wait to hear more about it from you. Now, a lot of our listeners may have heard the term antimicrobial resistance or AMR and to me, Dr Shipp that does sound bad. And it sounds also very, very interesting. So, can you also tell me a little bit and all of our listeners about what it actually is, what it's about and what does it really mean for us AMR.

Dr Mark Schipp:

About half the population in Australia receive antibiotics for example, each year. And that might be for a skin infection, lung infection, urinary tract infection or perhaps after some operative procedure. With that use of antibiotics, some of those bacteria will survive and become resistant to those antimicrobials. And as we overuse and misuse antibiotics, that resistance continues to grow. With increased use of antibiotics there is that danger of antimicrobial resistance, but without them, our life would be very different. We wouldn't be able to have a routine surgeries they've become quite risky. And the World Health Organisation has identified that the growth of antimicrobial resistance is one of the top 10 global public health threats.

Steve Peios:

Wow. That is crazy, Mark. And if I could ask is does that relate as well to those situations of where you'd have an operation and everything might go okay in your operation, but then you'll regularly see people need to take a course of antibiotics afterwards so that they can stave off infection, or is it almost as a preventative measure? Is that fair to say?

Dr Mark Schipp:

That's absolutely correct. So, in Australia it's quite routine to have a cataract, a replacement or to a hip replacement or to have a kidney transplant. All of those routine type surgeries would become very difficult if we weren't able to use antibiotics to prevent postoperative infection. And indeed we're seeing that rising increasingly around the world and in Australia where people present with an infection and none of the available antibiotics work against that infection.

Steve Peios:

That's fascinating, Mark. That's very interesting. So, it's almost a case in a way of damned if you do and damned if you don't because it's that progression of being, people being able to move forward with what you would say routine and not so routine operations, for example, or progressions of those health matters, but we can't do it. So, is that what's driving the and concerning the global threat? Is it that in particular or is it sort of an education sort of factor? Please elaborate because this is really interesting stuff.

Dr Mark Schipp:

What, what is driving the rise of antimicrobial resistance is both the inappropriate use of antimicrobials and the overuse of antimicrobials. So-

Steve Peios:

Right.

Dr Mark Schipp:

It's quite common in when we have a cold that we go to the GP and ask for a course of antibiotics, but we know that a cold, the common cold it is caused by a virus it's not treated by antibiotics. So having that course of antibiotics is an inappropriate use of antimicrobials and it's just going to drive antimicrobial resistance. And then there is overuse of antimicrobials where antibiotics are used when they're not required or are used in a way that's inappropriate. So for some years, we've seen particularly overseas the use of antimicrobials to promote growth of animals or to prevent infection in environments that are heavily contaminated. We're very fortunate in Australia that we have a very clean environment for animals to grow in. And so we use very low levels of antibiotics and also that we don't have any critically, or medically important antibiotics approved for growth promotion.

Steve Peios:

That's crazy stuff Dr Schipp. And I really appreciate you explaining that to me. So, elaborating or elaborating, excuse me on that and what I'm hearing. So is there, is that going to be a problem moving forward then when you're talking about, is this sort of like an education factor here where we really need to sort of get the message out to people a bit more perhaps than as you just talked about then getting that understanding of the appropriate use of antibiotics in this sense?

Dr Mark Schipp:

Yeah. So there's a matter of educating both the client, the patient, and the practitioner, the doctor, or the veterinarian. So, when I go to see my GP I shouldn't be asking for antibiotics unless it's a bacterial infection. And we're both convinced that that is the case and the GP or the veterinarian shouldn't be prescribing antibiotics, unless they're convinced that that is an appropriate course of treatment. And that may mean that the problem can't be dealt within a 10 minute consultation, but we're-

Steve Peios:

Mm-hmm.

Dr Mark Schipp:

Required diagnostics, a test to be undertaken firstly, to see what is the cause of the infection. And indeed, is there an infection present before we try and treat it. That often antibiotics are prescribed in a preventive way in order to prevent a possible future infection and that's inappropriate. Also, often a course of antibiotics could be used, but not completely used. So, there'll be some leftover at the end, or there'll be a second script that is filled, but not used or kept in the cupboard. And we need to think about how to appropriately use or dispose of those antibiotics. So, don't just flush them down the toilet or throw them in the trash, but return them responsibly so that they're not contaminating the environment. We're not giving them to friends or family to treat something that's not a bacterial infection.

