



Title: Responsible use of antibiotic in pigs including pet pigs and small-scale producers

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- [Mandy] Hello, and welcome to this presentation on "Responsible Use of Antibiotics in Pigs." The presentation is aimed at vets who are seeing upwards of one pig and I hope has relevance for any vet who sees any pigs at all in their daily work. My name's Mandy Nevel, and I head up the Animal Health and Welfare team at AHDB. I oversee the work across the different livestock sectors Pork, Dairy, Beef, and Lamb. And I also oversee the projects looking at the electronic medicine book for pigs and the Medicine Hub for ruminants. And it is an area of interest for me. I'd like to thank right at the outset the contribution that Claire Scott from Bristol University has made to this presentation. And also to the reviewers from Pig Veterinary Society including Paul Thompson and John Carr.

The learning objectives focus on a number of areas around defining those key parts of pig production where there's a risk of inappropriate antibiotic use. And we will be focusing on small scale and pet pig keeping. We'd like by the end of this module for you to be able to outline appropriate strategies for reducing that risk and really considering whether antibiotics are necessary. If they are necessary, and I do believe that antibiotics are a really important tool to enable us to safeguard animal welfare. But if they are necessary, make sure that they are the correct antibiotic, given in the correct dose, to the correct pig, and via the correct route. We'll then go on to explain the 'Plan, Prevent, Protect' principles and how they may apply to pigs that you'll be seeing practise. We'd also like you to understand the principles of health planning for small-scale pig units. Often people think that this just is applicable to large-scale pig units, but that's not true. And then finally, I hope that I'll be able to point you in the right direction for being able to calculate antibiotic usage for pigs under your care.

To begin with, we're going to look at the risk areas for inappropriate use. And these are split out into situations where habitual prophylaxis or metaphylaxis antibiotics are used. The case where there's no 'exit strategy' so once a treatment plan is in place, how long do you put it in for? And quite often we initiate these treatments without thinking about how we're going to stop. The 'just in case' using clinical situations, maybe uncertainty around it, your differential diagnosis and having the confidence to say actually antibiotics are or are not appropriate in this situation. Some times it's easy to think of pigs as being slightly exotic and therefore reach for an 'exotic' antibiotic. So really trying to focus on using the most appropriate antibiotic for the job that you're trying to do. And then thinking about how we get that antibiotic into the animal, the appropriate dose and the administration of the antibiotic. With habitual prophylaxis, we've seen in the pig industry that since we've been recording antibiotic use in the commercial side since 2016 and that data for 2015 is actually retrospectively entered. We've managed to reduce antibiotic use by over 60%. A large part of that has been just through reviewing what's used largely in feed and just having the confidence to say, "Well, we know that we've put that in place for a particular disease problem." Maybe it was

post weaning diarrhoea or something like that. And for it to have been in there for a long time without really having reviewed it and having the confidence to take it out.

So once it's put in, how do we actually take it out and how do we get the confidence to do that? And I think the first thing for me is actually looking at what you're using and understanding why you're using it. And then putting in a plan to take it out and having confidence that what you're going to do is not going to impact on animal welfare. As you and I know, vets are the guardians of antibiotics and it's really up to us to make sure that they're used responsibly. Building good relationships with farmers is absolutely key to the cascading of that message around responsible antibiotic use.

Now, historically some vets and farmers would administer antibiotics to entire groups of animals as a matter of routine or maybe even treat more animals than need to be treated at the first sign of disease. The message that is not always responsible use can be difficult to get across. And that's really because for some time it was deemed prudent to treat those animals even at a low level of risk. So we've got to really turn around the message that we're giving. Whilst this does still happen on some units, for example, I think in particular for neonatal animals or during the post weaning period, it's important that we consider and decide whether those instances that routine antibiotic is really needed. Or whether it can be removed because there is no longer any underlying disease. It may be that we need to understand whether farm modifications must occur before they're removed to prevent any negative health and welfare. So it's easy to put in a treatment to help control or to stop a problem, but it can be really difficult to have the confidence to take it out. Good history and examination of the pigs and the farm will be important to understand why those antibiotics are or why they were needed and to help to decide when it's appropriate to stop using them. So visit the farm and try and understand the point or the time of use and why the farmer thinks that that use is still necessary.

