

## **NOAH Technical Briefing: Categorisation of Antibiotics and Updated Guidance to Support Responsible Use and UK Animal Health and Welfare**

- Antibiotics play a vital role in the health of animals and people. There are a limited number of antibiotic classes available, and a range of antibiotics that are needed to treat the many different species of animals and disease threats. This means some classes of antibiotics are shared by people and animals. Based on the need to preserve the efficacy of all antibiotics into the future by reducing the risk of antimicrobial resistance (AMR), there are important One Health factors to consider. The One Health approach recognises that AMR can spread between humans, animals and the environment. Veterinary surgeons and doctors must therefore ensure that antibiotics are prescribed and used responsibly.
- The European Medicines Agency (EMA) Antimicrobial Advice ad hoc Expert Group (AMEG) was established to provide guidance on the impact on public health and animal health of the use of antibiotics in animals, and on the measures to manage the possible risk to humans<sup>1</sup>.
- This document summarises the updated (January 2020) scientific assessment of the AMEG on the categorisation of antibiotics for responsible veterinary use<sup>2</sup>. The categorisation balances the need to use antibiotics in animals for health and welfare with the risk of antimicrobial resistance to public health<sup>1</sup>.
- These evidenced-based categorisations and recommendations are widely recognised in the UK as a key source of gold standard expert guidance. They are accepted by the UK veterinary medicines regulator, the Veterinary Medicines Directorate (VMD)<sup>3</sup>, the Responsible Use of Medicines in Agriculture Alliance (RUMA)<sup>4</sup>, Food Industry Initiative on Antimicrobials (FIIA)<sup>5</sup> and professional veterinary organisations such as British Veterinary Association (BVA)<sup>6</sup>, Pig Veterinary Society (PVS)<sup>7</sup>, the British Veterinary Poultry Association (BVPA)<sup>8</sup> and the Sheep Veterinary Society (SVS)<sup>9</sup>. Similarly, the British Cattle Veterinary Association (BCVA) recommends that those antibiotics in Category B 'Restrict' i.e. colistin, third and fourth generation cephalosporins and fluoroquinolones, should only be used in exceptional circumstances where it has been demonstrated by microbiological testing that they are the only suitable choice of medicine to avoid unnecessary suffering<sup>10</sup>.

**The four categories of antibiotics (A-D):**

Category A Avoid	Category B Restrict	Category C Caution	Category D Prudence
<ul style="list-style-type: none"> <li>antibiotics in this category are not authorised as veterinary medicines in the EU</li> <li>should not be used in food-producing animals</li> <li>may be given to companion animals under exceptional circumstances</li> </ul>	<ul style="list-style-type: none"> <li>antibiotics in this category are critically important in human medicine and use in animals should be restricted to mitigate the risk to public health</li> <li>should be considered only when there are no antibiotics in Categories C or D that could be clinically effective</li> <li>use should be based on antimicrobial susceptibility testing, wherever possible</li> </ul>	<ul style="list-style-type: none"> <li>for antibiotics in this category there are alternatives in human medicine</li> <li>for some veterinary indications, there are no alternatives belonging to Category D</li> <li>should be considered only when there are no antibiotics in Category D that could be clinically effective</li> </ul>	<ul style="list-style-type: none"> <li>should be used as first line treatments, whenever possible</li> <li>as always, should be used prudently, only when medically needed</li> </ul>

- For all antibiotic categories, it is recommended that unnecessary use, overly long treatment periods, and under-dosing should be avoided.
- Supporting information in the Summary of Product Characteristics (SPC) should be considered.
- If vets require any advice on what categorisation is applied to a particular antibiotic, they are encouraged to contact the technical department of the Marketing Authorisation Holder (MAH).

**Summary table specifying the categorisation of antibiotic classes:**

AMEG Categories	Antibiotic class, subclasses
<b>Category A Avoid</b>	Amdinopenicillins Carbapenems Other cephalosporins§ and penems (ATC code J01DI), including combinations of 3rd-generation cephalosporins with beta-lactamase inhibitors Glycopeptides Glycylcyclines Ketolides Lipopeptides Monobactams Oxazolidinones Penicillins: carboxypenicillins and ureidopenicillins, including combinations with beta-lactamase inhibitors Phosphonic acid derivates Pseudomonic acids Rifamycins (except rifaximin) Riminofenazines Streptogramins Sulfones Drugs used solely to treat tuberculosis or other mycobacterial diseases Substances newly authorised in human medicine following publication of the AMEG categorisation.

<b>Category B Restrict</b>	Cephalosporins: 3rd- and 4th-generation, except combinations with beta-lactamase inhibitors
	Polymyxins
	Quinolones: fluoroquinolones and other quinolones
<b>Category C Caution</b>	Aminoglycosides (except spectinomycin)
	Aminopenicillins in combination with beta-lactamase inhibitors
	Amphenicols
	Cephalosporins: 1st- and 2nd-generation, and cephamycins
	Macrolides (not including ketolides)
	Lincosamides
	Pleuromutilins
	Rifamycins: rifaximin only
<b>Category D Prudence</b>	Aminopenicillins, without beta-lactamase inhibitors
	Cyclic polypeptides
	Nitrofurans derivatives*
	Nitroimidazoles*
	Penicillins: Anti-staphylococcal penicillins (beta-lactamase-resistant penicillins)
	Penicillins: Natural, narrow spectrum penicillins (beta-lactamase-sensitive penicillins)
	Aminoglycosides: spectinomycin only
	Steroid antibacterials*
	Sulfonamides, dihydrofolate reductase inhibitors and combinations
	Tetracyclines

§ Other than 1st-, 2nd-, 3rd- and 4th-generation; \* Authorised for companion animals only

### **Route of administration:**

- Various routes of administration are needed to deliver treatments effectively and safely to individual or groups of animals.
- The most appropriate route should be determined by the prescribing vet considering the revised categorisation of antibiotics.
- It is recommended that group treatment should be restricted to situations where individual treatment is not feasible.
- The following list suggests routes of administration and types of formulation ranked from the lowest to the highest estimated impact on antibiotic resistance.
  - Local individual treatment (e.g. udder injector, eye or ear drops)
  - Parenteral individual treatment (intravenously, intramuscularly, subcutaneously)
  - Oral individual treatment (i.e. tablets, oral bolus)
  - Injectable group medication (metaphylaxis), only if appropriately justified
  - Oral group medication via drinking water/milk replacer (metaphylaxis), only if appropriately justified
  - Oral group medication via feed or premixes (metaphylaxis), only if appropriately justified

These updated recommendations are continuing to support evidenced based AMR work across the industry such as the RUMA Targets Task Force<sup>11</sup>, Farm Vet Champions<sup>12</sup> and the Animal Medicines Best Practice (AMBP) farmer training programme<sup>13</sup>. A joined-up approach throughout the UK food chain will further strengthen an evidence-based approach to AMR policy, helping to safeguard antibiotics for people and animals into the future.

## References:

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12. Farm Vet Champions: <https://knowledge.rcvs.org.uk/quality-improvement/farm-vet-champions/>
13. Animal Medicines Best Practice (AMBP) farmer training: [www.lantra.co.uk/search?keywords=AMBP&content=course](http://www.lantra.co.uk/search?keywords=AMBP&content=course)