

Prescribing antimicrobials: call 'to act before we are forced to'...

FOR the cattle veterinary surgeon, the decision to select a particular antibiotic product and deliver the prescribed dose and duration seems pretty straightforward. Experience has shown that a clinical improvement can be expected and if the beasts recover and are productive then the farmer client is satisfied.

There are, however, well-recognised issues of misuse and the risk of residues in food-producing animals. But what of resistance? How much attention is paid to the development of resistant pathogens and commensals that can be transferred not only from calf to calf or batch to batch but from animals to cattle keeper and on into the human chain.

No longer is reducing human disease by controlling animal medicines a discussion for academics. The transfer of resistant bacteria needs to be better understood and prevented.

The recent BCVA Medicines CPD course addressed best practice and decision-making in prescribing antimicrobials to cattle and the five presentations were carefully crafted to stimulate and question.

Over 30 delegates from practice joined in with the speakers and people from industry in a workshop-type atmosphere, with questions being raised throughout and seven case studies to work through and discuss.

Challenging

This was CPD of a challenging nature and although the knowledge exhibited by the delegates was considerable, there is clearly more to be understood – much more.

Professor David Barrett (Bristol) set the scene, chaired the day, managed the discussions and directed the five groups offering views on the case studies. There were not necessarily right and wrong answers: it was all about future best practice.

Phil Sketchley (NOAH) indicated that legal responsibilities might be a dry topic but not when his second slide highlighted that the 2014 review is expected to yield new EU regulations. It is likely that these will be regulations, not directives, and the same inflexible rules will be applied in every EU

member state.

The wording of the directive is not known as yet but change is expected and, he said, "You may not like what you hear." His plea was not to shoot the messenger! With POM-V products, vets are the gatekeepers of antimicrobial use, indicating great responsibility.

The use of antibiotics to treat an individual animal is not expected to be changed, but treating others in the

RICHARD GARD
reports from the recent BCVA CPD course on medicines

same group that are not showing clinical signs or a pre-emptive strike because of the risk of disease could be prohibited.

From the resistance perspective, a treatment failure could be significant and should be reported to the manufacturing company. Go directly to the technical wing of the company so that the correct documentation is generated: the companies are duty bound to engage, he said.

Mr Sketchley recommended the RUMA website (www.ruma.org.uk) as a valuable source for antimicrobial use guidelines. The management of drugs within a practice is facing increasing scrutiny and utilising the Global Trade Index Number with supporting software is worthy of investigation.

It came as a surprise to some that a special cabinet bolted to the car chassis is a requirement for schedule 2 and 3 drugs – not the glove compartment. Direct access is available online to link to the *NOAH Compendium* to print labels with the current dispensing details. Use of drugs by the farmer is only available for the animal(s) indicated, not for him to use as he sees fit.

Best practice is to forget the term "off label" and refer to "authorised use". Use of the cascade is likely to become more and more important and veterinary surgeons need to be sure that it is being used correctly in all circumstances.

Withdrawal periods for products with a Maximum Residue Limit in another EU country may differ from products outside the EU. The latest guidance (October 2011) No. 13 is available from the

VMD website. Mr Sketchley advised vets to obtain the client's consent before administering a cascade product, just in case.

Milk at risk

Milk is clearly a product at risk from residues and Tim Hampton (Milk Link Ltd) carefully explained the approach by milk buyers. As well as avoiding residues, the industry is sensitive to the public perception of milk and milk products.

From the point of collection there is full traceability and a calculation of the number of samples taken divided by the farms indicates that over 200 samples per farm are taken on average per year.

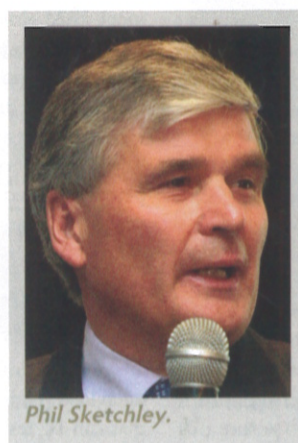
There are the required samples for payment and samples for quality assurance and then further tests if contamination is found. The failure rates are very low but they are fairly static whereas the industry would like to see a continuing drop year on year. Half of the failures investigated are due to an error in animal identification.

If an antibiotic contamination incident is contained within the farm, then the costs are limited to production loss with the milk going into the slurry pit. But if a tanker load fails the milk has become an animal by-product and disposal on farm is not an option.

Trading Standards and approved disposal sites are involved with high cost to the farmer. Although there is an insurance scheme, with two claims per annum yielding 55% of the net milk price, any long-term issues are likely to lead to a contract review. Technical help is available to sort out practical solutions.

There are issues of test sensitivity and how this relates to the MRL of an antibiotic. Linking the tests to product use where more than one source of antibiotic has been administered is an issue that the laboratories are aware of, as well as the possible impact of high fat and high cell count milk.

The request from Mr Hampton is for all involved to be aware of the risks posed by administering



Phil Sketchley.

antimicrobials to cows, to have robust management protocols on farm and for farmers to be more knowledgeable about the use of antibiotics. Stronger links are being developed between the milk buyers, veterinary surgeons and pharmaceutical manufacturers, he said.