It's really important to take the opportunity to review the overall biosecurity, making sure that both internal and external biosecurity is tight. So external biosecurity, making sure that nothing comes on to that unit and that starts with lorries or your boots, all that sort of thing. And then with internal biosecurity, that's obviously the disease spread around the unit. So quite often, some of those management problems that you see on farms are the reason that those antibiotics started. For example, neonatal animals, where it may be that you've had an outbreak of joint ill or something like that. And you've put in a routine antibiotic just after birth. Another common point is that at castration, now although castration is not permitted under most insurance schemes, it's still done particularly on small scale and rare breed units. That's because animals tend to be slightly slower growing so they can actually develop boar taint by the time they go off to slaughter. So castration is actually really quite common. It may be the antibiotics are given at that time so when you're castrating them to do that. Obviously, castration prevents boar taint but it also prevents pregnancy. And I wouldn't advocate for stopping castration without careful consideration. But possibly you could use something like GnRH vaccine, which there's one on the market called Improvac which actually stops those boars, their testicles stop developing and they then don't go on and develop all the boar taint. But obviously you need to weigh up the pros and cons of doing that on any farm.

So if we go back to the neonatal animals, maybe start thinking about what goes on around that farrowing period? How clean is it? Start a conversation with the farmer about the accommodation and looking at overall piglet viability. If you've got a problem with joint ill or something or some early neonatal infection, you're likely to have high mortality. By looking and reviewing what's going on on the farm, we'll help you to identify risky practises and may be able to help you refine management so that you can reduce that need for antibiotics. Post weaning is another time when there's a high risk of inadvertent inappropriate antibiotic use. Weaning, you taking the pig away from the mum,

you're changing the diet, you're putting them into new buildings, you're mixing them, you may be doing routine treatments. It's an incredibly stressful time for those pigs. And it's not surprising that in that post weaning period a lot of them will go on and get disease problems. So try and think about minimising the risk at that time of weaning. And also to think whether there are options for vaccination that you could use. If you are using antibiotics in that period, and it has been prolonged time, and is routine, perhaps consider starting to do some diagnostics. And you can always start to remove a small group, look for challenges, and if you don't have the confidence to go and extend that wider, then you can obviously stop.

Scouring can actually be a swine dysentery problem. And this is a particular problem in small scale units. It can often be masked and you can get carrier animals. It doesn't need to be a full blown outbreak of dysentery. It can just be a fairly limited scour problem. It's particularly a problem on units where animals go off to shows and the animals come back they can act as carriers, they can bring it back. And you can have a swine dysentery problem on your farm. Swine dysentery actually means blood in the faeces but sometimes the faeces aren't bloody, they can just be mucoid and look dark and loose just like in this picture here. If you are suspicious that your animals have got *Brachyspira* then submit a sample for culture and PCR. And remember the AHDB have the Significant Diseases Charter which is an industry initiative that allows units to identify and to report to others where swine dysentery is, because they can tighten up on biosecurity.

We know full well that biosecurity is the best way of stopping dysentery spread. But do have a look at that on the AHDB website as well. As I mentioned on the previous slide, biosecurity is key to reducing pathogen and thereby disease spread. And that ultimately reduces the need for antibiotics. Pay attention to both internal and external biosecurity. So that's, the external biosecurity bringing pathogens on to the farm and internal biosecurity is preventing the spread of those pathogens once on the farm. Disease itself cannot be prevented, but pathogen spread can be. In addition to reviewing the farm's biosecurity, periodically review farm management and make sure that the farmer's sticking to the legislation, that they've got good welfare, and they're also sticking to the legislation around responsibilities of medicines. It may be economic for the farmer to do this all during one visit, but they may want to put in a separate visit to focus on this. I never miss the opportunity to talk about the rules for feeding pigs. And I never miss the opportunity to mention this to vets and farmers that feeding of kitchen scraps is illegal. It's a risk that we know happens particularly on small scale and pet pig units, but it can actually bring down the entire pig industry. If we've got an outbreak of African swine fever, classical swine fever or even foot-and-mouth, it would bring our industry down. And we know that probably the biggest risk is for those small-scale and pet pig owners giving their pigs contaminated food. There's a lot of free information out there, whether that's on the Defra AHDB Pig Veterinary Society or MPA website, I would encourage you to put regular updates in newsletters and these resources can be used free of charge. You just need to just acknowledge them please but do use them and get the message out there that feeding of kitchen waste to pigs is illegal. Doesn't matter whether it's come from a vegetarian kitchen, it's still illegal. So please try and get that message out to your client.

