Hi everyone and welcome to our first clip on antimicrobial stewardship as part of World Antimicrobial Awareness Week.
I'm Bethan Thomas, and I'm an antimicrobial pharmacist working in Swansea Bay.
I've got two of my colleagues here with me, so I'll let them introduce themselves so we will first go to Dom. Hello, everyone.
My name's Dominic. I'm an infectious diseases and microbiology doctor working in the Swansea area. And then Alex. Hello. My name's Alex Leyshon.
I'm an antimicrobial pharmacist based in Cardiff and Vale. And for our first clip we want to talk a little bit about antimicrobial stewardship.
So this clip is intended to support healthcare professionals across all sectors.
So firstly, I just wanted to find out why is antimicrobial stewardship important?
So antimicrobial stewardship is a group of things that we do to ensure that patients who require antimicrobial therapy receive the most appropriate agent at the correct dose by the correct route for the correct amount of time.
And the reason we do this is because we know indiscriminate use of antimicrobials is a major factor in promoting antimicrobial resistance, which is a global, not a local problem. And we know that this is not particularly done well, because studies in the USA have shown about 30 to 50% of all antimicrobial use is deemed inappropriate,
and antimicrobial stewardship programmes have been shown to be very successful in improving antibiotic prescription use,
but also improving patient outcomes, reducing adverse events, reducing readmission rates and even antibiotic resistance.
So overall, it's something that all of us should be involved in and small things can have a real big impact.
So you mentioned antimicrobial resistance. What is antimicrobial resistance?
So this is something that I think most people have heard of, and it's a very complex thing and problem.
But what it really is is that bacteria, viruses and parasites that can all cause infection, they can become resistant to antimicrobial agents over time.
That's what underpins antimicrobial resistance. And the problem with this is that by becoming resistant, they become harder to treat,
more likely to survive and spread, and they're more likely to cause severe illness and death.
And antimicrobial resistance is one of the biggest threats to global health alongside other issues like food security.
And as I've said previously, it can affect anyone, any age in any country.
So it's a global problem, not a local one. Now, some bacteria are naturally resistant to certain antibiotics, and that can include things such as MRSA.
But most other bacteria will have variable sensitivities to antibiotics, which is why we test them in the lab.
But bugs can develop resistance when exposed to antibiotics,
and that can be through things such as mutation, but switching on and exchanging resistance genes.
So importantly, resistance can spread from one bacterial species to another.
And I'm sure we've all read about superbugs that exist, which are pan-resistant to all antimicrobial agents,
and that's something that we need to slow down drastically.
And while this is considered a future problem, it is indeed it is actually a current problem.

So in 2014, the O'Neil report estimated around 700,000 people dying each year because of antimicrobial resistance.
In 2019, it's been estimated that about 1.27 million deaths are attributable to antimicrobial resistance,
and this is set to increase to 10 million by 2050. So really, this is something that we all need to get involved with and to try and strictly curtail.
And this is a problem that we are seeing locally.
So we have recently changed some of our local antibiotic guidelines to reflect on our resistance rates within the area.
So we have recently changed some of our UTI guidelines to make sure that the antibiotics that we are
recommending empirically do still work and do treat these UTI's that our patients are getting.
I think it's really important on that note, you know, we that we make people aware of the scale of the problem.
You know, like we're saying, it is happening in front of us now.
Like you're saying, we're having to change our guidance because we are seeing resistance.
We can't use trimethoprim, for instance, in the over 65's anymore because the majority of them are resistant, unfortunately.
And so we are having to constantly review and change our guidance.
And it's a case of letting everyone know the problem of antimicrobial resistance and why we have to review and change things so often.
And I think, like, as you said, it's we said it's everyone's problem.
It's a global problem. If these rates continue to rise, as we think it's suggested by that O'Neill report,
10 million deaths a year by 2050 is a terrifying concept and the cost as well to the NHS.
This is just about having conversations with people so everyone is aware of this as a problem. I've heard a few people refer to it as like the silent pandemic.
