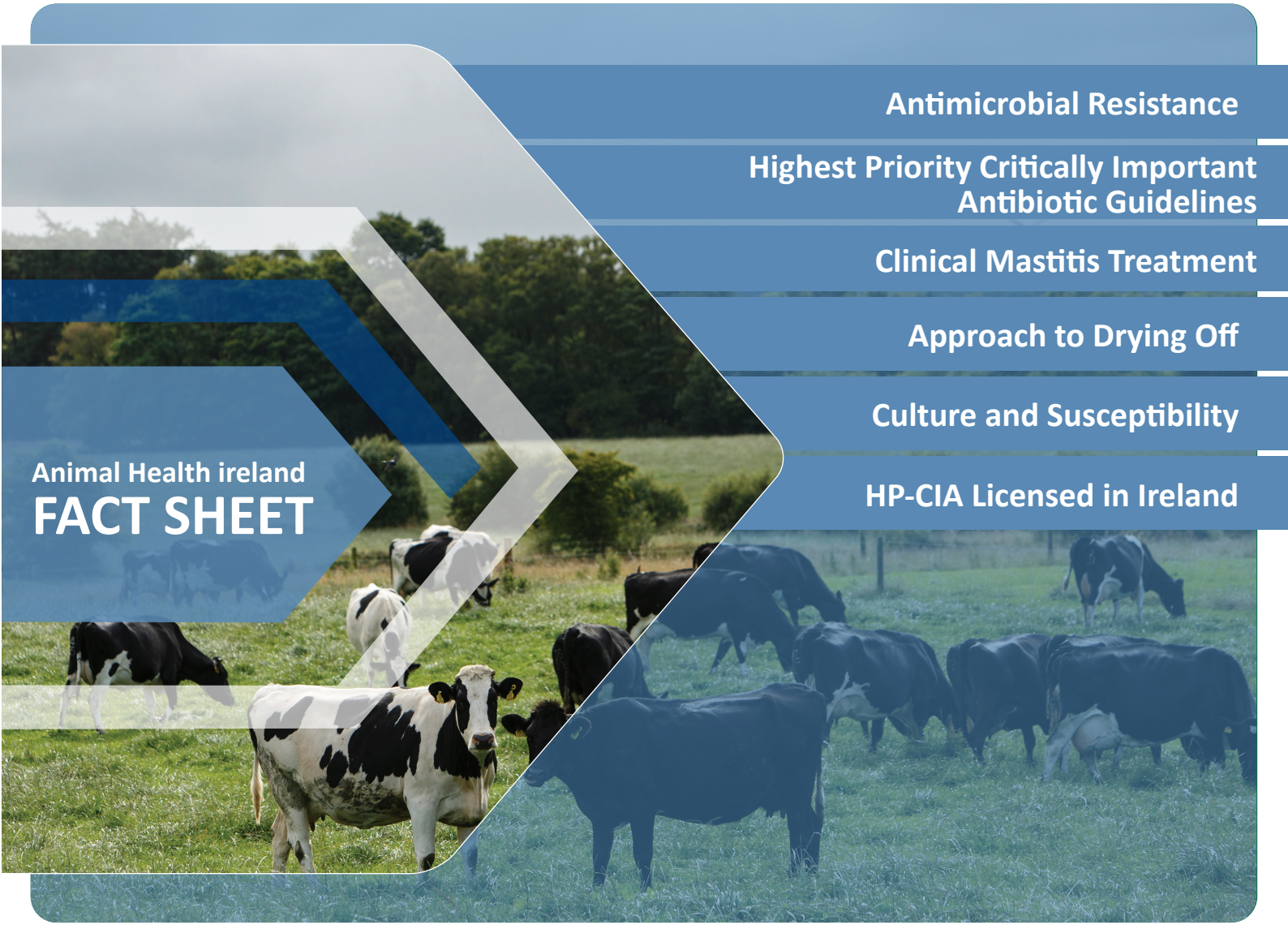
ANIMAL HEALTH IRELAND

Contributing to a profitable and sustainable farming and agri-food sector through improved animal health

Responsible Antibiotic Use in Mastitis Control



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Animal Health ireland

FACT SHEET

NATIONAL MASTITIS CONTROL PROGRAMME

Animal Health Ireland, 2-5 The Archways, Carrick-on-Shannon, Co. Leitrim, N41 WN27

