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Position Statement

Responsible Use of Antibiotics in the Australian Chicken Meat Industry

What are Antibiotics?

Antibiotics are medicines that have activity against (i.e. kill or inhibit the growth of) bacteria that can cause disease in humans or animals.

The term 'Antimicrobial' is a broader term, and refers to any type of product or compound that is active against a variety of microorganisms, which could include bacteria, fungi and parasites. 'Antibiotics' are therefore a sub-set of antimicrobials that are specifically active against bacteria.

What's the Issue?

The use of antibiotics in both humans and animals can select for antibiotic resistant strains of bacteria that can result in treatment failure in humans and animals.

Some bacteria are naturally, or inherently, resistant to certain antibiotics. However, some bacteria which could originally be killed by an antibiotic (i.e. were susceptible to that antibiotic), can acquire resistance to that antibiotic through various means, thereby becoming antibiotic resistant. Once this happens, this antibiotic will be less effective in treating an infection caused by that bacteria.

Antimicrobial resistance (AMR), including antibiotic resistance (ABR), is a serious global threat. While most ABR results from the use of antibiotics in human medicine, use of antibiotics in animals and agriculture can potentially also contribute to the risk. From a human health perspective, the concern with respect to the development of ABR as a result of antibiotic use in animals and livestock is three-fold:

- In the case of animals used for food, that resistant bacteria may enter the food chain in raw or undercooked food products. NB normal cooking temperatures kill foodborne bacteria, whether they are resistant to antibiotics, or not.
- In the case of all animals, including pets and livestock, that there may be transfer of resistant bacteria to humans, either through direct contact with them or their environment.
- A third potential concern relates to when antibiotics may contaminate the environment and lead to the development of resistant bacteria.

Exposure to a resistant bacteria itself doesn't usually result in illness. Rather, the concern is that if humans have acquired a resistant bacteria and then subsequently require treatment for an illness, they may not respond to treatment because the bacteria responsible for the illness is resistant to the antibiotic of choice; or the treatment resolves the original infection but results in amplification of the resistant bacteria in the absence of other bacteria which have been removed by the treatment.

The chicken meat industry has a role to play in reducing these risks.

Equally, reducing the risks of increased resistance is an important priority from an animal health perspective, as we want to ensure that the limited range of registered medicines we have available to treat livestock continue to be effective, thereby protecting the health and welfare of our animal populations.

Antibiotics and the chicken industry

We have an obligation to ensure animals in our care are free from disease and as healthy as possible. To not treat sick chickens would allow them to suffer, compromising their welfare. Disease prevention and control is likewise a key responsibility to the chickens in our care.

To manage disease, poultry veterinarians need to have access to appropriate tools. These tools include preventative measures, such as farm hygiene and vaccines, where they are available, but can include antibiotic treatment where there is no other viable, effective solution to manage the health and welfare of the chickens.

In what circumstances are antibiotics used?

In certain circumstances antibiotics may be used to treat or control infections in flocks, or to prevent illness where there is a high risk of a disease occurring (definitions as per OIE TAHC Chapter 6.9, Article 6.9.2*).

Because our priority is for the health and welfare of our chickens, the members of the ACMF voluntarily agreed over 15 years ago to implement a policy of no use of antibiotics for growth promotion. If used at all, antibiotics must only be used to treat, control or prevent disease.

Furthermore, no antibiotics that have been determined by the Australian government's Strategic and Technical Advisory Group on AMR (ASTAG**) as *highly important*, or by the World Health Organisation (WHO***) as *critically important for use in human medicine*, are used routinely in meat chicken production in Australia.

Indeed, there is only one product registered for use in chickens that is rated as *highly important* by ASTAG** (virginiamycin), all others aren't permitted for use. Virginiamycin is only registered for use in animals but it belongs to a class of antibiotics that is highly important in human medicine. For companies that produce >90% of meat chickens in Australia, there has not been the need to use virginiamycin since late 2019.

What about anticoccidials?

Young chickens are prone to a severe intestinal disease, called coccidiosis, which is caused by tiny protozoan parasites called coccidia. Coccidiosis is common in all young poultry flocks kept on the ground, rather than in cages, as is the case for all meat chickens in Australia. Infection with these parasites results in severe intestinal damage and often death. This necessitates the use of certain classes of medication – called anticoccidials - in the chickens' feed to prevent inevitable outbreaks of this disease. These medicines are administered to the majority of meat chicken flocks at some point.

One class of anticoccidials, called ionophores, also has antibacterial activity and are therefore sometimes called antibiotics, but in many countries they are not classified as antibiotics because they have limited effectiveness on bacteria of concern to human health and their mode of action is very different from antibiotics used in human medicine. These medications are *not used in human medicine*, and their use in poultry has no known consequence for human health.

Ionophores are used globally for the control of coccidiosis, not just in Australia.

What about free range?

