CREATING AND USING GUIDELINES IN PRACTICE – COLICS, CASTRATIONS, ANTIMICROBIALS AND MORE

Tim Mair

Bell Equine Veterinary Clinic

Clinical Guidelines

- *"Systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances"*
- Field MJ, Lohr KN (Eds). Clinical Practice Guidelines: Directions for a New Program, Institute of Medicine. Washington, DC: National Academy Press 1990

Clinical Guidelines

"Statements that include recommendations intended to optimise patient care, that are informed by systematic reviews of evidence and an assessment of the benefits and harms of alternative care options"

Laine C, Taichman DB, Mulrow C. Trustworthy clinical guidelines. Ann Intern Med. 2011;154(11):774–5

What are Clinical Guidelines?

- A clinical guideline is a document with advice and recommendations that can **help** veterinary teams treat patients with specific conditions
- The recommendations are based on the **best available evidence**
- **Tools** to inform clinicians about the current state of knowledge regarding the benefits and limitations of specific technologies and treatments for defined health problems

What are Clinical Guidelines?

- A clinical guideline is a document with advice and recommendations that can **help** veterinary teams treat patients with specific

Tool to bridge the "Knowledge – Practice Gap"

- The recommendations are based on the **best available evidence**
- **Tools** to inform clinicians about the current state of knowledge regarding the benefits and limitations of specific technologies and treatments for defined health problems

NICE National Institute for Health and Care Excellence

Key principles underlying NICE clinical guidelines

- Aim to improve the quality of care for patients
- Assess how well different treatments and ways of managing a specific condition work
- Are based on the best available research evidence and expert consensus
- Are developed using a standard process and standard ways of analysing the evidence
- Are advisory rather than compulsory, but should be taken into account by healthcare professionals when planning care for individual patients

NICE National Institute for Health and Care Excellence

Key principles underlying NICE clinical guidelines

- Aim to improve the quality of care for patients
- Assess how well different treatments and ways of

- Link professional practice more closely to scientific evidence
- Ease the burden of reviewing and synthesizing evidence away from individual clinicians
- Improve the quality of patient care

Are advisory rather than compulsory, but should be taken into account by healthcare professionals when planning care for individual patients

What Clinical Guidelines are NOT

- Guidelines do not replace clinical expertise or knowledge
- Guidelines should be used IN CONJUNCTION with clinical expertise, patient's circumstances and owner's wishes / values – one of several tools to help with clinical decisions
- Guidelines are NOT protocols

Guidelines or Guidance?

THE EVI

Let's not create new veterinary vices

This month **Rachel Dean** argues that guidelines should be written by those that will use properly assessed, to ensure they actually improve patient outcomes

A group of specialists are possibly not best placed to write about how to treat a condition in first-opinion practice

Systematic Reviews and Clinical Practice Guidelines Improve Healthcare Decision Making

Click on any text for more information

We need better evidence and guidance to make informed healthcare choices

Define Clinical Problem

Assemble Multidisciplinary Team

DEVELOPMENT OF SYSTEMATIC REVIEWS

Identify, Assess, and Synthesize Evidence

Produce Systematic Review Report

Improved health outcomes and quality of care

Use Guidance to Make Better Informed Decisions

Assemble Guideline Development Group

Appraise Systematic Reviews and Other Evidence

DEVELOPMENT OF CLINICAL PRACTICE GUIDELINES

Produce Clinical Practice Guideline

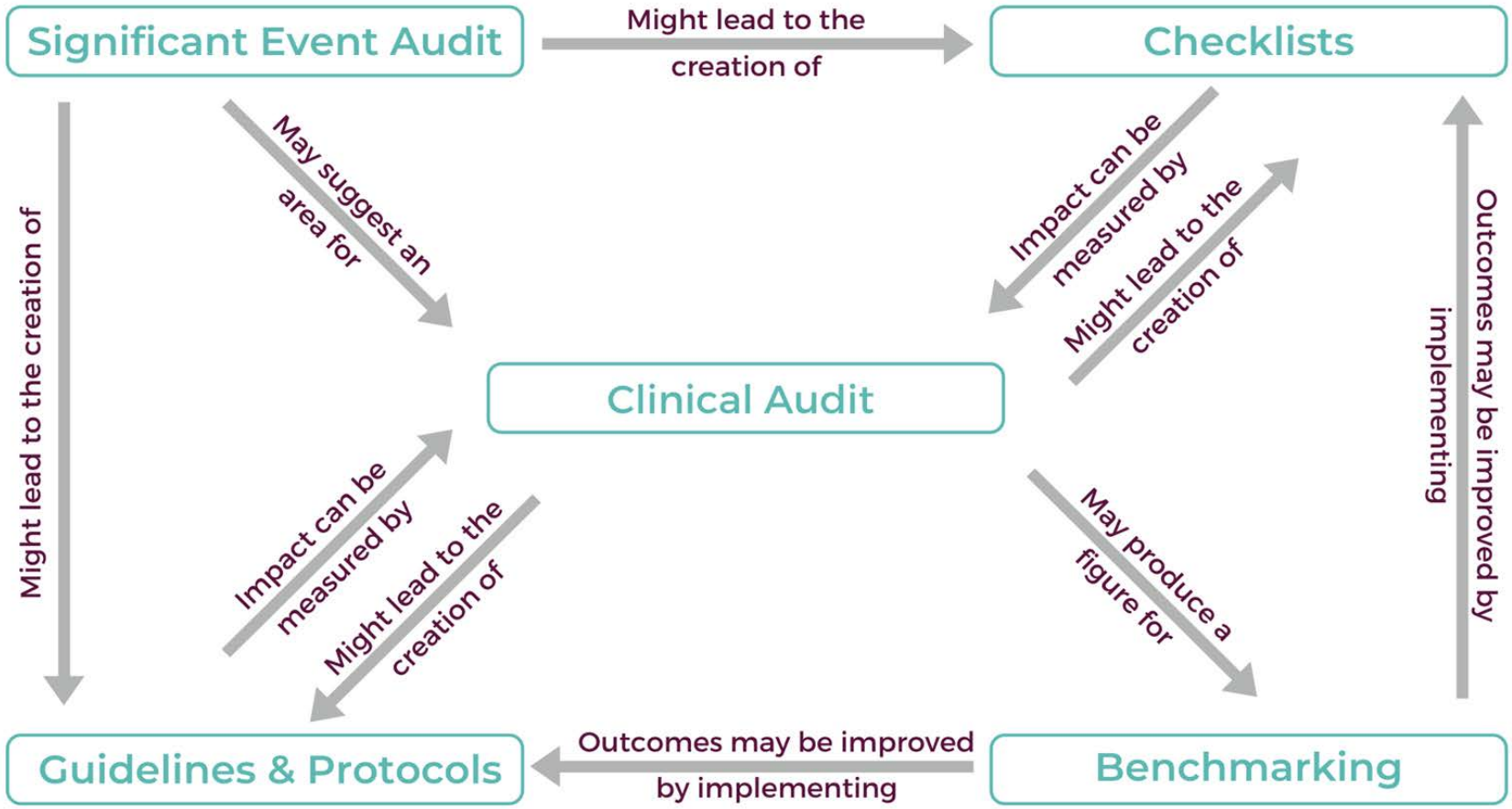
Incorporate Expert Opinion and Patient Preferences and Characteristics

How do guidelines help?

- **TEAMS:**
  - Evidence-based guidance – use in conjunction with clinical judgment / experience – best practice
  - Support for less experienced team members
  - Encourage team discussions – evidence-based framework
- **ORGANISATIONS:**
  - Support for clinical team members – confidence
  - Consistency within practice and between practices
- **PATIENTS AND CLIENTS:**
  - Evidence-based care / best practice
  - Reassurance to clients

RCVS KNOWLEDGE

Measuring & improving our quality of care



Click here to enter your practice name and then click on the image placeholder to insert your logo

Click here to enter your guideline name.

There are 7 steps to creating a guideline. You can read about these in our Guidelines Walkthrough document.

This document is *guidance only* addressing a specific clinical scenario as outlined below. It should be used in conjunction with your clinical expertise, patient circumstances and owners' values.

Topic: What is this guideline about?

Click here to enter text.

Be specific and keep it brief.

Scope: Who is the guideline relevant to?

☐ All staff ☐ Vets ☐ Nurses ☐ Reception ☐ Support staff

Allocated team member to research and review the evidence: Click here to enter text.