Also have a look at where the medicine's stored. It's amazing how many fridges don't work properly on farms. Put in a maximum-minimum thermometer and ask the farmer to record daily, weekly, whatever, so that you know that those vaccines and medicines are all being stored properly. It's not uncommon for the kitchen fridge from the farm to be used as the storage on a pig unit because the fridge in the kitchen has started to frost up and got a big block of ice at the back. But actually that's probably the worst thing that you can do is to use an old fridge that can't regulate temperature properly. As you know, freezing of vaccines is by far and away the worst thing you can do to a

vaccine. And if a fridge isn't working properly and does get ice build up at the bucket means that it's running too cold and can't regulate the temperature. Fridges are relatively cheap, in terms of when you consider how much money the farmer is spending on vaccines and medication. So really make sure that that's well maintained and regularly checked.

The next potential area for inappropriate use is that 'Just in case.' Now, I know that we've all done it in the past where we don't really know what's going on. We're unsure of the diagnosis and we give antibiotics because we think we will have covered everything. We're just not sure so it's that kind of 'just in case' use. But I'm sure you're aware that that may be inappropriate. So a good history examination of the pig and the farm are absolutely essential. If it's an individual pig, just do a full clinical examination, get a good history and you'll be able to narrow your list of differentials. And it may be that when you've done that you'll be able to reduce the need for antibiotics. But importantly, if you do that and you reduce your list of differentials you'll be able to reduce the risk of an inappropriate choice of antibiotic. So if you do end up prescribing an antibiotic it's much more likely that it's going to be appropriate and it will succeed. But don't forget to implement diagnostics where appropriate, particularly if there're more pigs on that unit, because in the future if that same problem occurs you'll have a much better understanding of what antibiotics, if any, are needed for that situation.

Sometimes we think pigs are slightly 'exotic.' And if we're not used to treating a large number of pigs it can be tempting to reach for an antibiotic that's somewhat 'exotic.' And I'd really encourage you not to do that. There's a lot of information out there but the two websites that I would point you to are the Pig Veterinary Society Guidelines and the Prescribing Principles for Antibiotics are incredibly useful, as is the RUMA website. And I've put these on as links at the end of the presentation too. Many of you will be aware of the categorization of antibiotics, I just thought it would be useful to recap on that because the European Medicine Agency have reclassified antibiotics quite recently and they've categorised them into groups A to D. Category A is avoid at all costs and these are antibiotics that are not really, they're not allowed to be used in veterinary medicine. Category B is what we used to call HPClAs, So those that are restricted. Then category C are those that need to be used with caution and category D are those to be used with prudence. And the category D is the equivalent of the PVS category one. If you're going onto the pig veterinary website to look for their guidance and their classification of antibiotics you'll see that they've classified them into groups one to three. Which unfortunately not very easy, but they're the reverse to the EMA. So class one is D, class two is C and class three is B. And as I've said, we can't use those category A antibiotics. This document is freely available on the Pig Veterinary Society website. And I think it's really useful to have it to hand whenever you're going out to see a pig. This is a pie chart of the antibiotics that we know are used on pig farms. And you'll see by far and away the largest amount of antibiotics are the tetracyclines. So this is a category one or a group D on the EMA list. And the vast majority of antibiotics that are used in commercial, commercially reared pigs on a large scale are those in category one. So it really does beg the question as to why with small scale and pet pigs, a lot of the use would be around a more 'exotic' type of antibiotic.

