Prescriptions for change

Achieving responsible medicines use in farm animal veterinary practice

David Tisdall
BVSc(hons) CertCHP GradDip FHEA MRCVS
Head of Department of Veterinary Clinical Sciences
Senior Teaching Fellow in Production Animal Medicine
Who am I?
Finding practical, partnership approaches that can achieve change towards more responsible and sustainable medicines use by farm vets, farmers and future vets.
ONE HEALTH 2018 – A Joint Approach for Healthcare and Veterinary Professionals

Protecting Antibiotics for the Future

Tuesday November 20\textsuperscript{th} 2018

The Convention Centre - Dublin
Outline

» Responsible medicines use
  • What is it and who’s responsible?
  • What are the challenges?

» Understanding medicines use on farm
  • Reviewing current antimicrobial use
  • Why do we prescribe what we prescribe?

» Transforming medicines use on farm
  • How can we motivate change in practice?
  • What are the solutions?
Responsible medicines use
What does responsible medicines use mean to you?
### Responsible medicines use

**Views of undergraduate veterinary students**

<table>
<thead>
<tr>
<th>Evidence-based decision making</th>
<th>Diligent prescribing &amp; user compliance</th>
<th>Moral duty &amp; responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Avoiding blanket use without clinical indication”</td>
<td>“Calculating the doses correctly”</td>
<td>“Stewardship”</td>
</tr>
<tr>
<td>“Avoid prescribing for viral infections”</td>
<td>“Completing the course”</td>
<td>“Using the correct medication … without being pressured or persuaded by owners or drug companies”</td>
</tr>
<tr>
<td>“Use evidence to prescribe a suitable medicine and dose”</td>
<td>“Good communication with owners about why you are doing what you are doing”</td>
<td>“Only use when necessary”</td>
</tr>
<tr>
<td>“Respecting the cascade and using licensed medication as first line treatment”</td>
<td>“Don’t use broad-spectrum antibiotics because it is easier”</td>
<td>“Don’t prescribe just to make business”</td>
</tr>
</tbody>
</table>
Responsible use of antimicrobials in veterinary practice:

THE 7-POINT PLAN

1. Work with clients to avoid need for antimicrobials
   - Inform owners about the benefits of regular pet health checks
   - Use symptomatic cushion or topical preparations where appropriate
   - Integrated disease control programmes
   - Animal Health and Welfare Planning
   - Isolate infected animals whenever possible

2. Avoid inappropriate use
   - For example, for uncomplicated viral infections
   - Restrict use to at-risk animals
   - Advise clients to correct administration and storage of products and completion of course
   - Avoid under-dosing

3. Choose the right drug for the right bug
   - Identify likely target organisms and predict their susceptibility
   - Create practice-based protocols for common infections based on clinical judgement and up-to-date knowledge
   - Know how antimicrobials work and their pharmacodynamic properties
   - Use narrow spectrum antimicrobials where possible

4. Monitor antimicrobial sensitivity
   - While clinical diagnosis is often the initial basis for treatment, bacterial culture and sensitivity must be determined whenever possible so that a change of treatment can be implemented if necessary
   - Monitor bacterial culture and sensitivity tests

5. Minimise use
   - Use only when necessary and evidence that usage reduces morbidity and/or mortality
   - Regularly assess antimicrobial use and develop written protocols for appropriate use

6. Record and justify deviations from protocols
   - Be able to justify your choice of antimicrobial and dose
   - Keep accurate records of treatment and outcome to help evaluate therapeutic regimens

7. Report suspected treatment failure to the VMD
   - This may be the first indication of resistance
   - Report through the Suspected Adverse Reaction Surveillance Scheme (SARS)

Antimicrobials are essential for the treatment and prevention of the spread of infectious and zoonotic bacterial diseases in both animals and humans

Higher Risk Antimicrobials
Fluoroquinolones, 3rd/4th generation cephalosporins and macrolides:
- Reserve these antimicrobials for clinical conditions that respond poorly to other classes of antimicrobials and where bacterial culture and sensitivity has been carried out.
- Do not administer systemically to small groups of animals except in very specific situations and special attention should be given to the risk of antimicrobial resistance as part of the benefit/risk assessment.
- Avoid off-label use wherever possible

For the latest detailed guidance visit
www.bva.co.uk

https://www.bva.co.uk/uploadedFiles/Content/News_campaigns_and_policies/Policies/Medicines/BVA_Antimicrobials_Poster.PDF (accessed 17-09-2017)
Responsible medicines use