With the high risk of coccidiosis, almost all chicken flocks, including free range flocks, will generally receive anticoccidials, which may include ionophores. Apart from the use of anticoccidials, whether antibiotics can be used or not in accredited flocks depends on the accreditation system. Antibiotics are otherwise not generally used in Free Range Egg and Poultry Australia (FREPA) accredited flocks and then are only used reactively to treat flocks if they become unwell. If chicken flocks become unwell and veterinarians prescribe antibiotics, they cannot be sold as FREPA-accredited free range.

What controls on use are there?

Only medicines assessed and approved by the national regulator of veterinary products (the APVMA) are used. Veterinarians must be actively involved in the prescription of antibiotics and carry the responsibility for their correct use.

- This ensures that all medicines used (including antibiotics), and the way that they are used, is safe for both people and animals.
- Any restriction that the regulator applies to the use of a particular medicine to ensure its safe use, such as withdrawal periods, must be adhered to.
- Any approved products classified as antibiotics, that also have a use in human medicine, can only be prescribed by a veterinarian having sufficient knowledge of the flock and its health status.

Notably, Australia was one of the first countries to have adopted antimicrobial resistance risk analysis as part of regulatory processes involved in registering veterinary medicines. This is not a once-off assessment. The registration status of particular products is formally reconsidered if new scientific information raises concerns relating to the safety or effectiveness of the medicine.

Three of the five antibiotics for which resistance development poses the greatest global concern from a human health perspective (classified by the WHO*** as the *Highest Priority of the Critically Important Antimicrobials*) – 3rd and 4th generation cephalosporins, polymyxins and quinolones – have never been approved for use in Australian poultry, and therefore never used in Australian meat chicken flocks. Another of the *Highest Priority Critically Important* classes of antibiotics – the glycopeptides – have not been registered or used in poultry in Australia since 2000. Only one class of antimicrobial in this category – macrolides – is approved for use in chickens in Australia. However, since the introduction of effective vaccines for control of *Mycoplasma*, a previously major cause of chicken respiratory disease, macrolides are rarely used and there has been no recorded macrolide use in meat chicken flocks produced by ACMF members that produce >90% of Australian chicken meat in the past 5 years.

Antibiotic residues

An antibiotic residue is any antibiotic that remains in the edible tissues of a treated animal after the main part of the antibiotic has been used or excreted. Residues are prevented through the enforcement of withholding periods prior to slaughter, to ensure that antibiotics have been sufficiently degraded and/or metabolised by the animal before they are slaughtered for human consumption. Several antibiotics used in poultry are not absorbed from the gut and do not leave residues, which means no withholding period is necessary.

The practice of enforcing appropriate withholding periods ensures there are no unsafe residues in meat or other products destined for sale for human consumption.

The chicken industry participates in the National Residue Survey (<https://www.agriculture.gov.au/ag-farm-food/food/nrs>), a government managed monitoring program that tests chicken samples for antibiotic residues and continues to confirm that we meet the Australian standards. This is not surprising given the fact that antibiotics are rarely used in Australian meat chicken production. Consumers can therefore be confident that they are not being exposed to risks from antibiotic residues when eating Australian chicken meat.

How is the chicken industry responding to the issue of ABR?

The meat chicken industry recognises that the industry has a role to play in preventing the development of ABR, and a responsibility to only use antimicrobials, including antibiotics, in a way that minimises its potential contribution to the development of antimicrobial resistance.

The Australian chicken industry also agrees that ABR is an issue of global significance. It therefore has adopted policies that not only address ABR concerns in an Australian context, but also contribute to the minimisation of ABR globally.

- In this respect, antibiotics which are classified by the ASTAG** as *highly important* or the WHO*** as *critically important in human medicine* must be the primary focus of our efforts.
 - Antibiotics that fall into these classifications are only used as a last resort in the treatment or control of infections in flocks; they will not be used for disease prevention in the absence of clinical signs and/or diagnostic evidence of disease in the flock to be treated.

We take the use of all antibiotics, and antimicrobials more broadly, very seriously and support the following principles and practices which have been agreed to, and adopted by, companies that produce >90% of Australian chicken meat:

- Only antibiotics assessed, approved and registered by the Australian regulator of veterinary products (the APVMA) for use in chickens are to be used in meat chickens.
 - Any products classified as antibiotics, are only used under a veterinary health management plan prepared and implemented by the consulting veterinarian.
 - Antibiotics are only used for the purpose of treating, controlling or preventing disease; they must not be used for growth promotion purposes.
 - To align with this policy, the ACMF has actively worked with veterinary medicines suppliers over the past 15 years towards the goal of removing growth promotion as a permitted use of antibiotics registered for use in meat chickens in Australia.
 - To support this position, there is agreement on a definition of what constitutes use for the purpose of treating, controlling or preventing disease* as opposed to use for growth promotion.****
- Veterinarians responsible for the care of Australian chicken flocks adopt the prescribing guidelines published by the Australian Veterinary Association, and adhere to appropriate use principles. Antibiotics, if they are used, have to be used appropriately and in a way that does not compromise human or animal health, or the environment. The ACMF will conduct an annual survey of appropriateness of use to monitor for compliance to this.

