



Title: Prescribing in pig practice

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- [Lucy] Hi, I'm Dr. Lucy Coyne, and I'm a vet and have a PhD in veterinary epidemiology, and I will be presenting on Farmer Communication and Behaviour Change: Prescribing cultures in pig practice. Just to give you a bit of background, as I said, I'm a vet and I have a PhD looking at the drivers and motivators of antimicrobial prescribing practices in UK pig practice. Following this PhD, I've also done research in the area of antimicrobial resistance and use in livestock in both the UK and in low and middle income country settings. I'm currently working for DEFRA as a senior policy advisor in animal health policy, which is looking at animal health policy following withdrawal from the EU and the common agricultural policy. And I'm also an honorary research associate at the Institute for Infection, Veterinary and Ecological Sciences at the University of Liverpool. So to just acknowledge some of the contributors to this presentation, so Dr. Sophia Latham and Dr. Gina Pinchbeck, are both lecturers in Veterinary Epidemiology at University of Liverpool, and both contributed towards the PhD results which I will be presenting today. Richard Pearson is a practising pig vet at the George Pig Practice in the Southwest, who was involved in the PhD all the way through. I want to thank RCVS Knowledge for the opportunity to present to you today, and also to my friend, Dr. Danielle Carroll, who's a practising mixed practice vet who also very kindly, reviewed the content of the presentation.

So to give you an overview of the learning objectives. On completion of this module, you should be able to understand some of the barriers and enablers to behaviour change and antimicrobial use by farmers and vets in pig practice. Identify some practical routes to promote responsible antimicrobial use and support efforts to reduce antimicrobial use. Identify resources to support farmers and vets in reducing and optimising antimicrobial use.

So to give you a bit of background on why we want to understand antimicrobial prescribing behaviours. The influences and drivers in human prescribing have been extensively investigated in factors such as the influence of senior practitioners on junior practitioners, parental expectation whereby, parents are going to the doctors wanting something to be done. So thinking that antimicrobials are the best course of action. Fear of the consequences of not prescribing. So doctors concerned that, if they don't prescribe an antimicrobial, will the result be worse than if they do? And failing to perceive antimicrobial resistance is relevant to that particular situation. So doctors failing to see it as a problem in that particular hospital, area of medicine. And research into food producing animals have suggested that very similar drivers influence antimicrobial prescribing by vets and used by farmers, and understanding drivers and motivators associated with antimicrobial practices is a prerequisite for behaviour change. Understanding barriers to changing behaviours and antimicrobial use. Effective and sustained interventions to reduce antimicrobial use, and effective tailoring or targeting and dissemination of information on responsible antimicrobial use. So here I will present the results from my PhD study that spoke to both vets and farmers in an interview form, and did a

wider questionnaire to look at the factors associated with antimicrobial prescribing practises and used by both pig vets and farmers in UK pig practise.

So human factors are considered to influence antimicrobial use. So human factors are considered to be those sort of factors around attitudes, perceptions of an ideas of vets and farmers in the prescribing environment. And my PhD results identified a number of different barriers to behaviour change. So conflicts in the vet and farmer relationships. So farmers generally sort of described a very mutual relationship with their vets whereby, prescribing decisions were a partnership. And the majority of vets also felt that they had this similar relationship with most of their clients. However, a minority of vets did identify that some clients may apply pressure and sort of asking one antimicrobials in certain situations where they may not be indicated. Further barriers related to responsible antimicrobial use and attitudes to antimicrobial resistance. So the majority of vets and farmers considered they themselves were responsible in their antimicrobial use. However, there was sort of this perception that others may be less responsible. And similarly, antimicrobial resistance was not considered to be a major problem for the UK pig herd. However, there was this sort of perception that antimicrobial resistance was a greater problem and other livestock species, companion animal medicine and human medicine.

So enablers to sort of behaviour change around these sort of attitudes and perceptions, there's obviously opportunities for greater knowledge exchange and responsible antimicrobial use and antimicrobial resistance, and making sure that things like CPD and farmer's meetings are kind of sharing the most recent evidence, up-to-date evidence from both human and veterinary medicine. There's a need for a greater kind of coordinated One Health approach, where both human and veterinary medicine are kind of working together to their shared goal. There's opportunities to increase vet and farmer communication and knowledge exchange through things such as online in the current COVID climate, but going forward, kind of in-person meetings, whereby vets and farmers kind of equally share their experiences on the antimicrobial use.