- Antimicrobials are essential for the treatment and prevention of the spread of infectious and zoonotic bacterial diseases in both animals and humans.
- Every use increases the risk of selection for resistant bacteria.
- Responsible use optimises therapeutic effects while minimising the risk of selection for resistant bacteria.
- Responsible use — correct antimicrobial: as little as possible, as much as necessary.

https://www.bva.co.uk/uploadedFiles/Content/News,_campaigns_and_policies/Policies/Medicines/BVA_Antimicrobials_Poster.PDF (accessed 17-09-2017)
Responsible medicines use on farm

What are the challenges?

Ownership of responsibility
- Vets are the gatekeepers; farmers main users
- Prescription, dispensing & administration

Food chain protection
- MRLs and withhold times
- Zero milk withhold products

Evidence-based prescribing
- Motivation, knowledge and experience
- Empirical vs C&S
- Available evidence

Critically important AM use
- Availability
- Licensed “first-line” use
- Evidence base

User compliance
- Course completion
- Accurate dosing
- Medicines storage

Herd health management & husbandry
- Preventative medicine
- Farm environment
- Prophylaxis, metaphylaxis & group treatment

Economic factors
- Treatment Vs prevention
- Withhold periods
- Competition

#universityofsurrey

Understanding medicines use on farm
Responsible medicines use on farm

AM use and AMR on farm

» Antimicrobial use (AMU) on farm
  • ~45% AMs prescribed in UK are for animals
  • ~2.4x biomass!
  • Total AMU is the biggest driver of resistance

» Antimicrobial resistance (AMR)
  • Present in normal flora and/or zoonotic pathogens
  • A limited *clinical* problem in cattle in the UK?
  • Influenced by both human and non-human AM use & exposure¹,²
  • MRSA: livestock and workers, dogs and owners
  • Extended spectrum beta-lactamase (ESBL)-producing E. coli
  • Colistin resistance in pigs

Figure 2. Sales for food-producing species, in mg/PCU, of the various veterinary antimicrobial classes, for 30 European countries, in 2016.

AM use and AMR in production animals

Correlation between veterinary antimicrobial use and antimicrobial resistance in food-producing animals: a report on seven countries

Ilias Chantziaros¹, Filip Boyen², Bénédicte Collens¹ and Jeroen Dewulf²

¹Veterinary Epidemiology Unit, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, 9820 Merelbeke, Belgium; ²Department of Pathology, Bacteriology and Avian Diseases, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, 9820 Merelbeke, Belgium

Correlation between veterinary antimicrobial use and antimicrobial resistance in food-producing animals: a report on seven countries

Objective: To evaluate correlations between antimicrobial use and the prevalence of resistance in commensal Escherichia coli isolates from pigs, poultry and cattle, using data from publicly available national or international reports from seven European countries.

Methods: The link between the quantities of different classes of antimicrobials administered to food-producing animals per country (expressed in mg/population correction unit) and the prevalence of resistance to the different antimicrobial classes (interpreted by EUCAST epidemiological cut-off values) in E. coli isolates (483 isolates in total) was assessed by means of polynomial regression analysis and determination of Spearman's rank correlation coefficient.

Results: A quadratic regression best fitted the antimicrobial use and antimicrobial resistance data. The coefficient of determination was, in decreasing order, 0.99 for fluoroquinolones and amphenicols, 0.94 for third-generation cephalosporins and sulphonamides, 0.93 for amnopenicillins, 0.86 for fluoroquinolones, 0.81 for streptomycin and 0.80 for gentamicin and tetracycline. Spearman's rank correlation coefficient was 1 for amphenicols, 0.96 for sulphonamides, 0.93 for streptomycin and tetracycline, 0.89 for amnopenicillins, 0.71 for gentamicin and 0.70 for third-generation cephalosporins.

Conclusions: These remarkably high coefficients indicate that, at a national level, the level of use of specific antimicrobials strongly correlates to the level of resistance towards these agents in commensal E. coli isolates in pigs, poultry and cattle. However, data restraint reveals the need for further detail in collection and harmonization of antimicrobial resistance and use data in Europe.

Spearman's rank correlation coefficient between average antimicrobial use ranking (lowest=1 to highest=7) of country and average antimicrobial resistance ranking (lowest=1 to highest=7) of indicator Escherichia coli isolates for all antimicrobial agents tested except amphenicols (not all countries provided usage data), for food-producing animals. Each symbol represents the data from a single country. A linear trend line is shown.
Critically important AMs (CIAs)

What makes an antimicrobial critically important for human medicine (WHO)?

