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Veterinary Pharmacy within the United Kingdom: Review of Current Practice and Education

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Abstract

Background: Pharmacists have acknowledged roles as medicines experts facilitating human healthcare. Such expertise is also applicable in pharmaceutical treatments for non-human animals.

Aims: The aims were to review the perceptions and extent to which pharmacists in the United Kingdom (UK) participate with veterinary pharmacy, and to consider their educational background in this area.

Methods: Using an iterative approach, extensive searches of relevant databases and key pharmacy publications were conducted with all relevant material published between 2002 – 2012 gathered.

Results: Limited information on the subject has been published, highlighting the lack of widespread consideration. It was established that UK registered pharmacists have minimal participation in veterinary medicine. The major reason for limited participation is an insufficient knowledge of the subject.

Conclusion: Delivery of the revised GPhC indicative syllabus in Schools of Pharmacy should provide pharmacy graduates of the future with enhanced knowledge of veterinary pharmacy thereby facilitating greater participation with this area.

Keywords: *pharmacists, veterinary pharmacy, veterinary medicines and pharmacy education.*

Introduction

Though the diagnosis of disease in animals and therapeutic treatment prescribed are the sole domains of veterinary surgeons, opportunities for pharmacists in relation to animal care have expanded over the recent past. The traditional pharmacists' role of compounding and dispensing prescribed animal medicines has grown to encompass, for example, reformulation of human medicines for animal use (Karriker & Weibe, 2006; Ceresia *et al.*, 2009; Kayne, 2011). However, whilst all pharmacies stock prescription-only and over-the-counter (OTC) medicines for human use, few pharmacies stock veterinary medicines (Evans 2011). From the total of 14,045 registered premises (R. Brown, RPSGB, personal communication, 6th September, 2012) only 20 to 30 specialist veterinary pharmacies that solely sell or supply medicines for animal use exist in the UK (Anon, 2012). At best most pharmacies barely acknowledge the existence of animal patients and those that do mainly stock token items such as pet flea or worming medications. This was confirmed by a recent study, which found the proportion that held such medications at only 12.5% of approximately 12,000 premises surveyed (Anon, 2005). Another study confirmed the number of daily visits to UK pharmacies by those who incidentally own a companion animal as approximately 500,000 (Kirby, 2005), providing insight to scale of the potential market. The non-participation of pharmacists in veterinary medicine sale or supply has been established to be primarily due to their lack of knowledge of veterinary medicines (Kirby, 2005; Anon, 2006), although the perceptions that veterinary surgeons and co-operative stores dominate this sector and that veterinary medicine is insufficiently profitable are also factors.

The aims of this review were to examine the literature published in the area of veterinary pharmacy over the past decade to establish a contemporary perspective of this specialised sector of pharmaceutical practice, coupled to a consideration of the educational background of those professionals working in the field.

Methods

An iterative search strategy was conceived to detail in the first instance an overview of the area of veterinary pharmacy practice worldwide. Subsequent refinements involved searches to focus solely on literature pertinent to the UK practice of veterinary pharmacy. An extensive search of relevant databases (SCOPUS, PubMed, Ingenta, Medline, Science Direct, SAGE Journals Online,

