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AUTHORS: William H R Dixon, Tierney Kinnison and Stephen A May

JOURNAL TITLE: Veterinary Record

PUBLISHER: BMJ Publishing Group

PUBLICATION DATE: September 2017 (online)

DOI: 10.1136/vr.104268

Understanding the primary care paradigm:
An experiential learning focus of the early veterinary graduate

Dixon, William H. R.
Kinnison, Tierney BSc, MSc, PhD, PGCertVetEd, FHEA
May, Stephen A. MA VetMB PhD DVR DEO FRCVS DipECVS FHEA
Corresponding author: smay@rvc.ac.uk
Royal Veterinary College, North Mymms, Hatfield, Hertfordshire, AL9 7TA

Abstract

At a time where high levels of stress are reported in the veterinary profession, this study explores the challenges that veterinary graduates encounter when they enter general (first opinion) practice.

Participants had written reflective accounts of their 'Most Puzzling Cases' for the postgraduate Professional Key Skills module of the Certificate in Advanced Veterinary Practice, offered by the Royal Veterinary College. Reasons that a case was puzzling, or became challenging, were thematically analysed.

Fifteen summaries were analysed. Three core themes were identified: 'clinical reasoning', centred on the limitations of pattern recognition and the methods used to overcome this; the 'veterinary healthcare system', focusing on the need for continuity of care, time pressure and support in the transition to practice; and the 'owner', looking at the broader clinical skills needed to succeed in general practice.

Clinical reasoning was raised as an issue; discussion of when pattern recognition is not appropriate and what to do in these cases was common. A lack of experience in general practice case types, and how to best operate in the resource-constrained environment in which they present, is the likely cause of this, suggesting that a greater focus on the primary care paradigm is needed within veterinary education.

Introduction

Initial veterinary education provides a broad knowledge and skills base, that supports the 'day one competencies' (RCVS 2014a), and following graduation veterinarians must continue to keep their knowledge and skills up-to-date and relevant to their roles (RCVS 2016). Much of the clinical teaching received by veterinary students occurs in university referral hospitals, where the case load is complicated and students work alongside specialist clinicians. Whilst a wealth of learning is available, it does not equate to the first destination of most veterinary graduates which is general (first opinion) practice. In this setting they are required to see a high and varied case load at a rapid pace (Everitt and others 2013; Robinson and others 2014), and the skills required are those of a generalist. However, having spent time learning alongside specialists, doing things in a way that is relevant to their specific case load (Rosser 1996), it is possible that the skills and views that the new graduate has attained may be incompatible with the life of a generalist (May 2015). This lack of compatibility may lead to anxiety from feeling unprepared, in turn causing stress and disillusionment when new clinicians are unable to resolve problems in the manner to which they have become accustomed.

It has been estimated that in medical general practice the average clinician sees 400 new diagnoses a year (Gawande 2014), with 75% of these covering over 100 conditions (Cooke and others 2013), in contrast to, for example, a specialist dermatologist, where 75% of the case load covers around 20 diagnoses (Feldman and others 1998). In veterinary general practice the presentations are also highly varied, and potentially complicated further by the addition of multiple species (Nielsen and others 2014; Robinson and others 2015). In addition to recognisable and established diseases, the generalist will see patients who are not sick or 'not yet sick' in the sense that it is too early to use the signs and symptoms displayed as a basis for diagnosis (Murdoch 1997). It is likely that the main source of clinical information in these cases is owner observations and interpretations; these are often complex and may be incomplete, potentially leading to owner complaints that are only inadvertently related to any underlying clinical problems detected on examination (May 2015).

This paper aims to identify challenges facing veterinarians in their early years after graduation by looking at what respondents identified as their 'most puzzling case' and whether areas of challenge were related to the technical or non-technical aspects of the case. The paper does not seek to add to the literature regarding clinical reasoning, rather to explore veterinarian's experiences of cases in their early years.

Methods

The Royal College of Veterinary Surgeons' (RCVS) postgraduate Professional Key Skills module, offered by the Royal Veterinary College (RVC), which contributes to the RCVS Professional Certificate programme, uses reflective essays as part of its assessment system. Among these, candidates can choose to discuss a puzzling case through an essay entitled 'Discuss your most puzzling case and how such cases inform your diagnostic approach and general approach to practice'.