Product protocols

The selection of product and the protocols for use were discussed by Tim Potter (Westpoint Vet Group). It is likely that more detailed information will be required by practices to support a resistance-free approach with better understanding of chromosomal and plasmid-mediated acquired resistance.

The incidence and rate of the emergence of resistance has three major considerations of note in relation to drug dosage: exposure of micro-organisms to sub-inhibitory concentrations; clinical or bacteriological cure dose may not minimise the emergence of resistance; designing dosage schedules requires effective application of pharmacokinetic and pharmacodynamic principles.

There are different approaches to tackling resistance in the EU countries, he said. Total reductions in the volume of antimicrobials used, for example, are being targeted with 50% by 2013 (Netherlands) and 25% in five years (France).

Where product types are limited to particular degrees of disease severity, there are likely to be more treatment failures by drugs with an excellent antibacterial activity. Conversely, where an antibiotic of low activity is used on animals with a good immune response, little tissue damage and no viral involvement, it will appear highly efficacious.

The poor identification of disease, the poor use of treatment protocols, overdosing and underdosing all contribute to poor compliance with inadequate treatment response, increased resistance risk, recurrent infections, increased cost to the client, doubts about the drug and the clinician and the



Professor David Barrett.



Tim Potter.

accumulation of unused medication on farm. Appraising practice prescribing practices, to achieve good compliance, is an ongoing requirement, Mr Potter said.

Promoting best practice at veterinary practice and farm level was addressed by Colin Lindsay (Capontree Veterinary Centre). Experiences were taken from the Cumbrian practice with 13 vets on three sites, 67 dairy herds with from 20 to 1,000 cows and 250 beef and sheep units.

An annual audit reviews the purchases of medicines by each client with assessment to the previous year and the number of animals. The practice has been concerned about imported drugs being sold on farms but many clients have requested an audit as they become more aware of the authorisation process for the use and availability of drugs.

Above all, the audit is seen as being good clinical practice. Utilising the support staff within the practice also helps the team approach and increasing understanding of the practice aims.

Products are grouped into green, amber and red and this is carried forward into the pharmacy with the shelves similarly marked with coloured tape: green for general purpose, amber for animal care and red restricted for

definite veterinary authorisation.

On every dispensed product label the batch number is printed. This allows full traceability and helps reconciliation at the twice annual stocktake. The audit trail includes vaccines and hormones with specific storage requirements that are recorded and includes product in the vets' cars.

Education of clients is a key point and, he said, "It is vital that we, as vets, remember our clients may feel insecure about changing away from favourite products." Almost all the dairy clients and 20% of the beef clients have herd or farm health plans and they account for 80% of drug sales.

Plans need to be meaningful and useful to the client and although audits, developing and operating plans take time, it is worth it. A summary action list, that is simple and concise, is essential.

Lack of data

In using the cascade, products without an MRL are banned substances in food-producing animals. In prescribing combinations of products there is a lack of data to verify both efficacy and withdrawal periods. The veterinary surgeon has to balance the outcomes from antibiotic interaction, the infection being treated, the site of administration, tissue penetration and

withdrawal period.

In practice, the new graduate and the older vet have a tendency to reach for the new "strong" antibiotic. The various attributes of bacteriostatic and bactericidal antibiotics, the role of the immune system and dose effects on activity all lead to the need for a full understanding of the infection being treated.

Testing to know the bacteria is combined with knowledge of product penetration in bone, urinary tract, hepatic/biliary system and the respiratory system. Using products outside the data sheet requires a withdrawal period of not less than seven days for milk and 28 days for meat but this is under review in Europe. Promoting best practice is also under continual review and there is a need for ongoing debates about effective ways forward, he said.

In practice, providing the correct dose of a product means knowing the weight of the animal. Colin introduced Brian the bull (who used to be called Percy) and asked the workshop participants to estimate the weight of the animal. Correct weight and correct dose mean less risk of poor response and less risk of inducing resistance. At the time of the photograph he was 1,290kg – but growing.

David Barrett emphasised the

pressure building on change to the use of antimicrobials throughout Europe. In 2010 the use of antimicrobials in the UK increased by 45 tonnes (402 to 447 tonnes) with an increase of 41 tonnes in food-producing animals.

There was an increase in tetracyclines (177 to 200 tonnes), B-lactams (76 to 96 tonnes), trimeth/sulph (73 to 75 tonnes) and usage of 3rd and 4th generation cephalosporins (1.4 tonnes), fluoroquinolones (2.2 tonnes) and macrolides (35 tonnes).

There are various plans and key areas identified for clarification, some of these may become part of future legislation. The message to the profession is: "We need to implement best practice in all that we do" and he emphasised: "Act before we are forced to, or at least prepare for change."

The seven "clinical scenarios" that were discussed in five groups raised multiple queries but achieved the aim of making everyone think about the best way forward. The use of antimicrobials in practice is not an easy topic but there is clarity that therapy to overcome poor husbandry has to be addressed.

- Details about future courses are available from BCVA office and the content is being developed according to the needs of the profession.