

## Editorial

# Antibiotic Awareness Week - November 2017

## Veterinary Surgeons – Leaders in Antimicrobial Stewardship?

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Antimicrobial resistance is occurring everywhere in the world, compromising our ability to treat infectious diseases, as well as undermining many other advances in health and medicine, including complex surgical procedures.<sup>1</sup> In response to the recognition of this rapidly emerging crisis, the UK Government commissioned the “Review on Antimicrobial Resistance” which concluded<sup>2</sup> that ‘more consumption of antibiotics directly leads to more resistance’ and forecast 10 million human deaths due to AMR if there is no change in current antimicrobial use practice.

Antimicrobial resistance (AMR) emergence and dissemination is a result of poorly defined complex interacting factors<sup>3</sup> requiring all antimicrobial use to be judicious and constrained if there is any likelihood of mitigating the global threat. While use of antibiotics in veterinary surgery is unlikely to be a major contributor to the imminent public health crisis, everybody has a responsibility to use antibiotics with great care.

A recent survey of veterinary practitioners has found that generally the choice of antimicrobial agent for surgical prophylaxis is appropriate, but found that there remain opportunities to improve antimicrobial use by companion animal<sup>4</sup> and equine<sup>5</sup> veterinarians.

Perhaps a solution is antimicrobial stewardship? Antimicrobial stewardship has been described<sup>6</sup> as “the multifaceted and dynamic approaches required to sustain the clinical efficacy of antimicrobials by optimizing drug use, choice, dosing, duration, and route of administration, while minimizing the emergence of resistance and other adverse effects.” For effective stewardship it is necessary to keep abreast of new evidence. For example, de Jonge et al<sup>7</sup> reviewed the timing of preoperative antibiotic prophylaxis in 54,552 patients and the risk of surgical site infection, and found that current recommended practice may need to be changed.

Improvement may not be demanding, it just needs to be considered. Anderson et al<sup>8</sup> completed a comprehensive narrative review of the literature on surgical site infections

and concluded that while a systems approach involving all stakeholders is needed to reduce surgical site infections (SSIs), there are many simple and low-cost approaches that can lead to improvement.

WHO<sup>9</sup> declared 13–19 November 2017 “World Antibiotic Awareness Week.” This is the perfect time to reflect on the importance of antibiotics, a precious resource that could be lost. The world cannot rely on new antibiotics as there are few under development. Misuse of antibiotics contributes to antibiotic resistance and so all uses must be considered carefully.

Surgeons can be part of the solution and at the forefront of antimicrobial stewardship.<sup>10–14</sup> The knowledge necessary to commence an antimicrobial stewardship program is available. Risk factors associated with SSIs in small animals have been well described<sup>15</sup> as has the importance of multi-drug resistant pathogens.<sup>16</sup> The key principles of prophylactic antibiotic use in veterinary orthopaedics have been well summarized.<sup>17</sup> It is now widely recognized that antimicrobial resistant bacteria can transfer between companion animals and humans in either direction<sup>18</sup> thus requiring high standards of hygiene to intercept transmission events. In 2001 Budenberg and Kirsch<sup>19</sup> suggested that “more prospective clinical trials in veterinary orthopaedics are needed to better define which patients and which procedures will benefit from antimicrobial prophylaxis.” Is this still an important message? Antibiotic Awareness Week is the perfect time to consider what needs to be done.

Gawande<sup>20</sup> elegantly summarized the history of surgery over the last two hundred years, emphasizing the enormous contribution of hygiene and infection controls. The next surgical breakthrough may be the extension of this fundamentally important approach – the widespread introduction of antimicrobial stewardship programmes. That would be an excellent outcome from the reflections of Antibiotic Awareness Week.

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