CellCheck

Animal Health Ireland.ie

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Antimicrobial Resistance

Antimicrobial resistance (AMR) is fast becoming part of our everyday vocabulary, and it is now recognised as being a significant threat to human health. AMR is resistance of a microorganism to a drug to which it was previously susceptible, for example when a bacterium develops resistance to a particular antibiotic that used to kill it. It is now well recognised that the use of antibiotics in both animals and humans increases the risk of AMR developing. Responsible antibiotic use is being widely encouraged as part of a global strategy to slow down the development of AMR and to reduce the related risks.

In 2005 the World Health Organisation (WHO) first classified all antibiotics into three different categories, based on their importance to human health; ***important, highly important*** and ***critically important.*** As a subset of this latter category, a list of **'Highest Priority Critically Important Antibiotics for Human Health (HP-CIA)'** was developed, which identifies those antibiotics that must be protected for use in human health. Although the overall use of HP-CIAs in the treatment of mastitis was limited, there was evidence of an increase from 2003 to 2015 in the number of intra-mammary tubes used (both in lactation and at drying off), that contain at least one HP-CIA[1]. In 2018, 8% of antibiotic dry cow tubes used contained a HP-CIA. For some time, there has been a growing awareness that the use of these antibiotics in the animal sector in Ireland was being called into question, but without clarity around what changes should be made.

PARENT

I used to think that this talk of "superbugs" was a bit dramatic, but it's much closer than we might think….. my son has had a horrible ear infection for 4 weeks now, and 3 courses of antibiotic later we've discovered that it's resistant to them all……where do we go next if this one doesn't work?

HP-CIA Guidelines

In January 2019, a new Veterinary Medicines Regulation[2] was agreed by Europe, following several years of negotiation, with all EU member states having three years to implement it i.e. by January 2022. In January 2020, the European Medicines Agency (EMA) also published updated scientific advice on the categorisation of antibiotics for animal use.[3] This update categorises antibiotics based on their importance in human health as well as the availability of alternative antibiotics in veterinary medicine. The proposed categories are 'Avoid', 'Restrict', 'Caution' and 'Prudence', with all HP-CIAs falling into the categories of 'Restrict' or 'Caution'. In October 2018, the Irish Department of Agriculture, Food and Marine (DAFM) first published a **'Policy on Highest Priority Critically Important Antibiotics'**[4], which has recently been revised to reflect the updated EMA advice. In support of this, CellCheck has produced this communication to present these new guidelines in the context of mastitis management.

For more information on responsible antibiotic use, see the 'Code of Good Practice', developed jointly by Irish farmers and veterinary practitioners as part of the Irish National Action Plan on AMR[5].

VETERINARY PRACTITIONER

Sometimes farmers don't understand why I just don't go straight for the "good stuff" when I'm treating their animals, but very often it's not necessary! If we don't start protecting these CIAs for times when we really need them, eventually they might not be available to us at all.

Approach to Clinical Mastitis Treatment

1. Firstly, prevention is most important!
    a. See the 'CellCheck Farm Guidelines for Mastitis Control'.
2. If or when clinical mastitis treatment is required:
    a. Highest Priority Critically Important Antibiotics *(see table below)* should not be used as a first line of treatment.
    b. If milk culture and/or susceptibility results indicate that there is no effective alternative treatment, then a HP-CIA from the 'RESTRICT' category can be used to treat the animal(s).
    c. In exceptional cases, based on a veterinary practitioner's clinical judgement, treatment with this HP-CIA can commence before the milk culture and susceptibility results are received from the laboratory.
    d. Records of all relevant laboratory results must be kept by the veterinary practitioner, to support any decision to treat an animal with a HP-CIA from the 'RESTRICT' category.

FARMER

Yes, it's a bit of a pain having to take a milk sample from a cow just to use a particular tube that we've been able to use in the past……but my vet has explained that this tube contains a drug that's used as a last resort in humans……I never realised that…I think it's only right that we should only be using them in cows if nothing else works and it's absolutely necessary.

