Proposed extensions to International Committee for Animal Recording (ICAR) Animal Data Exchange (ADE) standards for UK Veterinary Treatment data  
**BRB Comments on version 1.0**

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# Overview

Icon Software has reviewed the new API proposed in the draft specification “Proposed extensions to International Committee for Animal Recording (ICAR) Animal Data Exchange (ADE) standards for UK Veterinary Treatment data” version 1.0.

Our experience in this area is through developing and maintaining the AHDB Electronic Medicine Book (eMB) system throughout the last four years. As part of this work we designed an API for the transfer of on-farm medicine usage data to eMB. At present the eMB API is used for communication between the frontend and backend of the eMB web application. It is also used for the transfer of medicated feed supply data from two third-party feed suppliers. Although the eMB API supports the transfer of medicine usage data from third-party software it is not currently used for this purpose. This is due to challenges in persuading third-party software developers that implementing the API is a worthwhile investment.

Overall, in our opinion, the proposed ICAR API specification is clean well constrained to its scope. The object classes are simple with required fields kept to a minimum. We view this simplicity as crucial for encouraging third-party software providers to invest the time to implement this API.

It has been proposed that this new ICAR API could be used as the primary means of data transfer between third-party medicine record keeping software and eMB. Overall we think this is realistic. We have reviewed the proposed API and commented on areas where it does not directly provide the data requirements of eMB, including suggestions (in red) each case.

# General comments

* There is duplication of information between the Course and Dose classes. This includes:
  + Course.Date
  + Course.StartDate
  + Course.EndDate
  + Course.Quantity
  + Dose.Medicine

This kind of redundant information forces each developer to implement code for handling inconsistent submissions. There is no guarantee that each developer does this the same way, and this can lead to apparent variation in the data received by different application. Icon suggestion: Remove the fields listed above from the API

* Is there a risk that not all animals are given the full course, for example if they die? It would be rare, but to avoid any uncertainty in what happens in this case the animal identifiers could be moved to the Dose class. Icon suggestion: Move animal identifiers to Dose class
* If we change the above item, then should we also move withdrawal dates into the Dose class too? Strictly speaking some animals could have a different withdrawal date to others. Icon suggestion: Move withdrawal dates to Dose class
* Is there any value in defining a list of standard “withdrawal time types” (maybe just Beef and Milk). Icon suggestion: Include standard withdrawal time types: Beef and Milk in the specification
* Data submitted to eMB needs quantity units type (volume/mass) to match the units type provided by the VMD in the antibiotic concentration data. Suggest we define a set of rules based on the pharmaceutical form provided in the PID. Icon suggestion: We can propose a set of constraints on the quantity units type based on the form provided in the PID
* Should we add a generic free-text Notes field the Course, Dose and Acquisition classes? Icon suggestion: Add Notes field
* Do we really need to track the expiry dates of each batch number used in each dose? Perhaps expiry dates should be in the Acquisition class instead. Icon suggestion: Move expiry date and batch number to Acquisition class instead of Dose class
* Since Reason for Treatment is free-text then perhaps we should make it optional too? If a farmer doesn’t particularly want to provide this then they are likely just to write something generic anyway. Icon suggestion: Make Reason for Treatment optional

# Additional data required for eMB that is not included in the API

It would be highly desirable for the API, or a closely related API, to provide all data required by eMB. Unfortunately some of this falls outside the scope of medicine treatment data. Perhaps ICAR already provides another API that could be used for this purpose?

## Animal population data

For its reporting and benchmarking facilities, eMB requires data on the approximate number of animals on-farm, in various age categories, through the year. In the future this will hopefully be obtained via the Cattle Tracing Service but there are still reasons that it may need to be provided via an API:

* Support for antibiotic calculation in countries which do not have a CTS equivalent
* Ability to differentiate between multiple enterprises that share the same CPH number

Icon suggestion: Implement an alternative (ICAR or eMB-specific) API for this, but make its use optional if data can be obtained from CTS.

## Enterprise category

For benchmarking purposes eMB-Pigs (but not eMB-Cattle) collects the enterprise category (breeder, finisher, etc) each time data is submitted.

Icon suggestion: Require farmers to choose their enterprise category when they use the eMB web site, but don’t include this in the API. Analysis of data from farmers who submit data through third-party software, without logging eMB, will use an Unknown enterprise category.

# Non-essential eMB features not supported by the API

There are several features in eMB that would not be accommodated by the proposed API. This does not prevent eMB from adopting the API as its primary means of third-party data submission however it would mean that eMB itself offered additional flexibility that third-party software does not. This may be a concern to potential integrators.

## Collection of aggregated medicine usage data.

eMB currently allows farmers to submit aggregated totals of each medicine product used. Whilst I can see arguments in favour of simply requiring all users to record individual medicine doses, in reality the simple option is very popular in eMB (for Pigs, over 95% of returns submitted). My concern with not allowing the simple option is that users will be discouraged from adopting eMB.

Icon suggestion: Exclude aggregated data from API. Although aggregate submissions would still be supported by the eMB web site through non-standard API extensions, third-party software can only submit individual treatments.

## Ability to identify animal as a broad free-text group description rather than specific ID number.

In addition to group label, the user would also need to specify:

* Age category
* Number of animals treated

Icon suggestion: Exclude option for free-text group treatments from API. Although still supported via the eMB web site through non-standard API extensions, third-party software can only submit treatments identifying specific animals.

## Free-text product names

eMB allows users to specify free-text product names if they cannot find the product in a dropdown list.

Icon suggestion: Only accept products identified with an MA number in the API. The eMB web site would still allow free-text product names through non-standard API extensions.

## In-Feed Medication

eMB allows farmers and feed suppliers to define medicated feed products. The concentration of each medicine ingredient in the feed is specified. Farmers can then simply submit the quantity of feed used.

Third-party software could already meet this requirement by splitting each feed administration into separate does for the active ingredients. Alternatively the Dose class could be formed of multiple ingredients, each with its own quantity.

Icon suggestion: Keep the API as proposed. eMB will still accept its in-feed medication features through non-standard API extensions.