A lot of the diseases that pigs get, bacterial infections that the pigs get will be sensitive to a class one or a category D antibiotic. And I would urge you to think about this when you are going to select your antibiotic for your pigs. It's quite interesting actually that over the years, since 2015, since we've been recording, the pig industry has more or less abolished the need for these high priority, critically important antibiotics. That's the category B on the EMA and our class three in the Pig Veterinary Society prescribing principles. So very, very few of these drugs are used in pigs. And it's only when we've got a diagnosis. You'll see how infrequently they are needed in the pig industry.

Now, maybe that on small scale and pet pig units antibiotic use is low, but it still needs to be responsible. And with that, we need to make sure that we're getting the correct dose into the pig. There's no point treating a pig with antibiotics with a low dose, 'cause it's not gonna work or with an overly large dose, totally not needed. It can be quite difficult to know what a pig weighs 'cause not many people are going to have weigh scales on farm. If they do, I would recommend that you use them when you're weighing your pigs, it does keep your eye no matter how many animals you've weighed in the past. But it's good to get practise and I always like to try and guess how much a pig's gonna weigh before I see it and then see how close I am. But very aware that not many pig farms that you're going on to will have those weigh scales.

So when you've completed your history and examination, you've decided what antibiotic is appropriate, we need to get the correct dose. And the correct route inside into the pig. So I've put up here an equation that can help you to estimate the weight of the pig. As a general rule, pigs are about a kilo at birth, they're between 7 and 10 kilos at weaning. And if they're finished at about six to seven months of age, they're probably around a hundred kilos. Again, coming into eaters for the first time is about 120 kilos. But a full grown sow may be up to as much as 250 with boars being able to be considerably heavier, possibly even 350 kilos. So those rare breeds and those that are found on most small scale producers tend to be slightly slower growing. I guess a rough estimate would be about 80 kilos at 18 months. Then have a look at this equation. And you can use this when you go out on farm, you just need a tape measure to weigh behind the elbows. And along from the head to the tail end. Pigs are generally heavier than we think and it's very easy to under dose a pig. So I guess if in doubt go slightly heavier and make the most of any equipment that you've got on farm.

We've talked about the correct antibiotic and the correct dose and getting that. Assume that you've got that into your syringe, I'm not going to talk about the restraint and equipment that you need to actually administer an antibiotic. And I'm going to focus on injection, I'll mention in-feed and water medication a bit later, but for this part of the talk it's around injection. Restraint and equipment is usually important and not every pig keeper is going to have the knowledge, the experience or the facilities to adequately restrain a pig for injection. It's also important to know that not every pig keeper is comfortable or able to administer injections, so before you think about leaving someone farm, that's a really important question that you should have. And also, should you be leaving a whole bottle on farm or just the number of doses that you've prescribed. If you're going to use a snare, like you can see on the left-hand side of this picture here, really worth reminding the owner or letting the owner know that the pig will scream, they do make a huge amount of noise with this. And I'd recommend that you and the owner have ear defenders. But if it's a pet pig, this is an unlikely method of restraint, there's going to be suitable for that because most pet pig owners don't like this put round their pig's nose. But it does mean that the pig is restrained and will stay relatively still. If you can't do this, you're going to have to resort to something like a crate but obviously bear in mind that your arm can get trapped. And that's a really important point that when you're considering route of administration, human safety has to come first. So don't put yourself or the pig keeper at risk of harm. If you don't have a snare or even if you do have a snare, one good tip is to use a piece of tubing, a Slap-Shot so you can put the needle in, let the pig splash around a little bit and still be able to inject. If you don't have a bespoke Slap-Shot like this one in the picture, you can always use a piece of tubing that you've got from maybe a drip giving set, the coiled ones, the large animal ones, quite useful because they do allow a certain amount of movement in the pig. Just be aware. And obviously, as you're drawing up your antibiotic you need to account for all the antibiotic that could be left in the tube. So you might have to leave a bit of air to make sure that all the antibiotic is actually administered. If the owner isn't competent to inject you are going to be left to

go out on a daily basis if you're using a daily injectable. Or you could look at an alternative oral antibiotic for the owner to administer.