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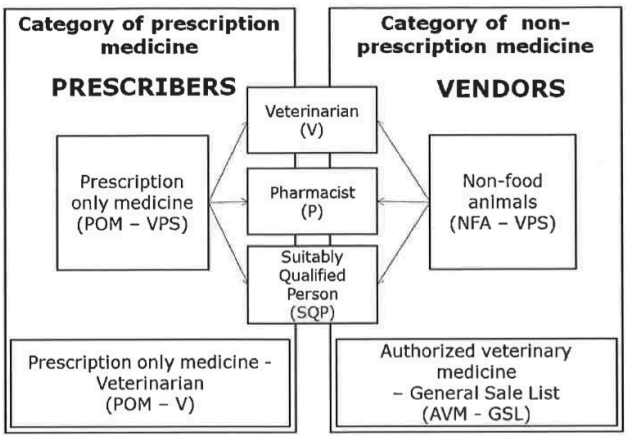
SpringerLink, Web of Knowledge, Wiley Online Library and Zetoc) and key journals in pharmacy (The Pharmaceutical Journal, American Journal of Pharmaceutical Education, Tomorrow's Pharmacist, Journal of the American Pharmacists Association and Pharmacy Education) was undertaken. Search terms employed included pharmacists, veterinary pharmacy, veterinary medicines and pharmacy education. The search was restricted to articles published in English between 2002 and 2012 due to the contemporary focus for the review. Initial information retrieved related to work undertaken in the United States (US) (Blythe Lust 2009; Ceresia *et al.,* 2009; Hernandez *et al.,* 2009; Karriker & Wiebe, 2006; Lathers, 2002; Lust, 2003; Lust, 2004) and the Netherlands (Eysker, 2002) with little information available for the UK.

Current veterinary medicine legislation

The UK Veterinary Medicines Regulations introduced in 2006, are annually reviewed by the Department of Environment, Food and Rural Affairs (DEFRA) and govern the UK licensing and provision of veterinary medicines (Cockbill, 2011). In recent years the legislation has undergone a substantial overhaul. Several specific categories of veterinary medicines currently exist (Keith 2008). The category designated prescription-only-medicines - veterinary surgeons (POM-V) identifies veterinarians as the sole legal prescribers of this group of veterinary medicines for animals in their care; the prescription-only-medicines - veterinary surgeons, pharmacists, suitably qualified persons (POM-VPS) category permits veterinarians, pharmacists and suitably qualified persons (SQPs) to prescribe (Figure 1).

Figure 1: Legal categories of UK veterinary medicines. POM-V: prescription only medicine prescribed only by a veterinarian. POM-VPS: prescription only medicines prescribed by a veterinarian, pharmacist or a suitably qualified person. NFA-VPS: non food animal non-prescription medicine sold by a veterinarian, pharmacist or a suitably qualified person. AVM-GSL: authorised veterinary medicine – General Sale List which can be purchased from approved premises.



An SQP is the legal term for an animal medicine advisor as defined by the Animal Medicines Training Regulatory Authority (AMTRA), the professional regulator of SQPs in the UK (AMTRA, 2012). Veterinary surgeons, pharmacists and SPQs are collectively termed registered qualified persons (RQPs) and under the Veterinary Medicines Regulations are entitled to prescribe and supply POM-VPS and non-food-animal (NFA-VPS) categories of medicines (Figure 1) for animals in their care (Veterinary Medicines Directorate (VMD), 2012a). However, the legal status of products listed in the various categories has not remained static; changes to legal classification are regularly considered (VMD, 2012b), as exemplified by re-classification of products from POM-V to POM-VPS category such as that occurring recently for ferroferon 200 mg/mL injection solution for porcine use (D. Burge, VMD, personal communication, 22nd January, 2014).

Supply of veterinary medicines

According to Pfizer, in 2009 three-quarters of POM-V medicines were supplied directly by veterinary surgeons through their clinics (Kayne, 2009a). In addition to the limited involvement of pharmacists in the supply of either POM-V or POM-VPS prescription veterinary medicines, UK pharmacy sales of over-the-counter (OTC) veterinary medicines (AVM-GSL, Figure 1) represented only 1.5% of the total veterinary medicines market that year (Kayne, 2009a). Whilst 1.5% is a relatively small proportion, in relative amount the sales of anti-flea ectoparasitic medications were greater than those of both nicotine replacement therapy and hay fever treatments combined in 2006 (Kayne, 2009b). This clearly demonstrates the size of the veterinary pharmacy market. Perhaps a contributory factor to the relatively low level of pharmacy POM-VPS or AVM-GSL sales may be the lack of availability of veterinary medicines to pharmacies. Most wholesalers who supply human medicines dispensed by pharmacies do not stock veterinary medicines. Veterinary surgeries have their own wholesale veterinary drug distributors and these generally have limited trade with licensed pharmacies (Lust, 2004). However, establishing links with these distributors would be a relatively straightforward matter.

