Establishing an Electronic Patient Record (EPR) in first opinion veterinary practice: challenges to overcome

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Introduction

Despite huge advances in computer power and communications seen over the recent years the potential for use of clinical data held in veterinary first opinion practice for epidemiological research remains largely untapped. The one exception are data collected by a nationwide US small animal practice group who use a bespoke standardised in house medical record system[1].

Aim and objectives

The aim is to establish an Electronic Patient Record (EPR) system within first opinion UK veterinary practice in a format which could be searched and analysed for epidemiological research purposes.

Objectives are:

To record standardised small animal clinical data including breeds, treatment and diagnoses

To identify limitations and challenges in this process

To evaluate issues relating to quality of data recorded

Materials and Methods – baseline terms and software

As part of the creation of an Electronic Patient Record (EPR) system within the Royal Veterinary College (RVC), the small animal referral hospital (QMH) adopted a standardised list of diagnoses based on SNOMED (Society for Nomenclature in Medicine) terms. Once it became clear that this list was unsuitable for use in a veterinary hospital environment, a customised menu of approximately 1800 canine and feline diagnosis terms was defined in consultation with QMH clinicians. This list went live in the EPR in October 2006 and formed the basis from which a diagnostic list for first opinion practice (FOP) was developed. Diagnosis is defined as the best estimate of diagnosis based on available evidence at time of recording.

The QMH EPR runs in parallel with the hospital management system used to record owner details, patient signalment, billing and accounts records. The software used by the QMH for this purpose since 2006 is RXWorks©. Based on the existing RVC relationship with this software company, it was decided to discuss potential for incorporating functionality to record diagnosis and other standardised information in a first opinion environment with this provider.

Methods - task one: definition of terms

Comparisons between FOP and referral practice clinical findings are key to this project. The QMH list of diagnosis terms was therefore used as the starting point for the list of terms to be used within FOPs, rather than creating a new list from scratch or attempting to define a subset list.
Additional terms for first opinion practices (FOPs) were required to address:
▪Pathology seen in an FOP environment which would not be encountered in a referral environment – for example "overgrown claw(s)", aural haematoma, misalliance
▪Non–pathological situations such as preventive medicine/surgery (for example vaccinations or neutering) and travel associated requirements (for example, export certification, microchip insertion)
Additional terms were defined through:
review of veterinary textbooks
review of a bespoke list of 'reasons for visit' defined by a local small animal FOP
discussion with RVC staff who had previously worked in first opinion practice.
Feedback from users (see below) regarding omissions, synonyms required and suggestions for alternative classifications were reviewed by a UK Coding Group and incorporated as appropriate.

Methods – task two: implementation of menu

To enable FOP users to select a diagnosis during their normal consultation process, the menu had to be incorporated it into an existing practice management system data entry page.
In RXWorks v3.9 the 'summary word' field in the data input page is typically set up to allow optional free text entry by a user. This field was replaced with the standard menu of terms for participating practices.

Methods - task three: maintenance of menu

A multi-institution UK coding group has been established to manage the list of terms. Feedback from users (see below) regarding omissions, synonyms required and suggestions for alternative classifications are reviewed by this group and incorporated as appropriate

Methods – task four: facilitating term search

To ensure efficient use of a long list of terms (currently over 2,000 items) in the limited consultation time available in first opinion practice, a multi-letter browse facility (similar to 'Google') was created for the menu (as well as for breeds).

Users enter three or more letters and see all items with those three letters in that order as the first three letters of any word in the term. For example, enter 'cal' and see a list including:

•Legg Calve Perthes disease
•calcinosis cutis
•fracture of pelvic limb, calcaneus

Methods - task five: recruiting practices

A presentation was made by the project team to the annual UK RXWorks client seminar in March 2007.

All RXWorks client practices were advised of the availability of the list and provided with a summary of how it could be used via a client group wide message from RXWorks management in July 2007.

Each participating practice was visited prior to starting to use the list – currently four practices are enrolled in the project.

Results - preliminary feedback

Terms have now been included in the FOP menu to enable one or more presenting complaints to be recorded instead of a diagnosis to address situations where FOP clinicians may be unable to define a suitable diagnosis due to lack of information or workup opportunity.

Analysis will be undertaken on frequency of use of this option and how such terms relate to diagnoses recorded in the event further investigations are undertaken.

Participating practices are currently recording terms on a voluntary basis; when data are analysed the proportion of visits for which a summary word has been recorded will be calculated.

Next steps - data modelling

Modelling of the diagnostic terms is currently in progress to establish the hierarchy of terms and allow scaling/quantification of disease prevalence at different levels of diagnostic detail

Conclusions

Progress has been made towards the establishment of a first opinion small animal veterinary EPR.
Future work will focus on:
modelling of data captured
broadening the scope to include additional species
recruiting additional participant practices

REFERENCE
1 Faunt K, Lund E Novak W The Power of Practice: Harnessing patient outcomes for clinical decision making Veterinary Clinics of North America: Small Animal Practice 37 (3) May 2007 521-532