Pigs have a huge amount of subcutaneous fat and rare breed or pet pigs have even more subcutaneous fat. So selecting the correct length of needle, as well as the correct gauge is really important to ensure that the correct route is used. We don't want to be administering antibiotics subcutaneously, or intra fat if they are intended for intramuscular injection. If they do go into a lump of fat just remember that that will result in low blood levels and that slower absorption, you'll effectively be under dosing the animal. Also make sure that you've got the right gauge needle. If the animal moves and the needle snaps off, your best option is to try and get it out there and then. If the animal moves around too much after a needle's broken off it's likely to work its way further into the animal. If you do lose a needle in an animal that animal should be identified and must not enter the food chain. I put some pictures there of bits of pork just to illustrate how deep that layer of fat can be. The picture on the right has a green one-inch needle, showing that it's not going to touch the muscle and the two-inch needle there better injection. The meat in the middle is a delicacy called Salo which is cured pork fat. And that's just there to illustrate levels of fat that some pigs have and chances of hitting a muscular layer on that piece of pork is going to be quite slim. I've put in a table, an estimate of what needle you might want to use. I've categorised those into under seven kilos, so that's pre-weaned. And then your weaner, grower and finisher pigs and then adults. And I've made that for subcutaneous injection and also intramuscular injection. So make sure that you select the correct needle, the correct route of administration. As I said in the previous slide, the best place for an intramuscular injection is just behind the ear using the triangle and going in perpendicular to the skin. In a younger pig, again, you can go behind the ear but there isn't a huge amount of muscle there. So do give some consideration to the volume of medication or antibiotics that you're injecting. Some people prefer to inject small pigs in the hind leg, be careful with that it is the most expensive cut of meat. So you're injecting right into that leg muscle. If you get an obsessive reaction to the injection, it's going to cause fibrosis and scarring. And also if you are picking up the pig or holding the pig by the back leg, notice on the left of this picture how the index finger is right underneath the stifle of the animal to support it. Because you can actually tear some of the ligaments in the back leg if you hold the leg too far down. So just be aware of that and make sure that you restrain the pig adequately.

We've talked about injection or injectable antibiotics and medication. A number of antibiotics are suitable to be incorporated into food or to go into water. These tend to be much more widely used in large-scale settings, but they can be really useful on a smaller scale. In-feed medication is normally given to multiple pigs and you must ensure that mixing with the food is good. You can top dress but it can lead to variable intakes with one pig, a greedier pig getting the majority of it. And also remember that sick pigs will be reluctant to eat. In addition, you may actually need to buy more medicated feed than is needed and that does result in inappropriate use as farms aren't gonna give, they're not going to throw their medicated feed away. But they may feed medicated feed when it's not needed just so that they can use it up. Some in-feed may also be a high category of antibiotic than is needed and again, that can lead to inappropriate use. If you are using water-soluble product just be aware that some may precipitate out at cold temperatures and to medicate only those pigs that need if you can. Again, variable intakes but water intake does carry on even when pigs are off their food. So if you've got sick pigs, water is probably better than in-feed. And make sure that when you are giving an in-water medication that you mix the antibiotic and amount of water that's likely to be consumed in a shorter period of time, not 24 hours. 'Cause if it's not all consumed within 24 hours, then it will be under dosing. And also just look at manufacturer recommendations for storage as that can lead to some inappropriate or sub therapeutic use.

To recap up on what we've done so far. We've talked about the when, the why, the how and the what of using antibiotics. We've talked about trying to reduce that habitual prophylaxis or metaphylactic use, that's the when. Thinking about how you're going to have an exit strategy. Once the treatment plan is in place, how are you going to stop? So consider how long you're going to give that medication for right at the outset and then stop it. Don't just carry it on because it's working. The 'just in case' in clinical situations, why using it paying attention to your differential diagnosis list, trying to refine it down. Not only for the antibiotic itself but the actual type of antibiotic that you're going to give. We talked about reaching for an 'exotic' antibiotic. One of those that's in a higher category than is necessary. Again, most pigs will respond to the class one in the PVS prescribing principles or the category D of the EMA. And then we talked about the inappropriate dose or administration. So how much and where and getting it into the pig in the correct way.