Following RVC Ethics Committee approval (reference: 2016/U48), essay author consent was requested to repurpose the assessments, by email or post, with reminders sent out at three and six weeks. Initially 12 essays were targeted, with further texts assessed to ensure data saturation (Guest and others 2006). 18 were accessed but data saturation was reached after 15.

The authors of the 15 essays were graduates who had been registered for a median of 5 years at submission (range 2-19,); 9 (60%) were female representing the general professional demographic (Robinson and Hooker 2006, RCVS 2014b). Most (12) discussed small animal cases. The average word count was 1243. The consent procedure asked respondents if their views had changed since writing the essay. Only one respondent indicated that their views had changed, due to having greater experience. The essay was included as our aim was to assess the initial views of more recently qualified veterinarians.

The texts were analysed for recurrent themes prompted by the title's focus. A variety of methods to analyse qualitative data have been described (Pope and others 2000; Hsieh and Shannon 2005; Braun and Clarke 2006), but to ensure systematic assessment, Braun and Clarke's six step method of thematic analysis was employed through an inductive (coded without a pre-existing framework) and semantic (themes were taken at face value during coding without extrapolation) approach. The texts were read and coded on hard copy by the lead researcher (WHRD) before codes were extracted into Microsoft Excel to aid identification of themes. An iterative process was adopted by WHRD for analysis resulting in two stages of consideration and reorganisation to group the codes into themes and subthemes. At the end of each stage, ideas were discussed and emerging themes challenged by the two co-researchers to ensure credibility.

Results

Codes were organised into three main themes. Including subthemes: Clinical Reasoning (initial approach and second approach), the Veterinary Healthcare System and the Owner (Emotion, Finance, Consent and Communication). Below, quotations, attributed anonymously to participants, illustrate these.

Clinical reasoning

The initial approach – pattern recognition

The cases described within these texts were varied, but it was noticeable that, in the vast majority, the clinical reasoning approach to the problem was the reason the case became challenging. In most cases the authors initially utilised pattern recognition (PR) or an "illness script" (864). Many of the writers described it as an essential part of their diagnostic process, given the busyness of general practice:

"decisions need to be made quickly and rapid processes such as pattern recognition provide a valid mechanism to informing diagnostic decision making" (851)

PR-based reasoning strategies rely on automatic processing of case-based knowledge gained over time in practice. However cases were puzzling when individuals had a lack of experience around the particular case, or it was an atypical presentation of a condition:

"My most puzzling case was relative to my level of inexperience" (854)

"it was neither typical for intervetebral (sic) disc disease, nor for phenobarbital-induced hepatotoxicity" (851)

For these reasons the initial diagnostic approach in many of these cases was unsuccessful. In some cases the inexperienced clinician failed to notice or appreciate key features. In others the patient either presented with signs not typical of the disease process involved or with a cluster of seemingly unrelated signs that made it difficult to recognise a pattern or pursue an appropriate diagnostic pathway.

As a part of the PR process, veterinarians may prescribe symptomatic therapy without a diagnosis.. Many of the cases discussed followed this pattern:

"should a similar fit occur in the short term that we would try [Pet's name] with phenobarbitone with a presumptive diagnosis of idiopathic epilepsy" (860)

When symptomatic therapy was employed, there were three common outcomes: 1) where PR had identified an animal whose condition was likely to be self-resolving, this approach

provided effective management whilst avoiding unnecessary diagnostics. 2) In other cases, there was no improvement:

"He was represented one week later, showing no improvement in symptoms. There was no change on clinical examination" (858)

In some of these cases a second round of symptomatic therapy was tried (in one case this also failed); in other cases it triggered further assessment.

A third group of cases displayed improvement or resolution of clinical signs but relapsed following termination of therapy:

"he had initially shown a mild improvement followed by a relapse." (853)

These cases seemed to prove particularly frustrating for authors. In a situation where both veterinarian and owner had noticed an improvement, it was assumed that the case was resolved and no further investigation needed:

"I assumed a severe infection and did not pursue further investigation" (857)

One result was the recognition that although the original diagnosis had been reasonable on the day of presentation, it had become untenable:

"Clinicians must be aware of: the degree of uncertainty in the diagnosis they have reached, the potential for the probability of their diagnosis being correct to change" (855)

The other explanation explored was that PR had failed at the first consultation due to inexperience. Reflection on the likelihood of this failing was common. Most of the authors noted that high case experience was needed to consistently utilize PR and that there were risks associated with its use. A newly graduated veterinarian could fail to recognise a disease-relevant pattern of signs in the first instance:

