Circus and zoo animal welfare in Sweden: an epidemiological analysis of data from regulatory inspections by the official competent authorities

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Abstract

Good animal welfare is crucial for the success of circuses and zoos. Epidemiological studies of animal welfare that investigate associations between animal-based measures (ABMs) and resource- and management-based measures are needed. However, due to the relatively low numbers of animals within each species kept at individual facilities, such investigations can be difficult to carry out. In this paper, we report the analysis of a multi-facility epidemiological study using data from all regulatory inspections of circus and zoo animals in Sweden for 2010 to 2014. Information from 42 inspections of 38 circuses, and 318 inspections of 179 zoos was analysed. For ABMs assessed during routine inspections of circuses (n = 14) and zoos (n = 61), 9.1 and 14.3% did not comply with requirements for general care of hooves/claws and coat, 10.0 and 8.6% for body condition, and 0 and 1.7% for animal cleanliness, respectively. In addition, the zoo checklist assessed whether animals were kept in appropriate groups, finding non-compliance in 17.0% of inspections. The most frequent non-compliant resource- and management-based measures at routine inspections of circuses were for space (41.7%) and exercise requirements (38.5%). For zoos, 29.4% did not comply with space followed by 28.8% for enrichment requirements. In multivariable logistic regression analyses, zoos that had inadequate or unsafe housing and space design, inadequate bedding, or failed to meet nutritional requirements, were more likely to be non-compliant with at least one ABM. The checklists should be improved to better assess welfare status by including more ABMs; benchmarking of risks and trends over time is also recommended.

Keywords: animal-based measures, animal welfare, circus, epidemiology, legislation, zoo

Introduction

Animal welfare has become increasingly important in today’s society. Circuses and zoos are especially in the spotlight because they are constantly in the public eye, with animal welfare scientists increasing their efforts to assess the welfare of animals kept under these conditions (Whitham & Wielebnowski 2013). The World Association of Zoos and Aquariums (WAZA) encourages its members to implement policies and procedures that exceed the national minimum legal standards. WAZA now has a new welfare strategy, based on promoting zoos and aquariums as centres for animal welfare (Mellor et al 2015). This strategy promotes application of a model based on the ‘Five Domains’ (Mellor & Beausoleil 2015).

The ‘Five Domains’ model is an expansion of earlier models that includes assessment of both positive and negative states of animal welfare. It explains how the physical and functional domains (nutrition, environment, physical health, and behaviour) bring about positive and negative experiences within the fifth domain (mental or affective state). These domains combined indicate the welfare status of the animal (Mellor & Beausoleil 2015; Mellor et al 2015). Advances in animal welfare science have pointed to animal-based measures (ABMs; ie physical, behavioural, and mental) being key (EFSA Panel on Animal Health and Welfare 2012; Carlstead et al 2013), although, historically, the assessment of animal welfare has involved recording a combination of resource- and management-based measures, for example, the provision of feed and shelter (Hubbard & Scott 2011). Resource- and management-based measures are important in order to identify risk factors that are associated with poor animal welfare in epidemiological analyses (EFSA Panel on Animal Health and Welfare 2012), but they do not fully indicate the welfare status of the animal. The issue here is that within circuses and zoos the number of animals from each species is often too small to conduct sufficiently powered epidemiological studies for the identification of risk factors. Thus, multi-facility epidemiological studies using ABMs as welfare outcomes are advocated (Whitham & Wielebnowski 2013).