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Risk assessment principles in evaluation of animal welfare

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Abstract

Science forms a vital part of animal welfare assessment. However, many animal welfare issues are more influenced by public perception and political pressure than they are by science. The discipline of epidemiology has had an important role to play in examining the effects that management, environment and infrastructure have on animal-based measures of welfare. Standard multifactorial analyses have been used to investigate the effects of these various inputs on outcomes such as lameness. Such research has thereby established estimates of the probability of occurrence of these adverse welfare outcomes (AWOs) and given exposure to particular management inputs (welfare challenges). Welfare science has established various measures of the consequences of challenges to welfare. In this paper, a method is proposed for comparing the likely impact of different welfare challenges, incorporating both the probability of AWOs resulting from that welfare challenge, and their impacts or consequences if they do, using risk assessment principles. The rationale of this framework is explained. Its scope lies within a science-based risk assessment framework. This method does not provide objective measures or score of welfare without some context of comparison and does not provide new welfare measures but only provides a framework enabling objective comparison. Possible applications of this method include comparing the effects of specific management inputs, assigning priority to welfare challenges in order to inform allocation of resources for addressing those challenges, and comparisons of the lifetime welfare effects of management inputs or systems. The use of risk assessment methods in the animal welfare field can facilitate objective comparisons of situations that are currently assessed with some level of subjectivity. This methodology will require significant validation to determine its most productive use. The risk assessment approach could have a productive role in advancing quantitative assessment in animal welfare science.

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