You know, we've seen how much of an impact COVID has had on the NHS and health care and AMR, antimicrobial resistance, is this background silent pandemic?
So it's really important that we're having these conversations and thinking about how we can all contribute to stewardship and minimising resistance.
So what can nurses, doctors, pharmacists and all other health care professionals...
What can we do to ensure that patients are prescribed antibiotics appropriately?
Um, so I think, I think you've hit the nail on the head to identify that it's not just one group of health care professionals involved in this.
All of us have responsibility and all of us have the ability as well to be able to kind of mitigate antimicrobial resistance and improve stewardship.
So for doctors who are obviously prescribers, being good stewards when prescribing, making sure,
as we said, that you're using the right drug for the right reasons, for the right duration is important.
And underpinning that, there should be an accurate diagnosis that's being made and at all times following kind
of local antimicrobial guidelines rather than using empirical guidelines or experience,
we should be using the information that we've gathered on local resistance rates to inform our decision.
And likewise as well, there should be a kind of a review of what has the patient previously grown and what do
we know that the patient has previously suffered with in terms of resistant bacteria,

for instance, that could inform that decision. I think from other MDT members such as the pharmacists,
then they're really excellent in not only developing but implementing policies that optimise antibiotic use.
So for instance, in my experience,
they'll often give information regards to intravenous to oral conversion of antibiotics when there's no difference between the two
formulations or adjusting the dose appropriately or even just mentioning when we're giving what we call a kind of bug drug mismatch,
we're giving a drug that doesn't cover the bug that we are actually recovering and looking out for those drug to drug interactions.
Obviously, nurses are an integral part of any patient's kind of care,
and some of the things that they can do is, and which they do do, is educating patients on how to take their antimicrobials at the point of discharge,
making sure that they are taking them. But during their stay, before giving, for instance, intravenous treatments,
it's about taking cultures and making sure that they've been done and asking other members of MDT to do that and help them with that assessment.
But also, if there's early signs of, for instance, a multi-drug resistant organism or anything else, triaging the patients for isolation to prevent spread to other patients,
I think is some of the small part of what all of us and all the different members of the team can do.
Yeah, I definitely agree. I think it's everyone's responsibility.
As we said. I guess one of the main things that we're all involved in, hand hygiene,
something as simple as that can have a real impact on antimicrobial stewardship.
I guess from a pharmacist point of view, speaking from my experience and my colleagues experience across primary and secondary care,
we have a big role, I think, in reviewing antibiotics and ensuring that it's the most appropriate choice for the patient.
So like we've said, you know, guidelines are the key here,
making sure that prescribing is in line with guidance and challenging that where appropriate and having conversations with our prescribers.
Knowing the indication for an antibiotic whether that be in an outpatient in community pharmacy or
hospital pharmacy is really important to know so we can check if that antibiotic is appropriate.
And then we are key information providers, I suppose, in terms of counselling across different pharmacy staff, you know,
we should be making sure patients have got all the information they require
about that antibiotic and giving them the right information about course length,
etc. side effects to be aware of so we know they're compliant with courses. Within secondary care we do a lot with the MDT where we can on wards to make sure we're having discussions with teams about
reviewing antibiotics and making sure we're not leaving patients on antibiotics inappropriately.
And I think nurses, you know, join us in that as well when they're reviewing the drug chart every day to give drugs,
speaking to the teams on the ward to say, you know, do our patients still need these antibiotics.
Beth, I don't know from your experience on ward rounds and things if if you've got any other ideas as well.

Yeah. It's just making sure that promoting the guidelines and making sure that we are reviewing antibiotics regularly,
especially things like broad spectrum antibiotics and antibiotics that are maybe prescribed intravenously.
It's just making sure that these are reviewed regularly, really, and just highlighting when antibiotics have been going on for a while.
And is the patient improving, really?
So, in terms of reviewing antibiotics, there is a big push, obviously in secondary care, for 'start smart then focus'.
So I just wanted to see what your opinions were of 'Start smart then focus'. What is Start smart and focus.
Yeah. So as mentioned it's predominately secondary kind of care based idea really.