- Sole / limited number of substances available as therapy for serious human disease
- Pathogens which are zoonotic or where there exists the potential for resistance gene transfer from non-human sources
Table 1. List and classification of antimicrobials important for human medicine

<table>
<thead>
<tr>
<th>Antimicrobial class</th>
<th>Example of drug(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CRITICALLY IMPORTANT ANTIMICROBIALS</strong></td>
<td></td>
</tr>
<tr>
<td>Aminoglycosides</td>
<td>gentamicin</td>
</tr>
<tr>
<td>Ansamycins</td>
<td>rifampicin</td>
</tr>
<tr>
<td>Carbapenems and other penems</td>
<td>meropenem</td>
</tr>
<tr>
<td>Cephalosporins (3\textsuperscript{rd}, 4\textsuperscript{th} and 5\textsuperscript{th} generation)</td>
<td>ceftriaxone, cefepime, ceftaroline</td>
</tr>
<tr>
<td>Glycopeptides</td>
<td>vancomycin</td>
</tr>
<tr>
<td>Glycylcycelines</td>
<td>tigecycline</td>
</tr>
<tr>
<td>Lipopeptides</td>
<td>daptomycin</td>
</tr>
<tr>
<td>Macrolides and ketolides</td>
<td>erythromycin, telithromycin</td>
</tr>
<tr>
<td>Monobactams</td>
<td>aztreonam</td>
</tr>
<tr>
<td>Oxazolidinones</td>
<td>linezolid</td>
</tr>
<tr>
<td>Penicillins (natural, aminopenicillins, and antipseudomonal)</td>
<td>ampicillin</td>
</tr>
<tr>
<td>Phosphonic acid derivatives</td>
<td>fosfomycin</td>
</tr>
<tr>
<td>Polymyxins</td>
<td>colistin</td>
</tr>
<tr>
<td>Quinolones</td>
<td>ciprofloxacin</td>
</tr>
<tr>
<td>Drugs used solely to treat tuberculosis or other mycobacterial diseases</td>
<td>isoniazid</td>
</tr>
</tbody>
</table>
8. Highest Priority Critically Important Antimicrobials

These are the classes of drugs that met all three priorities (P1, P2, and P3): quinolones, third- and fourth- and fifth-generation cephalosporins, macrolides and ketolides, glycopeptides and polymyxins.

Quinolones are known to select for quinolone-resistant Salmonella and E. coli in animals. At the same time, quinolones are one of few available therapies for serious Salmonella and E. coli infections. Given the high incidence of human disease due to Salmonella and E. coli, the absolute number of serious cases is substantial.

Cephalosporins (3rd and higher generation) are known to select for cephalosporin-resistant Salmonella and E. coli in animals. At the same time, third- and higher generation cephalosporins are one of few available therapies for serious Salmonella and E. coli infections in humans, particularly in children. Given the high incidence of human disease due to Salmonella and E. coli, the absolute number of serious cases is substantial.

Macrolides and ketolides are known to select for macrolide-resistant Campylobacter spp. in animals, especially Campylobacter jejuni in poultry. At the same time, macrolides are one of few available therapies for serious Campylobacter infections, particularly in children, for whom quinolones are not recommended for treatment. Given the high incidence of human disease due to Campylobacter spp., especially Campylobacter jejuni, the absolute number of serious cases is substantial.

Glycopeptides are known to select for glycopeptide-resistant Enterococcus spp. in food animals (e.g. when avoparcin was used as a growth promoter, vancomycin-resistant enterococci (VRE) developed in food animals and were transmitted to people). At the same time, glycopeptides are one of the few available therapies for serious enterococcal infections. Given the high number of cases, the previously documented occurrence of transmission of VRE to people from food animals, and the very serious consequences of treatment failures in such cases, glycopeptides are classified as being of the highest priority.

Polymyxins (e.g. colistin) are known to select for plasmid mediated polymyxin-resistant E. coli in food animals. At the same time, intravenous polymyxins are one of few available therapies for serious Enterobacteriaceae and Pseudomonas aeruginosa multi-resistant infections in people in healthcare settings in many countries, especially in seriously ill patients in critical care. Given the high incidence of human disease due to Enterobacteriaceae, the absolute number of serious cases where colistin is needed can be considered substantial.