Clinical examination: Which measurements should be taken?

Click here to enter text.

Include all aspects of examination, be thorough.

Diagnostic tests: Which tests and investigations should be performed?

Click here to enter text.

Include all tests and investigations. If repeat testing or investigation is required, specify the time interval clearly.

Treatment: What treatments are recommended?

Click here to enter text.

Specify if treatments are applicable to all patients, or should be differentiated by age, co-morbidity or other factors.

Follow-up care:

Click here to enter text.

List any follow up requirements. This could be for future examinations & monitoring, home care by the client, or conducted by the practice team.

References:

Click here to enter text.

Review:

Active date: Click here to enter a date. Use arrow for date picker.

Review date: Click here to enter a date. Use arrow for date picker.

Document control: Click here to enter text to set out how the guideline is stored, for example, if you are keeping hard copies, how are you ensuring that out of date versions are superseded?

Notes:

Click here to enter text.

You might wish to include guidance on Informed Consent, for example stating who is responsible for obtaining informed consent and when that responsibility can be delegated (and to whom), what should be discussed with clients including the nature, purpose and benefits of any treatment or procedure, the likely outcomes including potential risks, financial estimates, informing the client when other treatments are available and checking that the client understands what they are agreeing to (financial outlays and possible side effects), etc.

Any further notes.

Creating and using guidelines in practice – colics, castrations, antimicrobials and more

What is the guideline about?

Who is the guideline relevant to?

Clinical examination: Which measurements should be taken?

Diagnostic tests: Which tests and investigations should be performed?

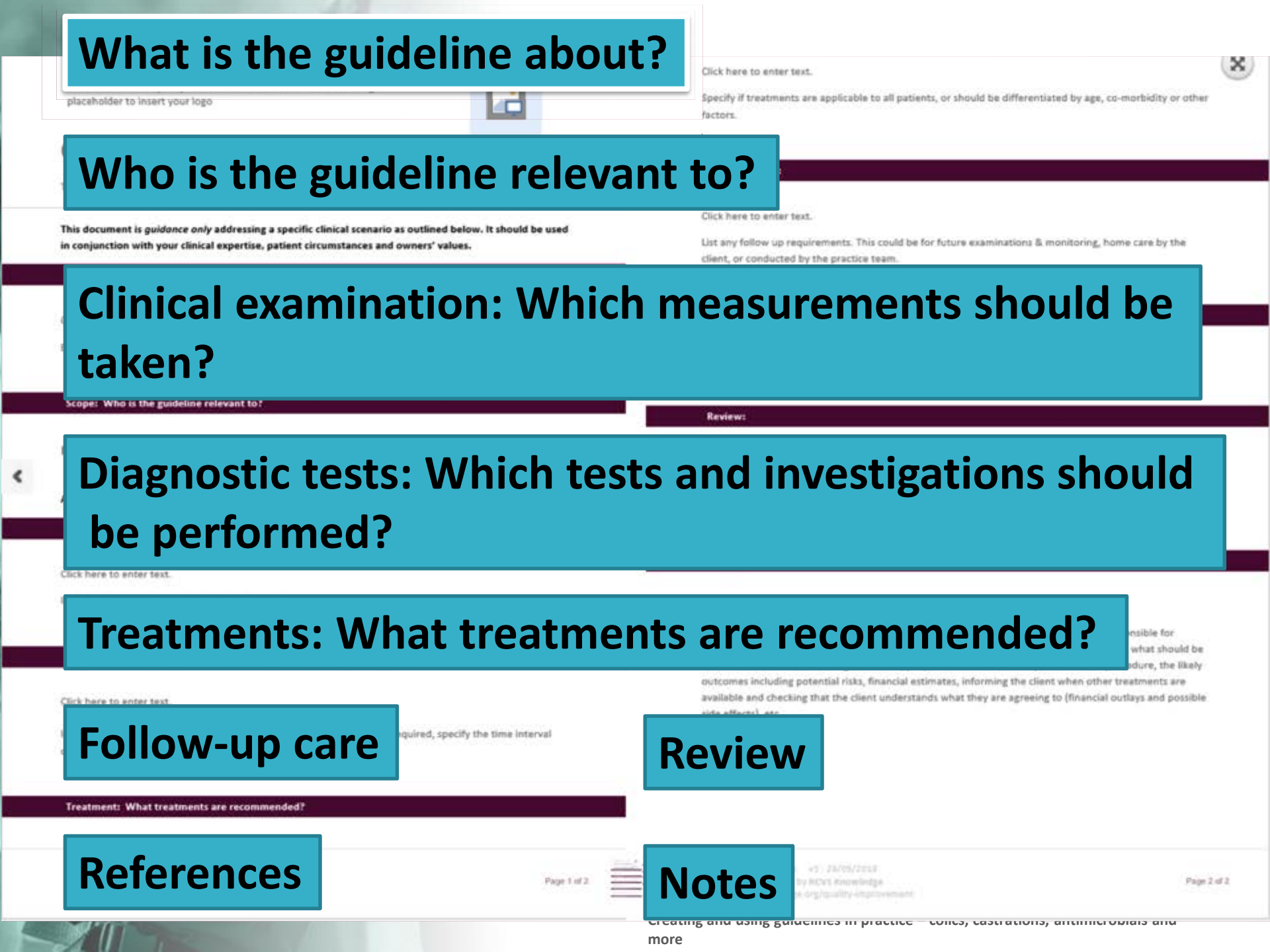
Treatments: What treatments are recommended?

Follow-up care

Review

References

Notes



Guideline Development

- Benefits of guidelines are only as good as the quality of the guidelines themselves
- Require appropriate methods of guideline development
- AGREE II – assessment tool to assess the methods used and quality of guidelines – confidence in the recommendations in the guidline

Guideline Development

AGREE II

- 23 Core items and 2 overall assessment items
- Organised in 6 Domains of Practice Guidelines Quality

Overall aim of the guideline, the specific health questions, and the target population (items 1-3).

Process used to gather and synthesize the evidence, the methods to formulate the recommendations, and to update them (items 7-14).

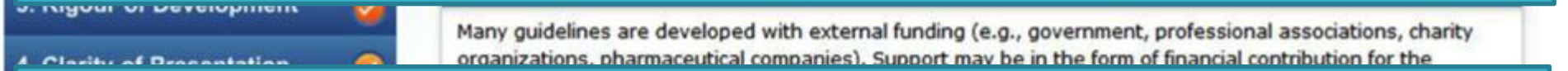
Extent to which the guideline was developed by the appropriate stakeholders and represents the views of its intended users (items 4-6).

Language, structure, and format of the guideline (items 15-17).

Likely barriers and facilitators to implementation, strategies to improve uptake, and resource implications of applying the guideline (items 18-21).

AGREE II Instrument

Formulation of recommendations not unduly biased with competing interests (items 22-23).



Rating of the overall quality of the guideline.
Whether the guideline would be recommended for use in practice.
Judgment of the quality of the guideline, taking into Account criteria considered in the assessment process.

BMJ Journals

Gut

Consensus Statements

Lamb CA, *et al*. *Gut* 2019;**0**:1–106. doi:10.1136/gutjnl-2019-318484

OPEN ACCESS

British Society of Gastroenterology consensus guidelines on the management of inflammatory bowel disease in adults

Christopher Andrew Lamb,[1,2] Nicholas A Kennedy,[3,4] Tim Raine,[5] Philip Anthony Hendy,[6,7] Philip J Smith,[8] Jimmy K Limdi,[9,10] Bu'Hussain Hayee,[11,12] Miranda C E Lomer,[12,13] Gareth C Parkes,[14,15] Christian Selinger,[16,17] Kevin J Barrett,[18] R Justin Davies,[5,19] Cathy Bennett,[20,21] Stuart Gittens,[22] Malcolm G Dunlop,[23,24] Omar Faiz,[7,25] Aileen Fraser,[26] Vikki Garrick,[27] Paul D Johnston,[28] Miles Parkes,[5] Jeremy Sanderson,[12,13] Helen Terry,[28] IBD guidelines eDelphi consensus group, Daniel R Gaya,[29,30] Tariq H Iqbal,[31,32] Stuart A Taylor,[33,34] Melissa Smith,[35,36] Matthew Brookes,[37,38] Richard Hansen,[27,30] A Barney Hawthorne[39]

Consensus Statements

BMJ Journals
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Lamb CA, *et al*. *Gut* 2019;**0**:1–106. doi:10.1136/gutjnl-2019-318484

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review of 88 247 publications and a Delphi consensus process involving 81 multidisciplinary clinicians and patients was undertaken to develop 168 evidence- and expert opinion-based recommendations for

Consensus Statements

Consensus Statements of the American College of Veterinary Internal Medicine (ACVIM) provide the veterinary community with up-to-date information on the pathophysiology, diagnosis, and treatment of clinically important animal diseases. The ACVIM Board of Regents oversees selection of relevant topics, identification of panel members with the expertise to draft the statements, and other aspects of assuring the integrity of the process. The statements are derived from evidence-based medicine whenever possible and the panel offers interpretive comments when such evidence is inadequate or contradictory. A draft is prepared by the panel, followed by solicitation of input by the ACVIM membership which may be incorporated into the statement. It is then submitted to the Journal of Veterinary Internal Medicine, where it is edited prior to publication. The authors are solely responsible for the content of the statements.