"When evaluating complex problems, pattern recognition relies on a broad base of experience from which to draw" … "My lack of experience with this condition meant that I missed making the diagnosis immediately." (853)

A further recognised risk to PR was clinical bias. Authors reflected on the need to remain open minded, noting that once a clinician has locked onto a diagnosis, s/he risks missing signs that indicate otherwise:

"I should have realised that the reason for my inability to reach a diagnosis was due to the cognitive biases that up to that point affected my interpretation. It was only after the clinical

presentation resembled my mentally preconceived pattern of acute abdomen that I acted. … availability bias and anchorage to the initial hypothesis can lead to serious mistakes if the first impressions in a case is (sic) wrong" (865)

The revelation that clinical reasoning involves more than subject specific knowledge was also discussed:

"I always thought that being a good vet would directly depend on my knowledge but now realise that acquiring clinical reasoning skills and becoming better at diagnosis is more complex, relying not just on knowledge and experience as I assumed but additionally case difficulty, attitudinal and cognitive skills" (857)

The second approach – analytical processing

Failure to resolve the case with the initial approach caused authors to switch to a more analytical approach to the problem. Common thoughts discussed included 'slowing down', reversion to first principles, and reviewing findings:

"I had to alter my approach to solve it …. It is important to "slow down when you should" and switch from an efficient, nonanalytical way of processing cases to a more effortful analytical processing when necessary" (864)

There was recognition that, despite PR being useful, some cases can require other approaches and that one approach is not necessarily better than another; they should be used in combination:

"Using a combination of diagnostic strategies in this way may have lead (sic) to a more expeditious diagnosis and earlier appropriate treatment" (861)

Other authors said that they found it useful to consider a full list of possible diagnoses at the beginning of the case, even if they are not needed. This allowed them to quickly reconsider what the cause could be if their presumptive actions fail:

"During an initial consultation I will often write a list of differential diagnoses, which can be referred to at a later date" (854)

This strategy may be limited by time pressures.

The veterinary healthcare system

The veterinary general practice environment is busy, so it is unsurprising that a key issue noted was time pressure. This is important as many of the authors mentioned the concept of 'slowing down', when faced with a challenging case:

"I find working in a busy general practice means I am often under time pressure and I have little opportunity to take stock" (862)

Another frequently referenced area of difficulty was continuity of care, with the ongoing nature of the client-clinician-practice relationship being different from single instance episodes of care in a referral hospital. Notes of ongoing cases must be available if the same veterinarian is not seeing the case on each occasion, such as when four veterinarians and a farrier were involved within a short timeframe:

"An additional complicating factor in this case was the lack of continuity and communication between the vets involved and with the farrier. …. It is difficult to obtain complete and accurate information regarding the case with so many individuals involved independently" (855)

This issue is exacerbated by inappropriate recording systems:

… "it is hard to have continuity of care if you are unsure of the previous medications or treatment plan because you cannot read the writing!" (854)

A final issue that arose was practice learning and discussion culture. In most cases, this was described positively, as an aid to decision making. However there were cases where this support was lacking:

"I had a good relationship with my colleagues but not much support when trying to develop my knowledge" (854)

In one example, opinions of a senior colleague were detrimental; on a number of occasions they dismissed the junior colleague's findings and left them feeling deserted.

"I felt deserted since my decision was also in contrast with my colleague's opinion" (865)

Ultimately, this lack of appropriate support or a feeling of pressure from a more experienced clinician can be detrimental to solving a case, and its ongoing care.

The Owner

Owner Emotion

Uniquely, one respondent wrote about treating their own animal. They felt that it was not that it was clinically challenging that gave it prominence but:

"the emotional side of this case will ultimately be why I will always remember it" (852)

Because it was their own animal, they experienced the feelings the owner experiences when a case is not going well. This respondent explored the concept of euthanasia in more detail than others. Notably they asked the question: *"did we continue for too long?"*

Owner finances

Veterinarians must often consider the financial burden of investigation upon the client, not just the benefit to the diagnosis and the patient. The theme of cost preventing further workup and therapy occurred in a number of the essays:

"after discussion with his owners, who were on a limited budget, they declined further investigations" (860)

One way of paying for animal care is insurance, authors saw insured pets as easier to work up as there were fewer financial restrictions:

"The fact that [pet's name] was insured helped with my diagnostics as it meant there was no financial limit on which tests could be performed" (851)