Approach to Drying off

1. From January 2022, antibiotics can no longer be used in a preventive fashion.
    a. This means that Irish dairy farmers need to move away from *'blanket dry cow' therapy* (treating all cows with dry cow antibiotics at drying off, as a matter of course).
    b. Farmers will need to adopt '*Selective Dry Cow Strategies'* at drying off. *(http://animalhealthireland.ie/?page_id=14313)*
2. When using antibiotic dry cow therapy, HP-CIAs should not be used as a first line of treatment.

GP

I really worry about the whole area of antibiotic resistance - I regularly see patients that aren't responding to treatments that would have worked in the past. We all need to play our part in slowing down this growing problem.

Culture and Susceptibility

Milk culture and susceptibility results are an important step in making appropriate treatment decisions. To get good results it's important to:

a. take good samples, and

b. use a laboratory that has a proven performance record eg. a CellCheck Partner Laboratory.

Any commercial laboratory that successfully participates in the DAFM Proficiency Test scheme is recognised as a 'CellCheck Partner Lab', delivering milk sample services to an agreed standard and undergoing continual evaluation in this area.

For more information on taking milk samples in an aseptic fashion, and contact details for CellCheck Partner Labs see http://animalhealthireland.ie/?page_id=8731

What products do these guidelines relate to?

Highest Priority Critically Important Antibiotics (injectable and intramammary) licensed in Ireland for use in cattle

ANTIMICROBIAL CLASS	ACTIVE SUBSTANCE	EXAMPLES OF PRODUCTS		EMA CATEGORY
		INJECTABLE	INTRAMAMMARY	
3rd & 4th generation cephalosporins	ceftiofur	**Alfacef, Cefavex, Cefenil, Cefokel, Ceftiocyl, Cemay, Cevaxel, Curacef, Eficur, Excenel, Naxcel**		**RESTRICT:** • Not for prophylactic, or preventive use. • Not for **first** line of treatment. • Should not be used without first having culture/susceptibility results showing no effective alternative. • In exceptional circumstances, treatment can commence before laboratory results return. • Records of all relevant laboratory results must be kept.
	cefquinome	**Ceffect, Cobactan, Qivitan**	**Ceffect LC, Cefimam DC/LC, Cefquinome DC/LC, Cephaguard DC, Cobactan LC, Plenix LC, Qivitan LC**	
		INJECTABLE		
Fluoroquinolones	enrofloxacin	**Baytril, Doraflox, Enrocare, Enrodexil, Enrotril, Enrotron, Enroxil, Fenoflox, Floxibac, Quinoflox, Roxacin, Unisol, Valemas**		
	marbofloxacin	**Boflox, Forcyl, Kelacyl, Marbim, Marbocare, Marbocyl, Marbonor, Marbosyva, Marbox, Marfloxin**		

Product names sourced from Health Products Regulatory Authority and European Medicines Agency websites. Correct as of January 2020.

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ANTIMICROBIAL CLASS	ACTIVE SUBSTANCE	EXAMPLES OF PRODUCTS		EMA CATEGORY
		INJECTABLE		
Macrolides	gamithromycin	**Zactran**		**CAUTION:** • Not for prophylactic use. • Not for **first** line of treatment, where possible. • Should only be considered when there are no alternatives to a HP-CIA, that could be clinically effective.
	tildipirosin	**Zuprevo**		
	tilmicosin	**Hymatil, Keytil, Micotil, Milbotyl, Tilmodil, Tilmovet**		
	tulathromycin	**Draxxin, Tulaxa, Tuloxxin**		
	tylosin	**Bilovet, Pharmasin, Tylan, Tyljet, Tylo, Tylosin, Tylosin Biovet JSC, Tylovet, Tylucyl**		

Product names sourced from Health Products Regulatory Authority and European Medicines Agency websites. Correct as of January 2020.

References:

1. More, S.J., Clegg, T.A., McCoy, F., 2017. The use of national-level data to describe trends in intramammary antimicrobial usage on Irish dairy farms from 2003 to 2015. J Dairy Sci 100, 6400–6413. doi:10.3168/jds.2016-12068
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4. https://www.agriculture.gov.ie/media/migration/animalhealthwelfare/amr/amrnovember2018/DAFMPolicyonHPCIAs1stRevisionDated180920.pdf
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