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Journal of Veterinary Internal Medicine
Open Access
ACVIM
J Vet Intern Med 2018;32:633–647

Streptococcus equi Infections in Horses: Guidelines for Treatment, Control, and Prevention of Strangles—Revised Consensus Statement

A.G. Boyle, J.F. Timoney, J.R. Newton, M.T. Hines, A.S. Waller, and B.R. Buchanan

This consensus statement update reflects our current published knowledge and opinion about clinical signs, pathogenesis, epidemiology, treatment, complications, and control of strangles. This updated statement emphasizes varying presentations in the context of existing underlying immunity and carrier states of strangles in the transmission of disease. The statement redefines the "gold standard" for detection of possible infection and reviews the new technologies available in polymerase chain reaction diagnosis and serology and their use in outbreak control and prevention. We reiterate the importance of judicious use of antibiotics in horses with strangles. This updated consensus statement reviews current vaccine technology and the importance of linking vaccination with currently advocated disease control and prevention programs to facilitate the eradication of endemic infections while safely maintaining herd immunity. Differentiation between immune responses to primary and repeated exposure of subclinically infected animals and responses induced by vaccination is also addressed.

Key words: Equine infectious upper respiratory disease; Guttural pouch; Lymphadenopathy; Nasal discharge.

J Vet Intern Med. 2019;33:335–349.

ECEIM consensus statement on equine metabolic syndrome

Andy E. Durham[1] | Nicholas Frank[2] | Cathy M. McGowan[3] | Nicola J. Menzies-Gow[4] | Ellen Roelfsema[5] | Ingrid Vervuert[6] | Karsten Feige[7] | Kerstin Fey[8]

[1]Liphook Equine Hospital, Liphook, United Kingdom

[2]Department of Clinical Sciences, Cummings School of Veterinary Medicine at Tufts University, North Grafton, Massachusetts

[3]Institute of Veterinary Science, University of Liverpool, Neston, United Kingdom

[4]Department of clinical sciences and services, Royal Veterinary College, Herts, United Kingdom

[5]Department of Equine Sciences, Utrecht University, Utrecht, The Netherlands

[6]Faculty of Veterinary Medicine, University of Leipzig, Institute of Animal Nutrition, Nutrition Diseases and Dietetics, Leipzig, Germany

[7]Clinic for Horses, University of Veterinary Medicine Hannover, Germany

[8]Equine Clinic, Internal Medicine, Faculty of Veterinary Medicine, Justus-Liebig-University of Giessen, Giessen, Germany

Correspondence
Andy E. Durham, Liphook Equine Hospital, Liphook GU30 7JG, United Kingdom.
Email: andy.durham@theleh.co.uk

Equine metabolic syndrome (EMS) is a widely recognized collection of risk factors for endocrinopathic laminitis. The most important of these risk factors is insulin dysregulation (ID). Clinicians and horse owners must recognize the presence of these risk factors so that they can be targeted and controlled to reduce the risk of laminitis attacks. Diagnosis of EMS is based partly on the horse's history and clinical examination findings, and partly on laboratory testing. Several choices of test exist which examine different facets of ID and other related metabolic disturbances. EMS is controlled mainly by dietary strategies and exercise programs that aim to improve insulin regulation and decrease obesity where present. In some cases, pharmacologic aids might be useful. Management of an EMS case is a long-term strategy requiring diligence and discipline by the horse's carer and support and guidance from their veterinarians.

KEYWORDS

EMS, endocrinopathic, insulin, laminitis

Joint therapies
Wound treatments

BEVA

Equine Veterinary Journal

BEVA Guidelines for Clinical Practice: Analgesia

Bowen,M., Redpath, A., Dugdale, A., Burford. J, Lloyd, D., Watson, T. and Hallowell, G.

(submitted for publication)

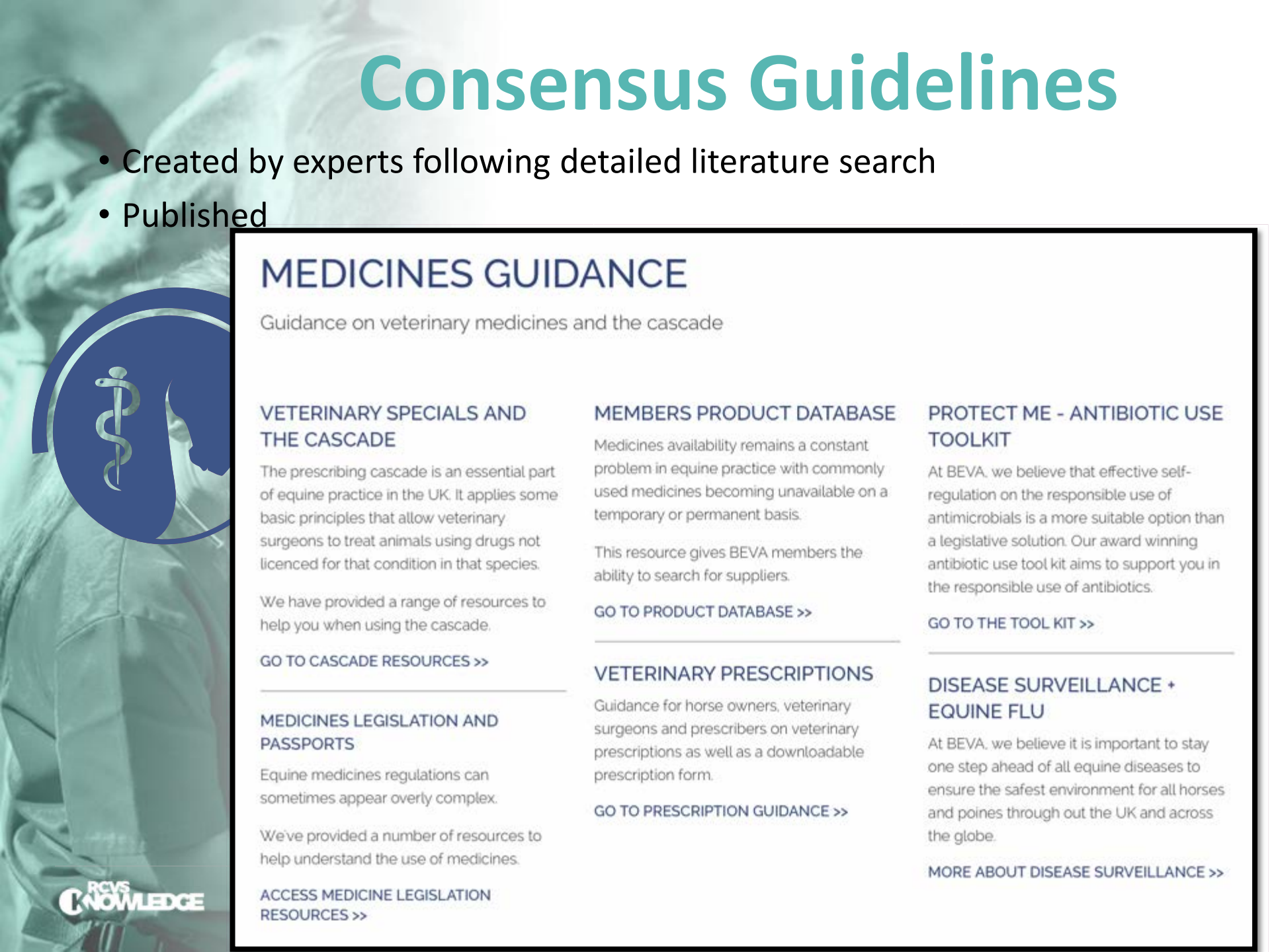
Consensus Guidelines

- Created by experts following detailed literature search
- Published

BEVA

Consensus Guidelines

- Created by experts following detailed literature search
- Published



Consensus Guidelines

- Created by experts following detailed literature search
- Published

American Association of Equine Practitioners

Consensus Guidelines

Parasite Control Guidelines

Commonly used strategies for parasite control in adult horses are based largely on knowledge and concepts that are more than 50 years old. However, much has changed in this time, necessitating a re-examination of recommendations for parasite control.