But the whole point is, is that you must start smart, so you need to have an idea of what it is that you are exactly treating.
And not only that, you need to have an idea of what the acute cause of their decline is so they could have a chest infection.
But you need to be trying to obtain samples to help, you know, help you later on to focus on what exactly the treatment should be.
But being smart is looking at the patient as a whole. So looking as I said previously about recent culture results,
do we know that they're colonised with resistant bacteria or certain bacteria, any recent treatments that they've had because repeating them is probably not going to have the benefit, like looking for those drug interactions that could be a problem.
And their potential risks for issues such as C diff,
which is obviously an issue within hospital environment as well as adjusting those antibiotics that we would want to give initially for kind of
the other comorbidities and ensuring that when we are giving medications that we're doing so in a safe way by taking into account drug allergies,
by taking an allergy history, which is something really important and can be omitted sometimes.
So all of this is about starting smart and not starting antibiotics if there's no evidence, clinical evidence of a bacterial infection.
But using clinical findings and all those data points I have mentioned to help inform of; this is the likely cause of the decline, this would be sensible treatment to start them on. The focus comes afterwards and this should be informed by cultures, for instance, blood cultures,
sputum cultures, other cultures that have been taken prior to the initiation of those antibiotics.
And that will basically allow you to have a better idea of, yes, it confirms my clinical suspicion.
And from that then checking the microbiology, you can come up with a clear plan which you can document.
And that could be that you stop the antibiotics because it might be that it's adequately treated or was being refuted.
It might be that it's suitable to switch them to oral treatment.
It may be that they need a completely different change in antibiotic therapy based on what's been grown and the resistance pattern.
It may be appropriate to continue said treatment for an amount of time which should be clearly documented with regular review.
Or the patient might be suitable for things such as OPAT therapy, outpatient antimicrobial therapy.
But these are all things that come with the kind of amalgamation of clinical review,
as I said, those culture results and the actual patient's response to treatment.

It’s a key tool to prescribing really isn't it for our teams who are out and about on the wards.
I think you've explained it really well there Dom, I think it's all about the mindset around prescribing antibiotics.
And I guess our role,
I guess with this talk and with other education sessions we do is to get people thinking a bit more carefully about their antimicrobial prescribing.
Like you said, thinking clearly: what is this infection I'm treating before I decide to give this random antibiotic?
Am I convinced, number one, they've definitely got an infection and number two, where is this infection coming from?
Often, you know, patients come in with sepsis and we give them broad spectrum antibiotics initially and request all the relevant tests, etc.
And then the key then is that we accept that they need these broad spectrum antibiotics.
They're very sick. But what happens 48 hours later, once you've got all your test results back.
The key is this focus part and what are we going to do at that 48 hour mark?
Does that patient still have an infection. Where is that infection?
And making sure we document things really clearly. That's something I know we as pharmacists and I know the doctors aswell,
we try to audit this a lot to see where we are in line with start smart then focus and these principles.
And one thing we always fall down on is the clear documentation of these plans.
Recording indication and durations is really important to help with that clinical review so whichever team is reviewing that patient has a clear idea of what was going on initially by what was the thought process from that initial prescriber. Within secondary care,
we've adopted ARK charts which I'm sure a lot of people have seen and heard of to
kind of encourage the start smart then focus approach to antibiotic prescribing.
And so yeah, we just need to talk about it lots,
do lots of education and make sure everyone's aware of this kind of mindset to prescribing antibiotics.
You mentioned about the ARK charts Alex; It's also now when some hospitals are going over to electronic prescribing, it’s trying to incorporate the ARK charts which have sort of the hard stop, at sort of 72 hours. It's trying to incorporate that into our electronic prescribing as well and making sure that the principles that we're using with our ARK charts are then taken over to our electronic prescribing as well.
So in clip number two, we will be talking a little bit more about this review at 48-72 hours where we'll talk a little bit more about IV to oral switching.
So thank you both for your time today.
And for those of you listening, have a look at the Web page for more information and have a listen to for more information on IV to oral switch.