HIGHER RISK ANTIMICROBIALS

Fluoroquinolones, 3rd/4th generation cephalosporins and macrolides:

- Reserve these antimicrobials for clinical conditions that respond poorly to other classes of antimicrobials and where bacterial culture and sensitivity has been carried out.
- Do not administer systemically to groups or flocks of animals except in very specific situations and special attention should be given to the risk of antimicrobial resistance as part of the benefit/risk assessment.
- Avoid off label use whenever possible
A common habit

Antibacterial prescribing patterns in small animal veterinary practice identified via SAVSNET: the small animal veterinary surveillance network


Antibiotic prescribing was a feature of 35.1 – 48.5% of consultations

Was 33.1% per cent for dogs, 48.3% per cent for cats and 36.6% per cent for rabbits. Within this population, 76 per cent of antibacterials prescribed were β-lactams, including the most common group of clavulanic acid-potentiated amoxicillin making up 36 per cent of the antibacterials prescribed. Other classes included lincosamides (9 per cent), fluoroquinolones and quinolones (6 per cent) and nitroimidazoles (4 per cent). Vancomycin and teicoplanin (glycopeptide class), and imipenem and meropenem (β-lactam class) prescribing was not identified. Prescribing behaviour varied between practices. For dogs and cats, the proportion of consults associated with the prescription of antibacterials ranged from 0.26 to 0.55 and 0.41 to 0.73, respectively.
Factors influencing prescribing decisions

**Intrinsic Factors**
- Experience
- Confidence
- Attitude to risk
- Uncertainty
- Tendency
- Belief System

**Extrinsic Factors**
- Clinical findings
- Patient factors
- Client pressure
- Reputation
- Economics
- Withhold times

**Shall I prescribe?**
Belief systems and experience

Antibiotic prescribing in acute infections of the nose or sinuses: a matter of personal habit?

An I De Sutter, Marc J De Meyere, Jan M De Maeseneer and Wim P Peersman


**Methods.** During their training in general practice, students observed the following elements while attending encounters between their trainer-GP and patients with a runny nose, blocked nose or cough: patient characteristics, contact characteristics, signs and symptoms, diagnosis and prescriptions. Information on practice characteristics and characteristics of the trainer-GP were collected. Data were analysed using multiple logistic regression and multiple linear regression.

Prescribing habit had greatest influence over prescribing decisions!
Perceived Tx efficacy prioritised over ↓ AMR risk, but *not evidence-based*
C&S results had no effect on compliance
Transforming medicines use on farm
Motivating change
What’s the solution?

“Reducing total use while driving more responsible use on farms – optimising AM use – is likely to have the biggest impact in slowing AMR development.”
Ceasing the use of the highest priority critically important antimicrobials does not adversely affect production, health or welfare parameters in dairy cows

Andrea Turner, David Tisdall, David C Barrett, Sarah Wood, Andrew Dowsey, Kristen K Reyher

Due to scientific, public and political concern regarding antimicrobial resistance (AMR), several EU countries have already taken steps to reduce antimicrobial (AM) usage in production animal medicine, particularly that of the highest priority critically important AMs (HP-CIAs). While veterinarians are aware of issues surrounding AMR, potential barriers to change such as concerns of reduced animal health, welfare or production may inhibit progress towards more responsible AM prescribing. Farmers from seven dairy farms in South West England engaged in changing AM use through an active process of education and herd health planning meetings. Prescribing data were collected from veterinary sales records; production and health data were accessed via milk recording and farm-recorded data. This study demonstrates that cattle health and welfare—as measured by production parameters, fertility, udder health and mobility data and culling rates—can be maintained and even improved alongside a complete cessation in the use of HP-CIAs as well as an overall reduction of AM use on dairy farms. This study also identified a need to consider different metrics when analysing AM use data, including dose-based metrics as well as those of total quantities to allow better representation of the direction and magnitude of changes in AM use.

Acknowledgements
Herd health management

Plans Vs Management

Monitor

Problem solve

Evaluate

Take action
Monitoring medicines use

What should you measure?

» Parallel monitoring
  • Herd health, welfare & production
  • Medicines use metrics

» Important to select
  • A quantity measure
  • A dose / course measure

» Metrics MUST
  • Inform herd health management
  • Aid rather than obstruct communication with farmers
Monitoring medicines use

What metrics should you use?