In response to this need, the AAEP's Parasite Control Subcommittee of the Infectious Disease Committee in 2013 produced a comprehensive set of recommendations for helping veterinarians develop improved strategies and programs for parasite control in horses of all ages. In 2019, these guidelines went through a rigorous review with the committee and former subcommittee and were updated.

It is important to keep in mind that the information contained within these guidelines are suggestions; there are many variations of these suggested programs that will still meet the same goals and follow the same principles. Ultimately, each farm (with veterinary guidance) should develop its own program tailored to the specific needs of the farm and each animal. There is no such thing as a "one size fits all" program.

Guidelines are specified separately for adult and young horses (less than 3 years). All treatment and non-treatment recommendations are made within the context of a preventive program where fecal egg count (FEC) surveillance is being performed.

Read Parasite Control Guidelines.

Consensus Guidelines

- Created by experts following detailed literature search
- Published

Codes of Practice 2019

Home | CEM | EVA | EHV | ECE | EIA | Dourine | Strangles | AI | Appendix | Downloads | Site | SEARCH

- Introduction
- Contagious Equine Metritis - CEM
- Equine Viral Arteritis - EVA
- Equine Herpesvirus - EHV
- Equine Coital Exanthema - ECE
- Equine Infectious Anaemia - EIA
- Dourine
- Strangles
- Artifical Insemination - AI
- Appendix
- Downloads

Home

Welcome to the HBLB Codes of Practice for the 2019 equine breeding season. The Codes set out voluntary recommendations to help breeders, in conjunction with their veterinary surgeons, prevent and control specific diseases in all breeds of horse and pony. Information can be found on the diseases listed here in the grey menu box to the left.

Each disease section details a number of topics, from notification procedures and clinical signs, to export certification. Use the left hand menu to navigate between each disease and relevant subsection. You can also search for information by keyword in the search facility.

Further information, including contact details for Field Service Offices, guidance and glossary of terms can be found in the Appendix section. If you have a question, please feel free to contact the HBLB Equine Grants Department.

Changes to the Codes for 2019

CEM section

See also new Appendix 11

Deletion of temporary advice re EVA vaccination as included iin 2018 Codes

See also revised Appendix 8

The HBLB acknowledges with thanks the work of the Codes of Practice sub-committee which reviews the Codes and recommends any modifications on scientific or practical grounds. The sub-committee comprises of veterinary experts and stakeholder representatives of the HBLB's Veterinary Advisory Committee, Thoroughbred Breeders Association, Newmarket Stud Farmers Association, Animal & Plant Health Agency, British Equine Veterinary Association and British Horse Society. France, Germany, Ireland and Italy are also represented. The veterinary expertise covers equine breeding of Thoroughbreds and non-Thoroughbreds, including AI.

Equine Veterinary Education

EQUINE VETERINARY EDUCATION
Equine vet. Educ. (2018) **30** (10) 549-557
doi: 10.1111/eve.12680

Review Article

The World Health Organization's Clean Hands Save Lives: A concept applicable to equine medicine as Clean Hands Save Horses

D. Verwilghen*

Section of Medicine and Surgery, Department of Large Animals Sciences, University of Copenhagen, Denmark.
**Corresponding author emails: dv@sund.ku.dk, denis@equinespecialists.eu*

Keywords: horse; infection control; hand hygiene; hospital acquired infections; surgical site infections

Equine Ve
Educatio

EQUINE VETERINAR
Equine vet. Educ.
doi: 10.1111/eve.1

Review Arti

**The Worl
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Hands Sa**

D. Verwilghe

*Section of Med
Corresponding

Keywords: horse;

Denmark.

Some key facts on hand hygiene

Proper hand hygiene is a key pillar in infection control, particularly in the avoidance of hospital-acquired infections.

Research in hand hygiene is a very active field and, based on the scientific knowledge, the evidence-based hand hygiene methods in 2016 have changed compared to the well-known scrubbing methods with soaps.

Current recommendations are to decontaminate hands by washing with neutral pH nondisinfecting soaps for a maximum of 1 min and to thoroughly but gently dry the skin before application of a hydro-alcoholic solution for at least 1.5 min.

Although every reasonable person understands the necessity of proper hand hygiene, compliance remains largely unsatisfactory.

Increasing compliance in the hospital can be achieved by better product accessibility, education and role models.

Key to proper hand hygiene is proper skin health. Skin care creams are crucial in the establishment of an effective hand hygiene protocol.

…icrobials and

RCVS KNOWLEDGE

Clean Hands – Safe Animals

Clean Hands Save Lives

Hygienic Hand Sanitation Protocol

Your 5 Moments for Hand Hygiene – Equine

Optimising equine biosecurity awareness and practices to reduce the welfare impact of infectious disease

Caroline Crew RVC PhD

	aseptic procedure — medication administration, catheter placement, wound care,...
3 After body fluid exposure	When? Clean your hands immediately after exposure risk to body fluids and after glove removal. Why? To protect yourself and the health-care environment from harmful patient germs. Examples: After contact with any body fluid like urine, blood, nasal discharge, saliva, faeces,...
4 After touching a patient	When? Clean hands after touching a patient and its immediate surroundings, when leaving the patient's side. Why? To protect yourself and the health-care environment from harmful patient germs. Examples: After clinical exams, after bandage changes, grooming,...
5 After touching the patient's surroundings	When? Clean your hands after touching any object or furniture in the patient surroundings when leaving even if the patient has not been touched. Why? To protect yourself and the health-care environment from harmful patient germs. Examples: When leaving the exam room, stable area or the hospital.

The steps on how to clean your hands

- Waterless rubs are your preferred way of sanitising your hands.
- A 30–60 second application of the rub* according to the above technique is necessary.
- Use water and soap for 40–60 seconds only when hands are visibly soiled.

* Depending on the formulation of the product used (refer to manufacturer recommendations). Use products that have passed the prEN1500 norm or similar.

Practice Guidelines

- Guidelines specific to team members in your practice
- May be based on consensus guidelines and statements
- Modified to consider local factors

- Sources of evidence:
  - Published evidence
  - Clinical experience
- Consider risk

Developing a Practice Guideline

- Decide what the guideline will address
  - Clear and focused
- Allocate team members to research and review the evidence
  - Sources of evidence – publications, expert opinion
- Hold a meeting to review and discuss the evidence
  - RCVS Knowledge "Guidelines Template"
- Once the team has come to an agreement, create draft guideline
- Provide the draft for the relevant team members to review
  - Encourage feedback
- Once everyone has reviewed the guidelines, release the final version
- Set a date for implementation, and a date for review
  - Initial 6 months review?

Implementing Practice Guidelines

Communication

Talk to colleagues
Support team members in it's use
Encourage feedback

BEVC Surgical Colic Management Guidelines Jan 2019

ALL SURGICAL COLICS

Pre-Operative:

Physical Examination / rectal exam / ng tube
Ultrasound FLASH Scan plus record video loops
Abdominocentesis (if required) – cell count / TS / CK / lactate (CK for research – not to be charged)
Bloods – minimum of PCV, TS, lactate, CK, creatinine, SAA, fibrinogen (CK for research – not to be charged)
- if required : electrolytes (check with surgeon)

Place iv catheter (if required)

Antimicrobials:

IM procaine penicillin 22,000 IU/kg as soon as decision for surgery made (takes time to reach therapeutic levels esp if poor cv status)
IV gentamicin in induction (concentration dependent drug so high concentrations needed at time of incision)
6.6 mg/kg standard dose for cardiovascularly stable horses; 8.8 mg/kg for hypovolaemic / toxic horses

NSAIDs:

IV flunixin meglumine 1.1 mg/kg (if not already received flunixin)

IV Fluids:

Crystalloids/ hypertonic saline (as required – check with surgeon)

Paperwork to complete

Colic Examination Record
Ultrasound FLASH Scan
Admission form
Consent form and estimate
Give owner Colic Information pack

SMALL INTESTINAL CASES

Post-Operative:

Examinations:

q4 hours (at least) for first 24 hours unless otherwise agreed by surgeon / at rounds
- TPR, gut sounds, DPs, catheter check etc.