The 'Plan, Protect, Prevent' protocol for pet pigs is largely talking about veterinary health planning. And it's an excellent way to document what's going on currently on farm. You can identify areas for improvement and also create protocols for disease scenarios and future things that might happen. The health plan is all well and good on a piece of paper but really the basis of it is implementing it. So make sure you action what is on there. It should improve performance. It should improve health and welfare. And with that, you should have less reliance on antibiotic use, improve your sustainability and ultimately your profitability. So in your plan, you should outline the current health status and identify areas of risk. And we've talked about some of those areas of risk that you can put in there. But also thinking about the biosecurity and the vaccination medication. Including your action plan, a review, and make sure that you go through and review what you've done, what you've implemented on farm, and what the impact of those actions have been. Clearly outline the protocol and the point at which veterinary help should be requested. By doing this you'll be empowering your clients to make good health and welfare decisions. And you have a good understanding at what point you're gonna be called in if needed. There are many plans out there but I think it's worth creating your own template and making it suitable for small scale pig keeping. And you can modify it for each of your clients and that way you'll become used to it. And it'll be a tool that you'll use more readily. If you ensure that the client becomes part of the process in making that plan, they're much more likely to be engaged in executing it. And you can also pitch it as an insurance for future issues because a few hours of your time now, will prevent emergencies down the line.

On here I've put some of the areas that you might want to think about. So medicine use and treatment decisions, vaccines and worming, farming practises such as biosecurity, what the farmer's doing with new stock, what they're doing with housing and the breeding management. Identify some of those areas that you want to work on which may be unnecessary prophylaxis, more appropriate use of different classes of antibiotics, or just making sure that all your husbandry practises are the best that they can be to try and reduce the need for antibiotic use. You might want to list medications that are allowed to be stored on the farm and the situation that they might be used. You can create trigger points for when veterinary attention should be sought and also identify alarm points in production. Try to encourage your clients to practise all-in/all-out and that's between buildings and onto the farm itself. And also try and encourage diagnostics appropriately so that you can get a better understanding of the diseases that may be on farm. And you can change the protocol. For example, you can change the vaccination protocol appropriately. I've put this slide up as an example of a health planning initiative that was recently being conducted in Wales. And it provides a support for pig farmers to create a bespoke health plan. But there are some really useful tips on creating, what I think is a good health plan. As I said before on the previous slide, the plan shouldn't just sit on a shelf but it should be an action plan and should be reviewed in a timely manner. Try and make any objectives that you include in that action plan SMART. That's Specific,

Measurable, Achievable, Realistic and Time-bound. And particularly with antibiotics the M in SMART, measuring. Measure what you use and we do encourage the use of recording on the electronic medicine book that the AHDB have established. The electronic medicine book is freely available for all pig farmers to use. In practice, vets will often assist their clients in uploading medicine onto the EMB. But the data are the farmers, and they're not used for anything that the farmer doesn't give them permission for. So any pig farmer can use the electronic medicine book and any vet can go on and use it and it's a really useful tool. With the data, the usage across the pig sector is analysed on a yearly basis, and we can see trends over time. As a vet, you can look at use on a number of your units. You can get a group report and therefore you can compare use amongst your clients. You can quickly identify those that are maybe using high levels or those that are using low levels. And that can help you in dealing with any disease issues and also managing antibiotic use on the farms that you oversee.