Use of Critically important antimicrobials in LCT

Mgs: ‘Less than 25% of mastitis treatments contain antimicrobials critical to human health’

ADD: ‘More than 50% of mastitis treatments contain antimicrobials critical to human health’
Taking action

Motivating change

» Practice-wide
» Collaborative
» Participatory
» Multifaceted

• Herd health management
• Changes to prescribing policy
• Systematic medicines audits
• Farmer training
Taking action

Timeline

The beginning …
- Active HHM
- Building partnerships
- First-line treatments
- Halted FQ use

2011
- First-line treatments
- Focussed reduction of use of 3rd/4th gen cephalosporins

2012
- Farmer workshops
- Changed prescribing policy for CIAs
- Scoping options for medicines audits
Taking action

Major changes in AM use policy

**Fluoroquinolone use stopped**
- 1\textsuperscript{st} line treatment approaches reinforced

**Intramammary use**
- 4\textsuperscript{th} gen cephs substituted with penicillins and aminoglycoside combinations

**Systemic use**
- 3\textsuperscript{rd} gen cephs substituted with 1\textsuperscript{st} gen or aminopenicillins

**Calf pneumonia**
- Oxytetracycline or florfenicol, replace the longer-acting macrolides
Taking action

Timeline

2013
- Farmers meetings
- Medicines audits*
- Medicines auditing tool development
- Integration into HHM

2014
- Farmers meetings
- Progress update
- Medicines audits*
- Medicines auditing tool refinement
- Ongoing HHM

2015
- Medicines audits*
- Ongoing HHM

* Integrated into farm animal elective teaching
Evaluate

Use of antimicrobials by indication (2015)

- Systemic Antimicrobials: 24.46, 67%
- Antipneumonials: 7.62, 21%
- DCT: 1.77, 5%
- LCT: 1.61, 4%
- Topical Antimicrobials: 0.95, 3%
- Intrauterine Antimicrobials: 0.09, 0%
Evaluate

**Total antimicrobial use**

7% reduction in total antimicrobial use compared to 2014

Approximately a 10% increase in dairy cattle compared to 2010
Evaluate

Critically important antimicrobials

- 82% reduction in the total use of CIAs
- 91% reduction in systemic use of CIAs
- 100% reduction in intra-mammary use of CIAs
- No perceived or actual reduction in treatment outcomes or farm animal health

Critically important antimicrobial use

<table>
<thead>
<tr>
<th>Year</th>
<th>Systemic (CIA)</th>
<th>Antipneumonials (CIA)</th>
<th>Intrammammary (CIA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2011</td>
<td>0.90</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2012</td>
<td>0.80</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2013</td>
<td>0.70</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2014</td>
<td>0.60</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2015</td>
<td>0.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Evaluate

Lactating cow therapy

32% reduction in LCT use compared to 2010

100% reduction in the use of CIA's in LCTs compared to 2010
What do farmers’ think?

» Farm clients remain **consistently positive** about tackling the issues of responsible medicines use and AMR in partnership.

» Informal feedback suggests they found measures which express antimicrobial use in terms of doses, courses or economics most useful.
Potential impact on AMR

» Reduced selection pressure for ESBLs

On dairy farms, recent use of 3rd / 4th gen Cephs is strongly associated with an increased likelihood of the presence of ESBL E. coli (specifically CTX-M), while use of 1st / 2nd gen cephs is not\(^1\).

» Reduced AM courses per animal per year.

Other examples
Conclusions

» Working in partnership works
  • Participatory & collaborative
  • Engaging the whole practice & farm team

» Monitoring use is an essential part of good antimicrobial stewardship
  • This must include treatment outcomes
  • Picking the right measures matters

» Medicines auditing goes hand in hand with improved HHM

» It is possible to achieve marked reductions in CIA use whilst…
  • Keeping farmers on board
  • Improving animal health and welfare
  • … and without the need for legislation

» The use of CIAs as first line treatments cannot be justified.
Further reading

Achieving responsible antimicrobial use: communicating with farmers

Kirsten K. Reyher, David C. Barrett, David A. Tiddal

Communicating with farmers is key to achieving responsible antimicrobial use on the farms. With the farmer as the focal point and working together and in close partnership with the farmer’s own individual knowledge and expertise, the change in antimicrobial use can be sustained and worked for both parties. This article discusses the tendencies and advocating and adopting an evidence-based approach to therapeutic decision-making, and monitoring patterns of medicines use to identify opportunities for intervention and measure impact, while at the same time team partnering with farmers to improve herd health management. This article discusses how such a multistaged, collaborative approach, which involves the whole practice team working in partnership with farm staff, can be highly successful in achieving and sustaining more responsible medicines use on farm and improving animal health.