After 24 hours – frequency of checks as needed but at least q 12 hours (as agreed by surgeon / at rounds)

Nasogastric intubation:

Check with surgeon at completion of surgery if nasogastric tube should be passed as a matter of course immediately after surgery (eg if marked nasogastric reflux before surgery or marked gastric distension identified during surgery)
Otherwise, ng tube should be passed and reflux attempted if horse shows colic or if HR increases to >60-80 post-surgery
For horses with post-operative reflux, ng tube should be passed at least every 4 hours (more frequently if large volume reflux >10 litres or if horse showing pain / increasing HR), decreasing frequency (eg every 4-6 hours) if low volume reflux (<4 litres); continue until reflux stops

Antimicrobials (3 days routinely unless otherwise requested by surgeon or agreed at rounds):

IM procaine penicillin 22,000 IU/kg BID
IV gentamicin 6.6 mg/kg SID (8.8 mg/kg if sick / toxic – as agreed with surgeon or at rounds)

NSAIDs:

IV flunixin meglumine 1.1 mg/kg BID 3 days, then 0.55 mg/kg BID 2 days (unless otherwise requested by surgeon or agreed at rounds)

Bloods:

PCV / TS / lactate twice a day whilst on iv fluids – unless otherwise agreed
Thereafter – PCV / TS / lactate as requested by surgeon / agreed at rounds

Prokinetics – Lidocaine?

J Vet Intern Med 2002;16:736–741

Intravenous Lidocaine and Small-Intestinal Size, Abdominal Fluid, and Outcome after Colic Surgery in Horses

P. Brianceau, H. Chevalier, A. Karas, M.H. Court, L. Bassage, C. Kirker-Head, P. Provost, and M.R. Paradis

Veterinary Surgery
35:60–66, 2006

Intravenous Continuous Infusion of Lidocaine for Treatment of Equine Ileus

J Vet Intern Med 2009;23:606–611

Risk Factors for Equine Postoperative Ileus and Effectiveness of Prophylactic Lidocaine

S. Torfs, C. Delesalle, J. Dewulf, L. Devisscher, and P. Deprez

CrossMark

Has intravenous lidocaine improved the outcome in horses following surgical management of small intestinal lesions in a UK hospital population?

Shebl E. Salem[1,2], Chris J. Proudman[3] and Debra C. Archer[1,4*]

Prokinetics – Lidocaine?

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Veterinary Surgery
35:60–66, 2006

Is There Still a Place for Lidocaine in the (Postoperative) Management of Colics?

David E. Freeman, MVB, PhD

outcome in horses following surgical management of small intestinal lesions in a UK hospital population?

Shebl E. Salem[1,2], Chris J. Proudman[3] and Debra C. Archer[1,4*]

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Veterinary Surgery
35:60–66, 2006

Is There Still a Place for

Need for prospective, multicentre, randomised clinical trial – over to Debbie!!

David E. Freeman, MVB, PhD

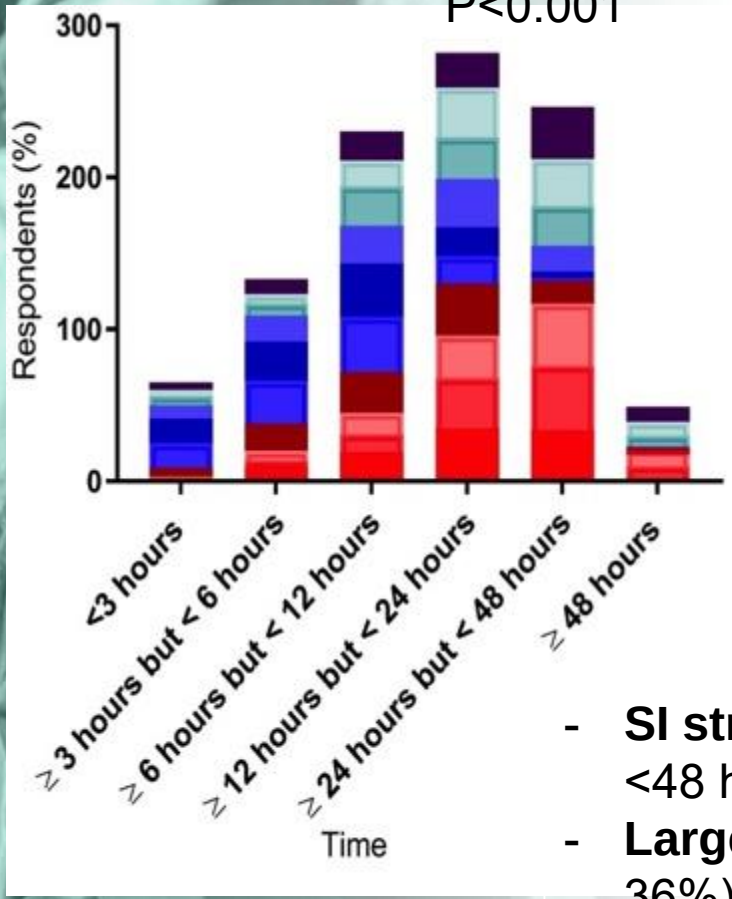
outcome in horses following surgical management of small intestinal lesions in a UK hospital population?

Shebl E. Salem[1,2], Chris J. Proudman[3] and Debra C. Archer[1,4*]

April Lawson

When to re-introduce feed?

P<0.001



	Odds ratio for a later re-introduction of feeding (≥24hours)	
	OR (CI 95%)	P value
Small intestinal strangulation - no resection	3.01 (1.80-5.04)	<0.001*
Small intestinal strangulation resection J-J	5.18 (3.10-8.66)	<0.001*
Small intestinal strangulation resection J-C	5.78 (3.44-9.72)	<0.001*
Ileal impaction	reference	
Left dorsal displacement	0.11 (0.33-0.38)	<0.001*
Right dorsal displacement	0.23 (0.09-0.57)	0.001*
≥360 degree large colon torsion	1.16 (0.64-2.10)	0.62
Caecal impaction - Typhlotomy only	2.57 (1.50-4.40)	0.001*
Caecal impaction with by-pass	3.52 (2.06-6.03)	<0.001*
Small colon strangulation and resection	4.01 (2.36-6.80)	<0.001*

- **SI strangulating and small colon lesions:** ≥24hours but <48 hours (34-42%)
- **Large colon displacement:** ≥6 hours but <12 hours (35-36%)
- **Large colon torsion/ caecal/ ileal impaction:** ≥12hours but <24hours (27-34%)

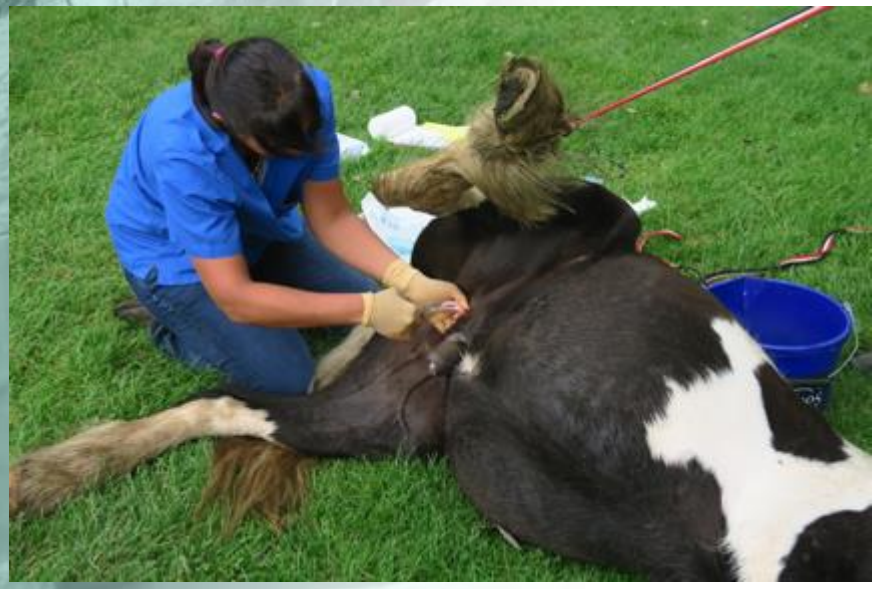
Castration

BEVA TRUST

The British Horse Society

- Commonly performed
- Complications
- Different techniques
- Different aftercare protocols

Education and Castration Clinics



Castration

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Education and Castration Clinics

Equine Veterinary Journal

Equine Veterinary Journal ISSN 0425-1644
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Analytical Clinical Studies

A prospective multicentre survey of complications associated with equine castration to facilitate clinical audit

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Castration Audit

University of Nottingham
UK | CHINA | MALAYSIA

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FOR EQUINE VETS EVERYWHERE

BEVA Clinical audit of castration complications

Welcome to the BEVA clinical audit app. This has been designed to collect and record data for the castrations you perform. These will be collated to provide morbidity reports for your practice, and in addition will contribute towards national benchmarking data on the risk of castration complications. This data will be collated by The University of Nottingham in conjunction with BEVA. Further details, including contact details will be emailed to all participants upon completion of the registration process.