There has been an excellent initiative looking at kind of case study examples by RUMA, whereby farms can kind of share their success in reducing antimicrobial use. There's also options for things such as monitor farms, which have been very successful in Scotland, whereby vets and farmers can actually go onto an example farm and troubleshoot as a group, routes to kind of improve health management, and as part of the antimicrobial use. And that again is an opportunity for both vets and farmers to work together.

So to give a bit of background to this research, I've picked out some of the kinds of interesting quotes from some of the interviews. So, "There are 75% of rational clients "that you can discuss things with, "and reason as to why they don't need to use the antibiotic. "And there is the 25% of damaging clients "who will simply insist that they have that," and that showing the kind of veterinary perspective that there are sort of issues with client pressure from a minority of clients, and can sort of in contrast from a farmer, "Well, we work with the vet, "the vet prescribes and then obviously, "if there's no response, "we go back and work with the vet again "and he prescribed something else." And then the following two quotes as well, show this kind of idea that others may be less responsible than they themselves. Factors around management and economics. We consider to drive antimicrobial use. So health status and management. So low health status herds with poor management practises were considered to be high antimicrobial users, and kind of enablers to behaviour change. Vets and farmers identified that sort of training of staff to sort of improve stockmanship, knowledge exchange on effective management approaches and biosecurity were essential to kind of changing farm level management to sort of look at reducing and minimising antimicrobial use.

An example given was, for example, changing from a continuous flow system to an all in all out flow system through the farm, was a fantastic route of kind of improving herd health and allowing sort of better cleaning and disinfecting an internal biosecurity. So economic factors were identified as kind of a major hurdle to reducing antimicrobial use. So management and facility improvements may not be economically viable for many units, and these sort of improvements would enable the farm to kind of reduce antimicrobial use and improve herd health. So, sort of greater availability of things like DEFRA grants going forward might enable some farms to make these facility improvements. However, kind of greatest discussion and knowledge exchange on biosecurity is essential.

So there are many things that can be implemented on a farm that don't necessarily cost a lot. So things such as how kind of workers and staff around the farm to kind of minimise moving pathogens from one pen to another, or between housing and things such as line of separation, whereby you put on clean overalls between houses, and sort of things that can be done and can help to improve herd health without actually costing a lot. So preventative antimicrobial use was generally considered by vets and farmers to be a responsible use, but in some situations there may be reluctance to withdraw in-feed antimicrobials when they sort of perceive to be working, and there's kind of this fear of unknown. So it kind of, route to kind of seek alternatives to preventative antimicrobial use such as vaccinations might be appropriate, as well as kind of a lot of in-feed antimicrobial uses for prevention. And there are opportunities to kind of invest in things like facilities for in-water antimicrobial use that will allow kind of farmers to do more targeted use for sort of smaller groups of pigs.

So these are a few quotations from interviews with vets and farmers around management and economics. So you just pick one out from a vet, "The system absolutely influences diseases "and therefore the use of antibiotics. "Lower ones are always the ones that are well managed. "If it is badly managed, "you can end up with problems and diseases. "So the management of each system is the key really." And similarly, a quotation from a farmer, "I think as management and the environment improves, "the use of antibiotics will reduce." So finally, drug related factors were found to influence antimicrobial use. So critically important antimicrobials. That's particularly reported that some situations there was a lack of alternatives to critically important antimicrobials, particularly in light of the cascade and sort of using the product that is licenced for the particular condition, and neonatal scours was an example commonly given. And sometimes, that whilst the maybe products licence, they may be unavailable for whatever reason. However, there was a general social responsibility sort of discussed by both vets and farmers to reserve the use of critically important antimicrobials. And there are things such as the Pig Veterinary Society prescribing principles already in existence that actually do very clearly sort of show what we should be doing in terms of different antimicrobial classes to support the responsible use of critically important antimicrobials. There were also increasing insurance scheme and retailer requirements to reserve the use of CIAs to kind of last case scenarios. There wasn't certain situations or kind of conflict between the sort of vets aspirational prescribing practise and the kind of actual prescribing situation.