Appropriate use does not mean no use. It is not 'appropriate' to not treat a flock of chickens that have succumbed to an infection for which there is no alternative treatment option, nor to allow them to succumb to treatable or preventable illnesses.

- The Australian meat chicken industry has been at the forefront of efforts to develop alternative approaches to managing chicken health, with a particular focus on preventative approaches.

- It has directly contributed to the development of, and was the first country to use, two world-leading vaccines for key bacterial diseases of poultry, which have significantly reduced the need for treatment of bacterial disease, both in Australia and globally.

Furthermore, the Australian chicken meat industry has adopted an ambitious antimicrobial stewardship program, with the support and oversight of veterinarians who oversee the health and any treatment of all meat chickens grown by the major meat chicken producers in Australia.

- The objective of this program is to ensure best practices are used at the farm level to minimise the use of antimicrobials, and to use the most appropriate antimicrobials in terms of minimising impacts on AMR and human health, while ensuring proper animal care.
 - The ACMF conducts an annual 'appropriateness of antibiotic use' survey to capture industry progress, and a biennial verification of the antimicrobial stewardship programs of ACMF members companies that produce >90% of Australian chicken meat.
- Stewardship principles are a key part of ethical livestock management. They serve to ensure appropriate animal care that minimises animal disease and suffering while also ensuring judicious antimicrobial use that minimises antimicrobial resistance development, thereby preserving their effectiveness for humans and animals alike. Integral to the Stewardship program is the recognition that effective antibiotics are a precious resource that the industry has a role to play in protecting for future generations.
- The ACMF has coordinated an antimicrobial usage survey of the Australian chicken meat companies that produce >90% of Australian chicken meat, with data collected since 2017, to provide companies with national data against which they can benchmark their own internal company usage.
- As part of this program, chicken meat producers endeavour to use alternative practices and to adopt new technologies that reduce the use of antibiotics and antimicrobials more broadly, particularly those antibiotics for which resistance could pose the greatest global risks.

What else is the chicken meat industry doing?

- The chicken meat industry continues to actively pursue research into alternative strategies, biosecurity, nutrition, welfare and improvements in animal husbandry so as to reduce further the need to use antibiotics and improve the overall health status of Australia's meat chicken flocks.
- The industry collaborated with the Australian government in a national survey of antimicrobial resistance in Australian meat chickens in 2016, and a repeat of this survey is being undertaken in 2021.
- Formal training options for poultry veterinarians to undertake refresher training on AMS are being explored.
- Independent review of the AMS programs in each ACMF member company companies that produce >90% of Australian chicken meat, is completed on a regular basis, with self-assessments undertaken annually.

* For the purpose of differentiating use for treatment, control and prevention as opposed to use for growth promotion the following definitions apply.

Treat: to treat means to administer an antimicrobial agent to an individual or a group of animals showing clinical signs of an infectious disease.

Control: to control means to administer an antimicrobial agent to a group of animals containing sick animals and healthy animals (presumed to be infected), to minimise or resolve clinical signs and to prevent further spread of the disease.

Prevent: to prevent means to administer an antimicrobial agent to an individual or a group of animals at risk of acquiring a specific infection or in a specific situation where infectious disease is likely to occur if the drug is not administered.

** Australian Strategic and Technical Advisory Group on AMR (ASTAG) Importance Ratings and Summary of Antibacterial Uses in Human and animal health in Australia (2018)

<https://www.amr.gov.au/resources/importance-ratings-and-summary-antibacterial-uses-human-and-animal-health-australia>

*** World Health Organisation (WHO) list of critically important antimicrobials for human medicine (2018) www.who.int/foodsafety/publications/WHO-CIA-list-6flyer-EN.pdf

**** Criteria to be used in determining therapeutic use (treating, controlling or preventing disease) as opposed to use for growth promotion:

1. Where a product has a therapeutic (disease treatment, control or prevention) claim, it is used (a) at the recommended dose rate for that purpose, as per the label, and (b) for the period of susceptibility to the disease it is registered for use for. Use outside these parameters would be considered 'off-label' usage but would not constitute use for growth promotion so long as point 3 is met.
2. Where a product is used that does not currently have a therapeutic claim, then the veterinarian must be able to justify, as per point 3, that they are using it, 'off-label', for therapeutic purposes in treating, controlling or preventing a specified disease, or attempting to treat, control or prevent a specified disease.
3. Justification for 'off-label' therapeutic use would include that the veterinarian has good evidence, including from their own documented trials or experience in the field, that use of a product will or has provided measurable benefits for disease prevention, and the ongoing delivery of health benefits is monitored or, if they are currently trialling it (for a defined period) in order to establish whether or not it will deliver benefits in terms of control or prevention of a specified disease condition, that the purpose of trialling it, the duration of trials and the results are monitored and documented.