You will need a data connection for this app to function.

Please click on the image above to proceed.

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RCVS KNOWLEDGE

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Initial consultation

Horse name:

Horse name or unique ID

Client surname:

Client surname

Date of castration:

Check if less than 2y old

Age in years (for animals aged 2 and above):

2

Weight(kgs):

Weight

Check if weight accurate

Breed:

Please choose breed

Technique

Technique

- (●) *Tunica vaginalis* removed (open technique)
- ( ) *Tunica vaginalis* removed (closed technique)
- ( ) *Tunica vaginalis* incised then removed (semi-closed)
- ( ) Other technique e.g. Henderson tool, laparoscopic

Left testicle location

Normal | Inguinal | Abdominal

Right testicle location

Normal | Inguinal | Abdominal

Ligature used

No | Yes

Skin closure

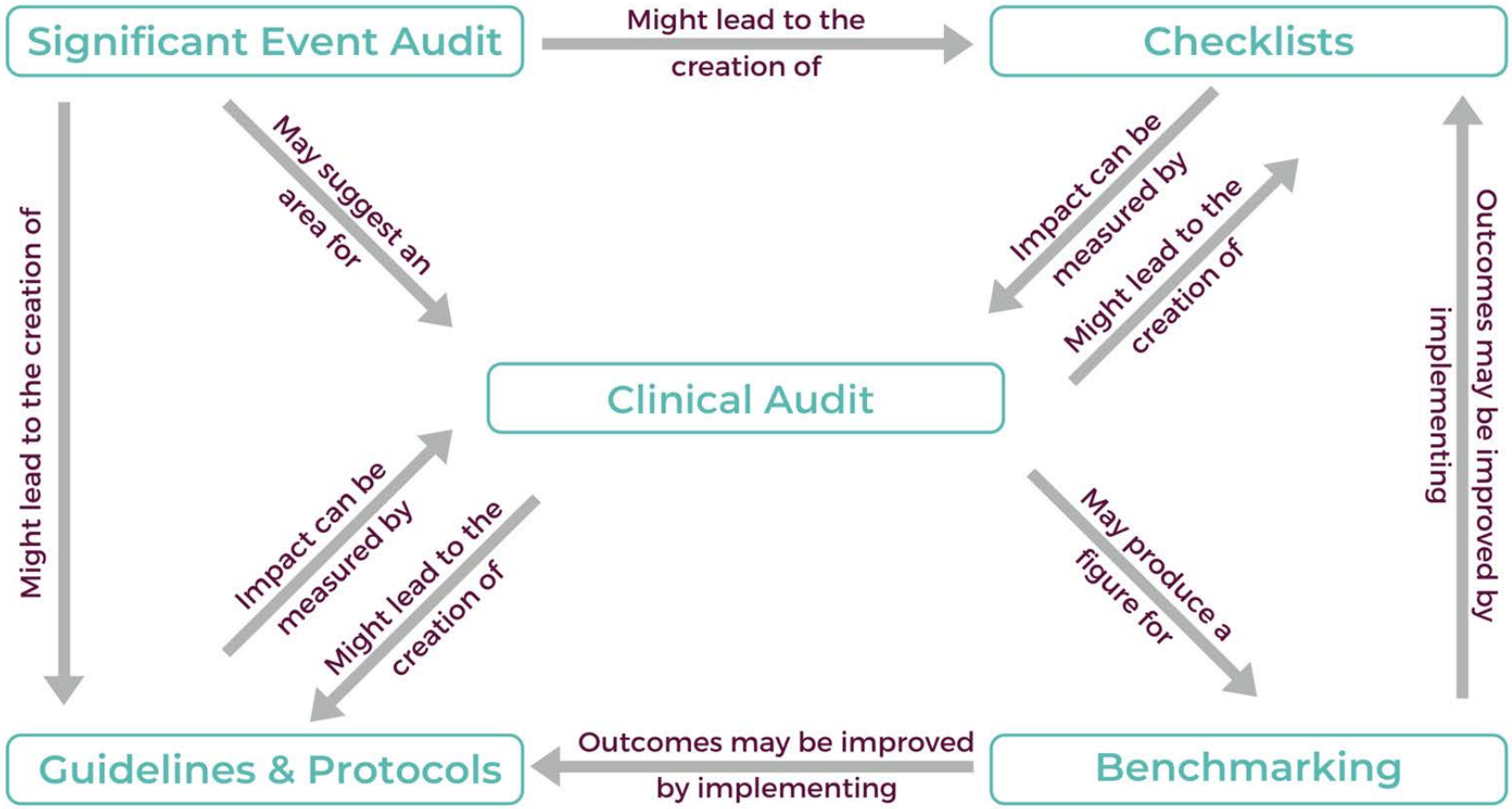
Open | Sutures | Staples | Sub-cut | Other

Restraint

GA | Standing

RCVS KNOWLEDGE

Measuring & improving our quality of care



BEVA Protect ME Guidelines

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Help | Reset all | Submit Form

Protect ME

Practice name

Practice Policy: Dose and routes of administration of common antimicrobials

This is an example policy. YOU CAN EDIT THIS BOX to include specific instructions to staff members. Members are encouraged to develop their own policies and should review the literature and the current marketing authorisation. Note that some marketing authorisations are inconsistent with responsible antimicrobial usage due to the potential to cause sub-therapeutic dosing or administration for a single day. Adapted from : Haggett EF, Wilson WD. Equine Veterinary Education. 2008. 433-448.
Once you have completed your documents you should distribute them around your practice. If you choose to SUBMIT this data it will be used by BEVA to demonstrate the professions engagement and to improve the documents for the future.

Colours represent likely use:
- Green – first line antimicrobials
- Blue – alternatives
- Orange – PROTECTED

Members must establish policies for use in food producing animals

Drug	Dose Per kg	Route	Dosing interval	Spectrum +ve	Spectrum -ve	Spectrum AnO2	Notes
Sodium penicillin	20,000iu*	IV	6-8 hours*	++	+	++	Wide distribution, poor penetration into CNS, abscess, sites or necrosis
Procaine penicillin	20,000iu*	IM	12 hours*	++	+	++	
Benzathine penicillin (Long Acting)			Fails to reach MIC - avoid				
Ceftiofur	2mg adults 5mg Foals	IM IV*	12 hours*	+++	++	++	PROTECTED
Cefquinome	1mg	IM IV	12 hours foals 24 hours adults	+++	++	++	PROTECTED
Oxytetracycline	5mg	IV	12 hours*	++	++	+	NB also Ehrlichia, richetsia and anaplasma
Doxycycline*	10mg	PO	12 hours*	++	++	+	
Trimethoprim / Sulphadiazine	30mg 30mg	IV PO	12 hours* 12 hours*	++	++	-	Ineffective in S equi equi. Oral bioavailability reduced in the presence of food
Gentamicin	6.6mg Adults 10mg Foals	IV	24 hours	+	+++	-	Note dose in the neonate should be adjusted to reflect high total body water
Streptomycin	20mg	IM	24 hours	+	+	-	Resistance common
Neomycin	5mg	IM	24 hours	+	++	-	Combined solution only provides 10,000iu/kg penicillin every 24 hours
Rifampin*	5mg	PO	12 hours	+++	+	++	Always use in combination (not quinolones)
Azithromycin*	10mg	PO	24 hours	+++	+	+	FOALS ONLY
Enrofloxacin	7.5mg 5mg	PO IV	24 hours 24 hours	+	+++	-	PROTECTED
Metronidazole*	25mg 15mg	PO IV	12 hours 12 hours	-	-	+++	Not in food producing animals
Drug	Dose	Route	Frequency	-	-	-	Other drug

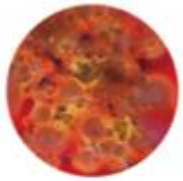
+++ Effective against most important pathogens, including staphylococci for Gram positive and pseudomonas for Gram negative bacteria
++ Effective against many important bacteria
+ Some effect, but many clinically significant bacteria may not be susceptible
- Poor effectiveness
* indicated a drug, dose, route or dosing frequency that is not listed in the marketing authorisation for that product.

