Erratum

Erratum to Endpoint Matrix: a Conceptual Tool to Promote Consideration of the Multiple Dimensions of Humane Endpoints

Vanessa Ashall and Kate Millar

Centre for Applied Bioethics, School of Biosciences and School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, UK

In this short communication which appeared in ALTEX (2014), 31(2), 209-213, http://dx.doi.org/10.14573/altex.1307261 there were errors in Table 1.

Tab. 1 (revised)

	Define What is it?	**Determine** How does it apply to the experiment?	**Detect** Who, how, and when?
Scientific endpoint	The criteria used to indicate that the experimental objective has been reached.	What specific and minimum (e.g., P <0.05) data is required? At what point will no further data be required? How does this affect expected suffering and cost benefit justification?	Who will set the scientific endpoint? (e.g., PI or responsible investigator). How and when will data collection be monitored and how will this be reported? Who will determine when the scientific endpoint has been reached?
Justifiable endpoint	The maximum level of suffering which can be justified by the expected benefits of the experiment. This degree of suffering will necessitate the ending of the experiment, even if the scientific endpoint has not yet been achieved.	Ethical review should perform a cost/benefit analysis of studies which are expected to cause suffering. The animal indicators of the limit of justifiable suffering should be determined before the study commences. How could any expected suffering be avoided, alleviated and/or minimized?	Who is trained to recognize expected suffering? How will they recognize and report the justifiable endpoint? Who will decide to end the experiment? What action should be taken and what alternatives are available?
Unpredicted endpoint	An endpoint identified by unexpected suffering which is not related to the experimental aims or is different from that which was expected.	General indicators of pain and/or suffering must be monitored in addition to expected specific signs. The experiment must be ended if unexpected events occur which, when considered alongside expected suffering, result in cumulative suffering beyond that justified by cost benefit or if unexpected events are likely to interfere with the achievement of the scientific endpoint	Who is trained to detect unexpected pain and suffering? Who will determine whether the experiment should continue (e.g., designated vet and animal welfare officer will need to define cumulative suffering and consider this alongside the agreed justifiable endpoint)? What action should be taken and what alternatives are available?

Tab. 1: The endpoint matrix

The matrix presented above is envisaged for initial use as a blank document which can help structure the necessary reflective processes during the planning stage of each study. The matrix above contains example data translations for each cell to illustrate some important considerations. It will need to be considered in several stages and by different personnel; as such the tool should provide an opportunity for reflective and efficient team communication. Once completed the matrix should be used as a reference document during the study to accurately alert staff to the achievement of an endpoint. After the study the matrix can be kept as a record of the endpoints which were reached and reviewed in dialogue with the research team, a form of research debriefing, to help improve research protocols and communication strategies. It may be useful also for retrospective review, encouraging further progress to be made in the application of humane endpoints.

http://dx.doi.org/10.14573/altex.1409081