So vets did sort of identify that in some situations there was client pressure to prescribe certain antimicrobials. And this is, again, some things that is very similar to some of the human related factors, the opportunities to increase farmer, and vet knowledge exchange or responsible use. And critically important antimicrobials can be good routes to getting kind of vets and farmers on the same page on responsible antimicrobial use. The electronic Medicines Book as well, offers a really good opportunity, whereby farmers can actually see how things such as their critically important antimicrobial use and overall use compares through the benchmarking facility to sort of similar farms. And there are opportunities as well, for kind of vets to target particularly high antimicrobial

use farms and seek alternative ways to look to manage and prevent disease. So finally, in-feed antimicrobial use. This was very much considered to be at the kind of easiest way to deliver antimicrobials on certain farm types. So particularly farms where pigs may be kept in big areas and not have facilities to kind of do, to deliver sort of in-water antimicrobials. And as I say, these were generally considered to be sort of the preventative use of antimicrobials. In certain situations was considered to be responsible. However, it was something that both vets and farmers were aware that was something that we were looking to sort of move away from. And so kind of look at moving away from in-feed antimicrobial use, better facilities for more targeted in-water antimicrobials, and better handling facilities so that you can kind of inject potentially large numbers of pigs, whether that's sort of with antimicrobials or actually indeed things like vaccinations. Say, for example, there's been a lot of work done in the Eastern region, looking at kind of prevention of PRRS virus clinical signs, whereby they've kind of vaccinated large number of pigs on a number of farms within two or three days. And that relies on the ability to kind of vaccinate large number of pigs in sort of a short period of time, and for handling facilities that are absolutely essential for that.

So these are just a few quotations that I've picked out from my PhD interview study looking at drug related factors. So from a vet, "The major use of fluoroquinolones "is in piglet scours. "If there was an alternative there, "then obviously, yes, we would use it. "We just don't have something that's effective." And so that's from a vet, and from a farmer, "There are several medicines "that are not necessarily banned on-farm, are they? "But they're restricted use "because of the effect that that has had on human medicine, "from what I understand." So a few conclusions on sort of practical routes to promote responsible antimicrobial stewardship. Recording and benchmarking antimicrobial use through the electronic Medicines Book offers excellent opportunities to kind of identify farms where antimicrobial use might be higher, and to sort of look at ways of potentially looking at alternative methods of preventing disease to antimicrobial use. And it also offers the opportunity to actually target farms that are identified as persistently high antimicrobial users.

There are further opportunities for farmer-led discussions on best practise approaches to answer microbial use through monitor farms, meetings, discussion groups. So these are things such as those held in vet practises, AHDB, and there are also online resources such as the case studies that are on the RUMA website that identify farms that have reduced antimicrobial use and sort of explain the methods and the way in which that was done. There is a kind of still a need to seek alternative methods to prevent disease to the use of antimicrobials. So whether that's more effective and targeted use of vaccination such as the PRRS virus vaccination programme in the East, or whether that's ways of kind of changing management, changing pig flow on farms. And there's also a need to signpost farmers and vets to existing resources on responsible antimicrobial use, many of which are listed in the kind of further reading. And sort of to end on, "Measurement is the first step "that leads to control and eventually to improvement. "If you can't measure something, you can't understand it. "If you can't understand it, you can't control it. "If you can't control it, you can't improve it." And this is very much the sort of principle and the practise behind the electronic Medicines Book, actually being able to visualise antimicrobial use and discuss it with the vet on the kind of quarterly Red Tractor visits is a fantastic opportunity to kind of say, well, maybe we can reduce use. And at the end of the day, it does reduce the costs for the farm and as well, is kind of very beneficial to the kind of wider sector.

So finally, here are some sort of further reading opportunities, so the Pig Veterinary Society Prescribing Principles. The Pig Health and Welfare Council have also got a really good guidance on best practise guide to antimicrobial usage review. So that actually sort of looks at this kind of situation where there may be a reluctance to withdraw in-feed antimicrobials and actually gives

guidance and sort of a systematic approach to reviewing that use. There's also, as I'm sure you're aware, the RUMA Practical Guidance on Responsible Use of Antibiotics on Pig Farms. There's also an online resource on the electronic Medicines Book. There's a user guide, there is also, I believe, a webinar available through AHDB. I'll also signpost due to the Target's Task Force report on reducing antimicrobial use and the VMD, VARSS report which is the Veterinary Antimicrobial Resistance and Sales Surveillance report, which also includes the electronic Medicines Book data on antimicrobial use in pigs. And finally, this is a list of some of the references used in the kind of ideas and results presented in this presentation. And I want to thank you all for your time. Thank you.

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