RCVS KNOWLEDGE

BEVA Protect ME Guidelines

Protect ME - Responsible antimicrobial use policy

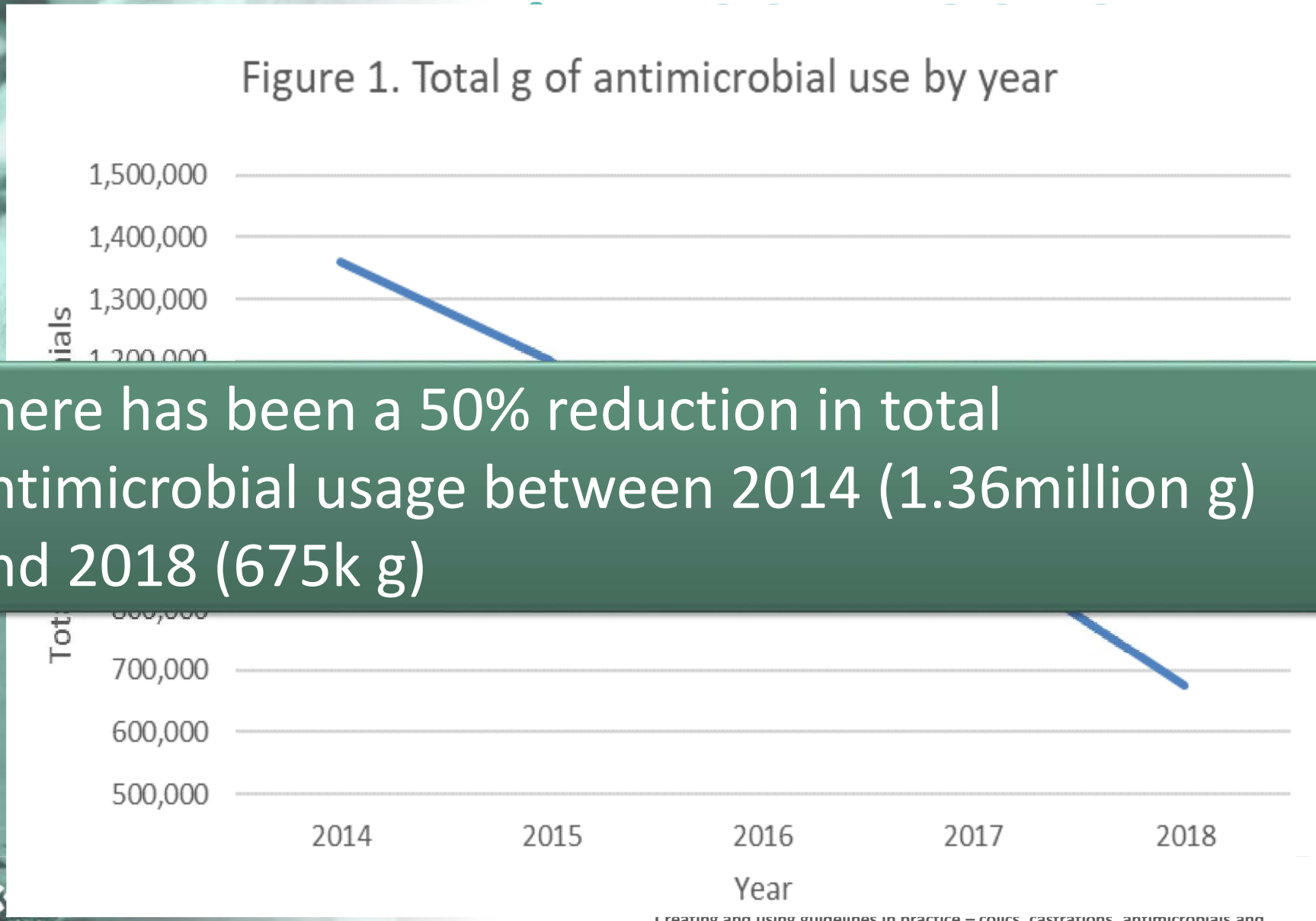
Condition	FIRST LINE	ALTERNATIVES	Notes
UROGENITAL			
Cystitis	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	
Pyelonephritis	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	
Post foaling endometritis	Penicillin & Neomycin	Penicillin & Gentamicin	Administer Neomycin with penicillin once daily Administer procaine penicillin once daily
Post covering endometritis	Penicillin (IU)	Penicillin & Gentamicin (IU)	
Mastitis	Trimethoprim & Sulphadiazine	Penicillin ± Neomycin	Administer Neomycin with penicillin once daily Administer procaine penicillin once daily
OCULAR			
Conjunctivitis	Cloxacillin	Neosporin	
Mild corneal ulceration	Chloramphenicol	Gentamicin	
Severe corneal ulceration	Gentamicin & Chloramphenicol	Ciprofloxacin	
Melting corneal ulceration	Ciprofloxacin		Consider keratomycosis
MISCELLANEOUS			
Endocarditis	Penicillin & Gentamicin	Trimethoprim & Sulphadiazine & Rifampin	
Neutropenia <2.5x10⁹/l Pyrexia of unknown origin	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	Avoid antimicrobials where viral cause is suspected
Neutropenia <1x10⁹/l	Penicillin & Gentamicin	Penicillin & Gentamicin & Metronidazole	Avoid antimicrobials where viral cause is suspected
NEONATE < 3 weeks			
Neonatal pneumonia	Cefquinome*	Penicillin & Gentamicin	*PROTECTED but justified in neonate due to high mortality
Septic arthritis	Penicillin & Gentamicin	Oxytetracycline	
Patent urachus	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	
Umbilical infection	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	
SEPSIS	Cefquinome*	Penicillin & Gentamicin	Infection + 2 of: tachycardia, abnormal Temp, Resp, WBC
SEVERE SEPSIS	Cefquinome*	Penicillin & Gentamicin & Metronidazole	Defined as sepsis with organ dysfunction, hypoperfusion, or hypotension
Normal foal post foaling	Not indicated	Trimethoprim & Sulphadiazine	Avoided except for metaphylaxis
Normal foal with unobserved foaling	Trimethoprim & Sulphadiazine	Oxytetracycline	
Premature/dysmature	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	
Meningitis	Trimethoprim & Sulphadiazine	Oxytetracycline	
PROPHYLAXIS	**Pre-operative**	**Postoperative**	**Duration of post operative treatment**
Clean surgery	Penicillin	Penicillin TID IV or BID IM	24 hours
Contaminated surgery	Penicillin & Gentamicin	Penicillin & Gentamicin	5 days
High risk surgery	Penicillin & Gentamicin	Penicillin & Gentamicin	10 days then reassess. Consider TMP-S if longer treatment required