One author interestingly noted that, whilst easier to investigate an insured patient, it was working up the uninsured cases that helps to refine the diagnostic skills of a primary care veterinarian:

"where the money must be spent in the most efficient way as to get the desired results without any unnecessary tests – this can fine tune our diagnostic skills as vets" (851)

Informed consent

Another issue identified was that of consent, regardless of insurance:

"there was no financial limit on which tests could be performed, as long as owner consent was given at every stage" (851)

It can be easy to assume that informed consent has been given; when the veterinarian feels that they have given the client all the required information. However, it is important to check

that information given has also been understood to ensure the same expectations of outcome; this is aided by understanding an owner's motivating factors at the outset:

"Understanding clients' motivating factors, which may be different to our own, is important as these may, define the case." (852)

Communication

Finally, good communication in general was seen as important in facilitating smooth decision making and 'client compliance'.

"There are additional aspects of practice that are important, including good communication skills" (857)

Discussion

This research has revealed three distinct themes which characterise case-related concerns faced by veterinarians in their early years of general practice, namely: clinical reasoning, the veterinary healthcare system and the owner.

Many respondents indicated that PR was an important clinical reasoning approach in the time and resource pressured environment of general practice. PR-related issues were discussed in almost all essays. Authors tended to reflect on the limitations of this methodology; that whilst effective in many cases, it risks the possibility of mis-diagnosis in some. They referred to the concept of 'slowing down when you should' (Moulton and others 2007), and reverting to first principles. This was seen as important to avoid missing complex cases at the outset, and recognition of cases that become "non-routine" (Moulton and others 2010). This need to move from PR to analytical thinking is part of the expertise of a generalist, an insight gained through experience of the primary care paradigm. Lack of experience was often cited as a reason behind the failure of PR. In these cases, it is unlikely that scientific knowledge is lacking, but rather experience in making decisions and recognising challenges relating to a first opinion case load. In addition, many authors discussed the advantages of combining multiple diagnostic strategies (Ark and others 2006, Ark and others 2007). This allows simple cases to be dealt with rapidly but provides further reasoning methods as back-up when it becomes evident that cases are more complex. A pathway of multiple methods, effectively utilised to achieve a diagnosis (Moulton and others

2010; Pelaccia and others 2011), may improve satisfaction in the diagnosis reached and confidence in the treatment provided.

For novice and experienced general practitioners alike, in some early-undifferentiated cases there is no 'relevant' pattern of signs on which to make a diagnosis (Murdoch 1997, May 2015). In these cases, re-examination is important to monitor progress, ensuring that once the disease process progresses it can be diagnosed before the condition deteriorates. This re-examination is likely to be particularly important for early graduates, who may have missed initial cues at first presentation.

A number of texts referenced discussion with more experienced colleagues as an aid to continued learning (Berridge and others 2007; Bryant and Milstein 2007). However, lack of support from senior colleagues was identified as a cause of difficulty in complex cases. Where advice was limited, or contradictory, the authors felt stressed and abandoned; in a wider context it could also cause a feeling of being undervalued. This may be exacerbated by time pressure: on average, first-opinion consultations are 10-15 minutes long (Everitt and others 2013; Robinson and others 2014), this may prevent clinicians considering a full list of differentials leading to them being locked in to an incorrect diagnostic strategy. In their referral hospital experience, students are exposed to longer consultations that provide time to discuss problems in detail, and talk through options with owners. Time pressure was seen as a factor that could lead to clinicians missing signs, or failing to 'take stock' and distinguish cases for which PR is not appropriate. Good continuity of care was also seen as important, particularly where progress needed to be evaluated, and intelligible records were seen as essential where multiple veterinarians were involved in a case (Kinnison and others 2015).

Owner-related factors were discussed less frequently. Most of the issues boil down to effective communication. Poor communication damages the veterinarian-client relationship (Coe and others 2008), and is the cause of many complaints to the RCVS (2014b). Undergraduate courses now have a greater focus on communication skills (Gray and others 2006) and post-graduate professional development is available (Magrath and Little 2010; Mossop and Belshaw 2011). Communication regarding euthanasia, notably the question: 'are we continuing treatment for too long, are they suffering?' and the opposite: 'is it too soon to stop treatment?', is complex and emotionally charged for all parties; discussions around euthanasia have great impact on the veterinarian-client relationship and are an area of stress for all veterinarians (Dickinson and others 2014). Communication may take on a particular significance in primary care given the generalists' role in constrained financial situations, uncertain diagnosis and long-term care.