Responsible use

Achieving responsible and sustainable medcines use is a significant andlong-term challenge for any herd health professional and must tackle together (Department of Health, 2008; Hladik, 2011). Although responsible use has been a principle that has been practiced in farm animal practice for a long time, it should now be named an approach and role, as having the benefit of being a more holistic understanding of medicines use on farm (Hladik, 2011). Achieving antimicrobial health sustainability, for example, non-vaccinal and anti-infectious drug (NV-AI-DR) use can provide valuable insight into a herd situation and an indication of the response of the problem and can also be used to monitor and improve the underlying health of the herd. NV-AI-DR use can be monitored and improved through the use of health indices, farm antibiotic usage and herd health programs.

Sponsored by

In Practice 16.01 2015 | Volume 119 | 119-127

Further reading

Achieving responsible antimicrobial use: communicating with farmers

Kirsten K. Reyher, David C. Barrett, David A. Tiddal

Communicating with farmers is key to achieving responsible antimicrobial use on the farms. With the farmer as the focal point and working together and in close partnership with the farmer’s own individual knowledge and expertise, the change in antimicrobial use can be sustained and worked for both parties. This article discusses the tendencies and advocating and adopting an evidence-based approach to therapeutic decision-making, and monitoring patterns of medicines use to identify opportunities for intervention and measure impact, while at the same time team partnering with farmers to improve herd health management. This article discusses how such a multistaged, collaborative approach, which involves the whole practice team working in partnership with farm staff, can be highly successful in achieving and sustaining more responsible medicines use on farm and improving animal health.

Responsible use

Achieving responsible and sustainable medcines use is a significant andlong-term challenge for any herd health professional and must tackle together (Department of Health, 2008; Hladik, 2011). Although responsible use has been a principle that has been practiced in farm animal practice for a long time, it should now be named an approach and role, as having the benefit of being a more holistic understanding of medicines use on farm (Hladik, 2011). Achieving antimicrobial health sustainability, for example, non-vaccinal and anti-infectious drug (NV-AI-DR) use can provide valuable insight into a herd situation and an indication of the response of the problem and can also be used to monitor and improve the underlying health of the herd. NV-AI-DR use can be monitored and improved through the use of health indices, farm antibiotic usage and herd health programs.

Further reading

Achieving responsible antimicrobial use: communicating with farmers

Kirsten K. Reyher, David C. Barrett, David A. Tiddal

Communicating with farmers is key to achieving responsible antimicrobial use on the farms. With the farmer as the focal point and working together and in close partnership with the farmer’s own individual knowledge and expertise, the change in antimicrobial use can be sustained and worked for both parties. This article discusses the tendencies and advocating and adopting an evidence-based approach to therapeutic decision-making, and monitoring patterns of medicines use to identify opportunities for intervention and measure impact, while at the same time team partnering with farmers to improve herd health management. This article discusses how such a multistaged, collaborative approach, which involves the whole practice team working in partnership with farm staff, can be highly successful in achieving and sustaining more responsible medicines use on farm and improving animal health.

Responsible use

Achieving responsible and sustainable medcines use is a significant andlong-term challenge for any herd health professional and must tackle together (Department of Health, 2008; Hladik, 2011). Although responsible use has been a principle that has been practiced in farm animal practice for a long time, it should now be named an approach and role, as having the benefit of being a more holistic understanding of medicines use on farm (Hladik, 2011). Achieving antimicrobial health sustainability, for example, non-vaccinal and anti-infectious drug (NV-AI-DR) use can provide valuable insight into a herd situation and an indication of the response of the problem and can also be used to monitor and improve the underlying health of the herd. NV-AI-DR use can be monitored and improved through the use of health indices, farm antibiotic usage and herd health programs.

Sponsored by


TURNER, A., TISDALL, D., BARRETT, DC., WOOD, S., DOWSEY, A., REYHER, KK. (2018) Ceasing the use of the highest priority critically important antimicrobials does not adversely affect production, health or welfare parameters in dairy cows Veterinary Record 183, 67.
“Nobody made a greater mistake than he who did nothing because he could only do a little!”

Edmund Burke (1729 – 1797)
Any questions?