NB THIS POLICY DOES NOT APPLY TO ANIMALS DESTINED TO ENTER THE FOOD CHAI

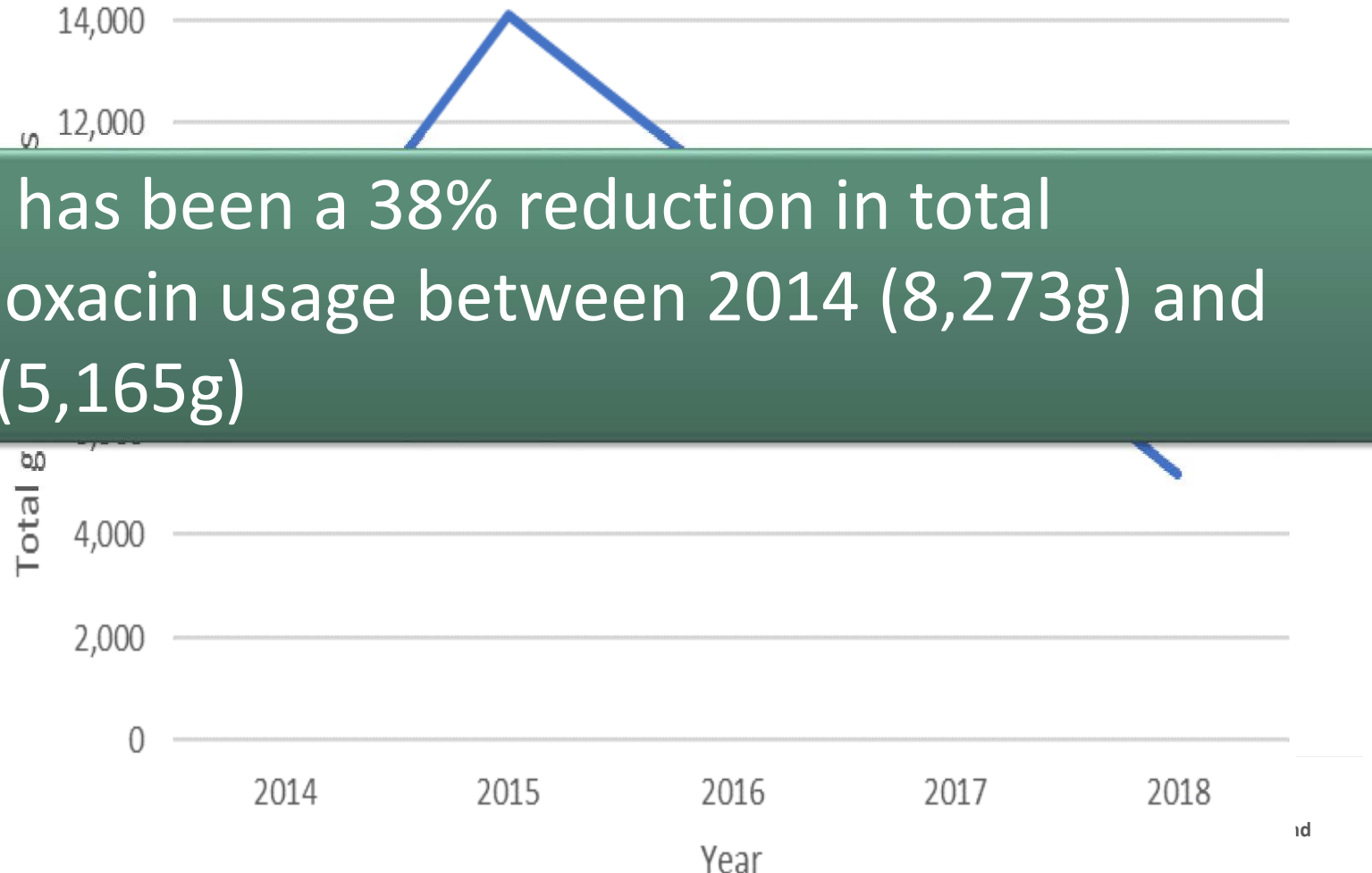
Practice name

Antimicrobial Use CVS Equine



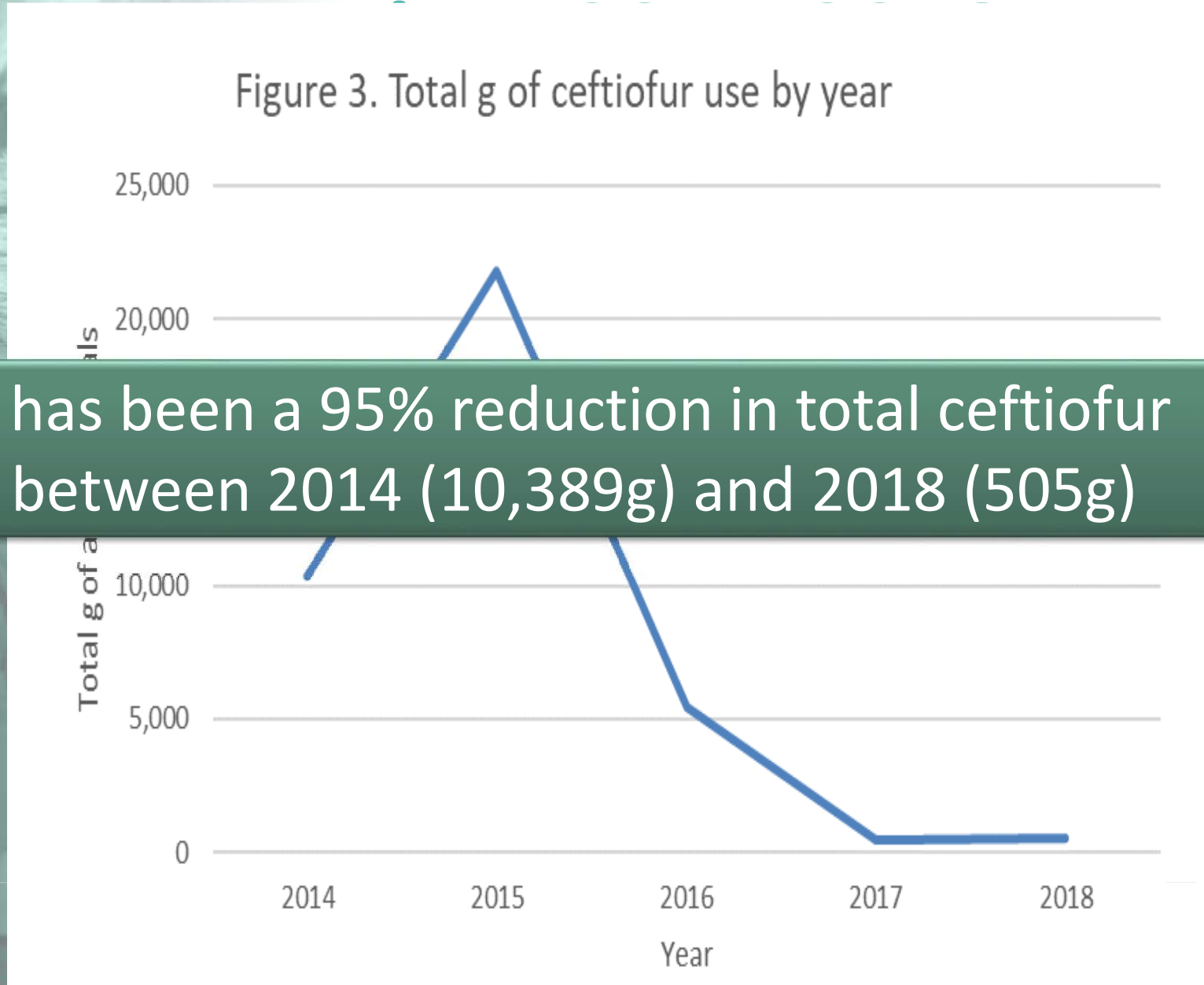
There has been a 50% reduction in total antimicrobial usage between 2014 (1.36million g) and 2018 (675k g)

Antimicrobial Use CVS Equine



There has been a 38% reduction in total enrofloxacin usage between 2014 (8,273g) and 2018 (5,165g)

Antimicrobial Use CVS Equine



There has been a 95% reduction in total ceftiofur usage between 2014 (10,389g) and 2018 (505g)

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UNIVERSITY OF LIVERPOOL

BEVA Questionnaire 2019 - Antimicrobial use and antimicrobial resistance

RCVS KNOWLEDGE

Problems and barriers

- Time to produce guidelines
- Lack of evidence
- Independent external review – bias, conflicts of interest
- Simply making guidelines available to clinicians does not ensure they are used
- Fear that not sticking to guidelines could have untoward consequences
- Concern that guidelines limit clinical freedom and innovation
- Updating guidelines with new information
- Local factors may necessitate adaptation of guidelines – eg local patterns of AMR

PRACTICE GUIDELINES

"By failing to prepare, you are preparing to fail." – **Benjamin Franklin**

"Take nothing on its looks. Take everything on evidence. There's no better rule." – **Charles Dickens**

"Given one well-trained physician of the highest type and he will do better work for a thousand people than ten specialists" – **William James Mayo**