Educational background of registered qualified persons (RQPs)

In the UK the General Pharmaceutical Council (GPhC), the regulatory body of the pharmaceutical profession, is responsible for detailing the standards governing the initial education and training of pharmacists (GPhC, 2012). Universities' in the UK wishing to offer an undergraduate pharmacy course must first receive GPhC accreditation for their proposed syllabus. Accreditation permits a University to offer the four-year integrated undergraduate Master of Pharmacy course (MPharm), with GPhC course re-accreditation occurring generally at five-year intervals for established institutions (GPhC, 2012). Prior to being eligible to practice as a registered

member of the GPhC, pharmacists are typically required to complete an accredited MPharm course followed by successful completion of one year of pre-registration training, the latter assessed directly by GPhC. Based upon the recently developed GPhC outcomes, in future all qualified pharmacists should be able to supply veterinary medicines safely and efficiently, consistently within legal requirements and best professional practice, and be able to procure, store, dispense and supply veterinary medicines safely and legally (GPhC, 2012). There will however exist differences in focus in respect to tuition of veterinary medicine between Schools of Pharmacy, but will permit expansion beyond the traditional focus on the veterinary cascade. However, research previously established a lack of knowledge to be a barrier for pharmacists to become involved in this sphere of practice suggesting inadequate tuition as the cause (Anon, 2006; 2007a). These outcomes of the recently introduced GPhC curricula should hopefully address this deficiency in future.

Veterinary surgeons in the UK must normally complete a Royal College of Veterinary Surgeons (RCVS) accredited five or six year full-time undergraduate Bachelor of Veterinary Medicine and Surgery degree course at University before commencing practice as a registered member of RCVS (RCVS, 2013). Based upon the criteria for RCVS approved veterinary degree courses, graduates have a thorough knowledge and understanding of medicines legislation and guidelines on responsible use of medicines. In practical terms veterinarians are competent in prescribing and dispensing medicines correctly and responsibly in accordance with this legislation.

AMTRA is an independent regulatory body responsible for training and assessment of SQPs in the UK. In 2012 there were approximately 5,200 SQPs in the UK, located in veterinary practices, pet stores, agricultural merchants and country veterinary stores (AMTRA, 2012). Whilst experience working with animals is beneficial, no prior formal qualifications are required to become an SQP (R.Smith, AMTRA, personal communication, 17th May, 2013). Education provided by AMTRA is undertaken for a specified category of medicine by distance learning, with a requirement to successfully undertake an examination within 13 months of commencing study (AMTRA, 2012). Thereafter the SQP can prescribe and dispense a medicine from that medicine category for specified animal patients. SQPs are able to expand the list of medications they can prescribe by additional study with AMTRA.

Pharmacists involvement with veterinary pharmacy practice

While greater emphasis on the study of veterinary pharmacy is included in current GPhC indicative syllabus, the historic focus for tuition was on the veterinary cascade and legislation governing veterinary medicines. As the majority of pharmacy graduates opted for community or hospital pharmacy as their future sphere of practice, most individuals placed greater emphasis on human medicines. (Alanis, 2005). However, other factors have restricted pharmacist engagement with veterinary pharmacy. The primary reason for limited participation has been identified as a lack of knowledge of veterinary medicines (Anon, 2007a). This was evidenced by a survey of pharmacists in the UK, in which 86% of the 186 polled considered their knowledge insufficient to permit them to safely dispense veterinary medicines (Anon, 2006). A similar lack of confidence in US pharmacists existed, prior to their receiving further education in veterinary therapeutics (Lust, 2003). As such the reasonable explanation that pharmacists are not currently participating more with veterinary pharmacy is because the majority of pharmacists do not feel they possess sufficient knowledge of veterinary medicines (Kirby, 2005).