What we've learned from that sinker on the more commercial side of pig practise is that the use of the benchmarking report on the EMB has given them a document that they can really open the door for discussion with their farmers. So a number of vets will also use group reports for maybe some farmer group but obviously that's only going to work if the farmers are prepared to share their records. If you haven't used EMB before, there's loads of advice on the AHTB website. We've also got a Bureau support service with a phone line or a dedicated email and we'd be very happy to guide you through using it. But there is a user guide, do look it up and hopefully be able to use it and encourage your clients to do it. And I've just put on this slide some of the trends that we've seen, seen these earlier in the presentation. But just a really good decrease in the overall amount of antibiotics that are used. Plateauing out at around a hundred . But also the reduction that we've seen in those critically important antibiotics. We kept your data for over 94% of pigs that are slaughtered in the UK. But it would be really good to get some of those smaller scale producers online. And we can look at what's going on right across the pig industry. We know that there are about 12,000 commercial pig units but we also know that there are probably around 18,000 small scale and pet pigs. So although they might not have huge numbers of pet pigs, there are a lot of pig owners out there and it's important that we know what's going on because they are an important part of the industry. It also means that if you measure antibiotics that are in use on the farms that you see, you can also change what you do. If you don't measure, it becomes really difficult to change. We've all heard that old adage, you can't change what you don't measure and it's so true for antibiotic use. So actually recording what you're using on your farms is probably the first step in changing. Good recording also allows identification of problems. So if you see an upturn in particular antibiotic it might give you an indication that there's something going on on farm. But more than that, just normal production on farm recording that and trying to spot where there are areas is really important. You see a picture of a board of numbers and doesn't matter really what this is for, but anything over five is indicated in red. It could be the number of pigs dying or the number of pigs treated in a group. And the farm knows that when a five or more is recorded on that board, that that's actually the time to seek input from the vet.

So you could use a similar board like this for things like the lame pigs or those that are tail bitten. And as I said earlier, in your veterinary health plan you can outline really clearly in that at what point the farmer should seek intervention from their vet. With EMB the benchmarking is so important as a tool to enable that discussion to happen. But obviously if you're not doing pigs on a massive scale it might be quite daunting to have a look at that. So, as I say, we're really prepared at AHDB to help you with that. But I would encourage you to go and have a look. This is just an example of the benchmarking that we have, it's not rocket science. But you can see, on the graph with the blue bars, you can see the average for your type of holding. So whether you're a weaner, or a breeder, finisher,

whatever you are, you can put in your category and you'll get ranked according to others that have a similar type of production system. You can see the average use for that type of system and then your usage where you are. We always see a real skew to the left, so a lot of producers are here. But what we have is we have quite a long tail of higher users. And knowing where you are on this scale is really key to driving that initial change that you need if you are a high user. Whilst the data that you might enter or that the farmer might enter onto EMB always belong to the farmer, hopefully, they will share that with you. It's always worth doing a sanitary check. It's not unheard of for farmers or vets to put in wrong units. And they might put in litres instead of millilitres. So just sense check what the outputs are and that they mirror what you understand is going on on that farm. Check also, not unheard of for people to miss things off. They forget, maybe it's put on a piece of paper somewhere. They've just forgotten to. Do have a check if you've got that relationship with the farm where you can do that.

As you make positive health changes, it's really useful to show your clients how their data are showing that achievement. And obviously praise and reward where that's happening. I think it's also important to say that zero antibiotic use is not the aim and it's appropriate antibiotic use. If you do have a disease outbreak and you do have to put in antibiotics, that shouldn't be seen as a negative. That too is responsible antibiotic use. But again, it's useful just to reflect on that and see you had a rise in antibiotic use in that month or in that quarter, but you could account for that. And that is responsible use. So it's not all about hitting people over the head with a big stick saying, "You must use less." Because that's absolutely not what we want to do. We want to use the right antibiotic, at the right dose, at the right time, for the right pigs. And doing that is good use of the tool that we've got. Review your health plan, perhaps yearly. And if you're new to this game it might be worth getting another vet to have a look over it and just make sure that you've captured everything that's appropriate to do so.

So that concludes the presentation for today. And I hope it's been useful. I am happy to take any questions that you may have. On the next couple of slides, I have put some references for you. But please don't hesitate to get in touch if you need any further help or guidance or you have any questions on the presentation. Thank you very much.

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