Steve Peios:

Incredible. No, and that's so good to hear that, especially from someone with the level of knowledge that you have because I must say I would even be guilty of that in the past of not being completely aware of things like the environmental factors or I wouldn't say it goes so far as say, I've handed it to family member and said, "Hey, why don't you try these". But it comes to did that education, so mate that sounds like a really big, what's your space, Dr Schipp I really appreciate you explaining that to us in a little bit more detail. What does that all mean for the animal sector particularly and specifically and how that relates to us as well as humans?

Dr Mark Schipp:

So globally, there's a need for more animal protein as the population grows, and better quality animal protein as more of the global population moves into the middle class and expects to eat meat and dairy and egg products. And that means that there's a need for healthy animals and animals that are of good welfare or benefiting from good welfare. And that means that they need to be treated with antibiotics if they suffering disease or infection and trying to prevent that where possible. This means that there's a huge demand for antimicrobials and treatment of animals, but it also means that that is going to in turn drive resistance. And we're going to run out of antimicrobials because the fact is that very few new antimicrobials are being developed. And so we're going to run out of antimicrobials over time. At the moment we've got about 30 antibiotics that are in clinical development worldwide, and only-

Steve Peios:

Mm-hmm.

Dr Mark Schipp:

Six of those are innovative or new drugs. And so the inappropriate use of antibiotics continues to drive resistance and we've got very few drugs coming onto the market.

Steve Peios:

So, in terms of what you're mentioning there, that's being done in the animal sector in relation to the antimicrobial resistance. How concerned are you with the progress of these developments and how it's moving forward now? I know there's certain levels you have how you can answer that question, but this, I feel like the more and more that I'm learning about it, the more my ears are picking up. And it's something that it needs to have that urgent attention and placed on it. How do you feel about that? Is that I guess where I'm going with that is at a fair comment to say that, look, this is really something that needs attention. And how do you feel about what's being done about it?

Dr Mark Schipp:

So, it is recognised at the level of the WHO as the silent pandemic. This is the next.

Steve Peios:

Wow.

Dr Mark Schipp:

Well biggest health issue with tens of millions of people likely to suffer early death or a chronic illness because of having infections that are not able to be treated with antimicrobials.

Steve Peios:

So, this has me very, very...this has me thinking, Mark when we talk about what we can and or should be doing to combat the challenges posed by this AMR, you've talked a moment ago about education and all that sort of thing as well, but on top of that education factor, how much do people that in, and I'll put my hand up in the level of being a lay person, trying to understand all this, how much more can we do without sort of feeling a threat to ourselves, if it's a case of an illness or something like that, to actually combat the challenges that are posed by AMR?

Dr Mark Schipp:

So, there's some very easy steps that we can all do as consumers and citizens and patients. So, only use antimicrobials as directed to. Return unused antibiotics so that, they're not disposed of inappropriately in the environmental or pass to somebody that's not been prescribed as antibiotics. Don't go into see your GP with the expectation that you'll come away with a script for antibiotics, and to try and raise awareness in the community about antimicrobial resistance. As I said, this is a silent pandemic. And the reason it's silent is because there's such a low level of public awareness and political awareness about antimicrobial resistance, but the same applies if you've got animals in your care to have good biosecurity. So, that means having a clean environment for your animal, preventing introduction of new animals or infected animals that are going to introduce disease, ensuring that they've got their vaccinations so that they're not becoming infected with a disease that will require treatment with antibiotics, ensuring they are well fed and that they've got clean housing and that you're following veterinary advice in the care of those animals.

Dr Mark Schipp:

We're very fortunate in Australia that we've got a very clean green environment in order to raise livestock. And that means that we have very low levels of antimicrobial use in Australia, and that underpins our access to export markets, and the great quality of food and lifestyle that we enjoy being in Australia, but that's underpinned by science and risk assessments and effective regulation. And for that reason, Australia has got one of the tightest sets of regulation around use of antibiotics in Australia to ensure that those critically important antibiotics, those antibiotics that we want to preserve for a serious human infection are not available for use in animals and particularly for livestock animals, which we're going to ultimately be consuming.

Steve Peios:

Yeah. And taking lessons learned, Dr Schipp from this most recent pandemic that we've had this, of course, being the COVID-19 pandemic from the last two years. And just in terms of the way education and it is so important, misinformation can spread as well.