Over the last few years leaders in the pharmaceutical profession, including the Chief Pharmaceutical Officer for Scotland, have made requests that veterinary pharmacy be emphasised in pharmacist undergraduate and pre-registration training (Michell, 2005; Cairns, 2008; Anon, 2009). The Veterinary Pharmacists Group have also commented that information on veterinary medicines delivered to pharmacy undergraduate students was inadequate in the production of newly registered pharmacists competent in dispensing veterinary prescriptions (Cairns, 2008). This has clearly been acted upon and the revised GPhC curricula will hopefully encourage more participation in future.

Potential for expanding veterinary pharmacy practice

Although public health participation by pharmacists with regard to human medicine is already substantial in campaigns such as smoking cessation and influenza vaccination, these programmes are still expanding. Little has been developed in parallel for pharmacist participation with animal healthcare. It has been suggested that a zoonotic association may exist in over 60% of infectious diseases in humans (Kayne, 2009c). An example is the tick-borne Lyme disease in Scotland caused by Borrelia burgdorferi, where annual cases have risen from three in 1996 to over 3000 in 2009 (Kayne, 2009c). As the most easily accessible healthcare professionals, pharmacists would be ideal participant's in future animal healthcare strategies, either as reference sources or disseminators of information, and for integrated public health campaigns (Shakespeare, 2011).

Changes in animal treatment regimens and improved animal husbandry have already imparted changes in pharmacists' roles, including the re-formulation of human medicines for animal use and advice on legal issues associated with the supply of veterinary medicines (Ceresia *et al*., 2009; Kayne, 2011).

Presently, challenges to greater involvement with veterinary pharmacy exist in regard to broader skills and knowledge. For example, few pharmacists received training beyond human patients on the correct administration of medications so advising animal owners on dosing techniques and methods is problematic. It was

recently established that compliance of owners with regards to dispensing prescriptions issued for animals under their care has been reported as only 20% in the US (Maille & Hoffman, 2013), a level which could be improved through pharmacist involvement. Additionally as human medicines are increasingly prescribed for animals, information on dosing, monitoring and managing these medicines for animal use should ideally be provided by pharmacists (Karriker & Weibe, 2006).

Possessing greater knowledge of veterinary medicines will give pharmacists the impetus needed to get involved in this neglected pharmaceutical area. The delivery of improved education to pharmacy undergraduates in the basics of veterinary pharmacy, as specified by the newly revised GPhC indicative curricula, is the key platform to permit greater interaction in future. With the foundation of knowledge provided to all pharmacy undergraduates, and availability of specialised postgraduate veterinary pharmacy programmes, the future appears more encouraging for greater pharmacist involvement.

Integrating pharmacy practice: One World One Medicine One Health Initiative

Recently veterinary surgeons in the USA called for a blending of human and veterinary medicines under a One World One Medicine One Health initiative (Blythe Lust, 2009). The reasoning behind the initiative is to bring benefits to public health and to improve care for all patients, both human and animal (Blythe Lust, 2009). The concept is to promote inter-disciplinary collaboration between healthcare professionals regarding pharmaceutical treatment of disease states in patients (One-Health Wonders, 2009). Through such initiatives closer interactions between pharmacists, veterinarians (Anon, 2007b; Cairns, 2007) and SQPs should result in improved animal treatment outcomes.

Conclusion

Pharmacist participation in the practice of veterinary pharmacy in the UK is currently minimal. The main reason cited by pharmacists is insufficient information on veterinary medicines to permit them to engage more with veterinary pharmacy. The increased delivery of veterinary pharmacy information to all pharmacy undergraduates will help to improve knowledge of veterinary medicines and reduce the main barrier to increase interaction with this neglected area of pharmacy practice and facilitate greater inter-professional collaborations.

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