Finance was also discussed as an obstacle to a more thorough diagnostic process. Numbers of insured animals are rising with about 25% of UK pets insured in 2016 (ABI 2014, 2016). Unsurprisingly, authors noted that these animals are often easier to work up due to greater financial freedom. Although it may extend consultations (Coe and others 2009), communicating with clients about finance is important, with clients preferring veterinarians to initiate these discussions (Coe and others 2007). Lengthier consultation times in referral hospitals may also lead to a false impression of the financial aspects of case investigation. The referral context often means that teaching relating to business and finance has a low priority, with specialists without any background of primary care failing to give this any prominence. However, good quality healthcare, in the often resource limited environment of general practice, must be cost conscious in the sense that "efficacy" can be seen as a balance between "excellence" (exhaustiveness) and "efficiency" (Sellman 2011).

Whilst the data sources were rich and varied, it cannot be discounted that there are other challenges experienced by graduate veterinarians. The question specifically asked about a puzzling case. Had the question been more open, 'most puzzling event' for example, different challenges may have arisen.

It is also possible that, as the essays were written by veterinarians studying for certification, these individuals were able to cope with certain challenges better than their counterparts; in selecting to assess essays written by certificate candidates it is possible that certain areas that may challenge other members of the profession early on in their career were not apparent. Although the essays were submitted for an assignment, participants agreed that their views were still the same, suggesting this approach of exploring assessed experiential reflection is valid.

An overarching theme seems to emerge from the texts of failure to understand general practice at graduation. In the UK, provision of most direct clinical teaching to veterinary undergraduates is within a referral centre environment, with the majority of general practice experience gained extramurally in private practices. However, these teaching experiences are not equal. Each student receives similar experience through their hospital rotations, taught by clinicians, used to acting as teachers, within the hospital-based, referral paradigm. Experience in cases and decisions arising within the primary care paradigm is varied and delivered by busy general practitioners, often with little formal teacher education (Mathers and others 2004; Larsen and Perkins 2006; Pearce and others 2007). Referral hospital rotations may provide false impressions about life in general practice regarding clinical reasoning, and therapeutic decisions and outcomes. For example, as part of the PR process in first opinion practice, symptomatic therapy may be given without a diagnosis. This is an

appropriate response to self-limiting illness, with success or failure at re-examination being used to inform further actions (Vandeweerd and others 2012; May 2015). Lack of a response to treatment indicates a continuing or potentially different underlying process that requires investigation. In some cases failure of this therapy was seen as puzzling, perhaps because specialist clinicians' therapies were seen to be effective in the first instance. However, this was because these latter therapies were based on definitive diagnoses of differentiated disease.

Veterinary medicine is a stressful profession (Strand and others 2005; Robinson and Hooker 2006; Bartram and Baldwin 2010), with undergraduates reporting high stress levels (Strand and others 2005; Cardwell and others 2013). Furthermore the transition from veterinary student to qualified veterinarian is demanding, with responsibility and independence expected early, in contrast to their medical counterparts. Change and new stressors are experienced (Heath 2008; Rhind and others 2011). Appropriate support from colleagues is essential for further development and smoothing of this transition (Eddy 1998; Routly and others 2002; Taherian and Shekarchian 2008). Failure to successfully negotiate this period leads to disillusionment and graduates leaving the profession in these early years. It is worth noting however that the texts analysed were written by practitioners who had been graduated for a range of years; in the case of those who had been qualified for a longer period they may have discussed cases more complex than those they experienced earlier on simply because at that time they considered more cases to be puzzling and so they did not stand out to the same degree. We can also not dismiss the fact that answering this question required recall of details from a number of years previously. Elements of the challenges faced may have been exaggerated or diminished by any emotive attachment to the events and by time; but it is this view of the experience which affects the veterinarian's current work, and is therefore, the unit of study in this paper.

In addition, as a result of their experiences during their clinical degree programme, it is possible that failure of a new graduate's conceptualisation of the clinician's role to align with the reality of first opinion practice is a central contributor to disillusionment with the profession (Paice 1997; Gilling and Parkinson 2009; Armitage-Chan and others 2016). Greater understanding of the primary care paradigm (May 2015) may lead to clearer expectations and also a feeling of preparedness that aids in dealing with some of the challenges discussed, thus reducing stress and promoting wellbeing of the early career, generalist veterinarian.

Acknowledgement

We are grateful to all the early career veterinarians who consented for their work to form the basis of this research.

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