Steve Peios:

This says to me that this is an important situation where people need to not get concerned or panicked, I guess it's something to be concerned about, but not get panicked into the situation, but do some reading about it, get some more awareness, get some understanding, because I feel like people, if you can get carried away with these sorts of things where it becomes the right could go into the doctor, but all of a sudden, it's an expectation, as you said, the anticipation of having antibiotics, if that's taken away from you, it might scare a few people, but that is definitely not the case is that it's just about understanding and going through a clear diagnostic pathway to work out what's wrong with you. And don't just resort to these simple basics of, "Here take this, out you go" moving on to the next person. As you mentioned, is that fair to say with not only doctors, but patients themselves.

Dr Mark Schipp:

Yes, very much so often patients will feel that the doctors not taking them seriously, unless they leave the consultation with a prescription and the veterinarians find themselves under the same pressure that unless they prescribed something or inject something that they, the client feels that they're not being taken seriously and they're not treating their animal with the love and respect that they themselves feel for that animal. It's a matter about being well educated and understanding the issues and also contributing to the common good as we've experienced with coronavirus.

Steve Peios:

Mm-hmm.

Dr Mark Schipp:

We get vaccinated, not only for our own protection, but to protect the broader community, very similar with the use of antimicrobials that if we prevent inappropriate use and overuse of antimicrobials, then we're protecting not only the broader community, but we're also protecting our environment. And we're preserving that resource, which is those antibiotics, which are very precious and a dwindling resource.

Steve Peios:

Now, I know you're a busy man Dr Schipp. So, I won't keep you for too much long, but I did want to talk about what's happening this week in a little bit more detail Antimicrobial Awareness Week. I noticed that last year we had a fair bit of, well, a little bit more let's say political awareness of this. We had our ministers getting involved in Antimicrobial Awareness Week. In 2021, we have the slogan which is overarching, which is handle with care. And the theme for 2021 being spread awareness, stop resistance for the food, animal, agriculture and human health sectors. I think those two handles say enough in themselves. What can you tell us a bit about what's happening this week and how that's growing at the international level and also in those awareness levels, because you know what the last two years has taught me about taking everything very seriously when it comes to human health, animal health and everything around us. And I think this is a great opportunity to spread the word. So, if you can elaborate on that for us, finally, Dr Schipp that'd be much appreciated.

Dr Mark Schipp:

So, this is a week in order to raise awareness and myself and the chief medical officer we'll be doing a number of public events. We'll be speaking at conferences and putting out statements. But as the tagline says, we're trying to expand the scope of understanding around antimicrobial resistance to say that it's not just about a use of antimicrobials in a clinical setting, but it also includes the environment. It also includes food. The bacteria that infect humans are the same bacteria that infect animals and the bacteria that are present in the environment and they can retain and share that resistance. So, through the environment and likewise in the food chain, the antibiotics that we use to treat animals or the antibiotics that we give to animals in order to promote their growth or prevent infection can drive resistance, which then is passed on in the food chain. So, it's very important that we consider all of those aspects and broaden the understanding and the engagement on this very important topic.

Steve Peios:

Dr Schipp, thank you very much for that information. Thank you so much for joining us and I wish you all the very best this week with all of that work that you're doing and getting that message out there, please keep up the good work and thanks very much for spreading the word here on the Australian biosecurity podcast.

Dr Mark Schipp:

It's a very important topic and it's been a great pleasure. Thank you.

Steve Peios:

Thank you very much. That was Dr Mark Schipp, listeners. Australia's chief veterinary officer. As I mentioned earlier, he's working to address major animal health issues of the national interest to keep an eye out for all of this great work that's happening on AMR. Thanks very much to listening to this episode of the podcast. You can find out more information on Australian biosecurity on the department's website @biosecurity.gov.au and most importantly, to learn more information about antimicrobial resistance that we've talked about in detail today and World Antimicrobial Awareness Week 18 to 24 November every year, visit www.amr.gov.au that's amr.gov.au. You will also have useful links available in the episode description below. So, please click on to them and ensure you get more information. As, Dr Schipp expertly pointed out there we need to raise awareness on this important topic and really get educated about the importance of antimicrobial resistance. Make sure you subscribe to our podcast series to keep up to date and learn more about Australian biosecurity. My name is Stephen Peios and we'll see you on the next episode of the Australian biosecurity podcast.