Introduction: ‘Animals in Emergency’ due to SARS-CoV-2

During the recent COVID-19 pandemic, due to SARS-CoV-2, it was necessary to hypothesize strategies that would exploit the experiences of all sectors of public health, including veterinary medicine. This ‘One Health’ concept is very clear to the most important international scientific organizations (FAO, WHO, OIE) that for years have been promoting the application of these policies to the health authorities of the various countries.

This principle is founded on the methods of transmission of infectious diseases and in what is called the “epidemiological triangle” which underlines the indissoluble link between human, animal and environmental health.

In this scenario, all animals are involved both directly and indirectly, as object of veterinary epidemiological surveillance for the control of animal reservoirs in wild environments and in ecological interfaces, but also in an urban environment for the analysis of their potential role in the transmission of the infection. Furthermore, consideration should be given the possible behavioral implications during the lock-down and other aspects concerning primary food production and in all activities that use animals for research, conservation, educational and recreational purposes.

For all these reasons we felt strongly motivated in proposing an in-depth study on this issue. It therefore seemed appropriate for the *Journal of Applied Animal Ethics Research* to propose a special issue devoted to “‘Animals in Emergency’ due to SARS-CoV-2” with the purpose to detect the ethical dilemmas that have arisen in the management of animals during the pandemic.

The aim of this issue was to systematically addressing the problem of balancing certain values in the case of moral dilemmas concerning animals that arose during the COVID-19 epidemic. The role of ethics in this context becomes relevant to the point of being able to fully enter the court of other specifically health disciplines that traditionally refer to the concept of One Health. In fact, this strengthening of multidisciplinary cooperation with the involvement of social sciences, and specifically the integration of veterinary ethics in promoting resilience in current and future pandemics, can only contribute to the development of a more solid healthcare architecture. Precisely for this reason we asked for the contribution from a broad range of disciplines, including (but not limited to) veterinary medicine, epidemiology, biology, economics, law and

philosophy, both from academics and from people who are directly involved and faced daily with ethically-based choices in their activity in the field.

As possible topics to be explored in this issue we proposed:

- Ethical decision-making for a One Health approach in animal health issues
- Impact on wildlife population and consequences on conservation program
- Risk communication and risk perception: possible consequences of “moral stress” on pet owners during the lock-down phase
- Welfare concern in pets, livestock, zoo animals, animals for research purposes and ethics of their management during a sanitary crisis
- Animal welfare concern in food integrity and transformation of the food system during a crisis
- Impact of measures adopted to minimize the possible transmission between humans and wild animals held in zoos and aquaria

All these topics were covered. This fact has gratified us both for the interest raised in the specific topic, and for the growing awareness of the need for a holistic approach to human and animal health issues, for a global welfare of all the species that inhabit this planet and for the conservation of ecosystems (One Health, One Welfare, One Biology).

The first paper presents itself as a launching pad for this type of discussion as Angela Martin and Salome Dürr reiterate the importance of the holistic and interdisciplinary approach for the management of epidemics, concluding that health policy interventions must necessarily be ethically legitimized in such a way that management measures are more proportionate, effective and sustainable.

The second contribution by Susanne Holtze et al. addresses the dramatic consequences and ethical aspects of the “anthropopause” understood as the reduction of human activities resulting from measures to mitigate the propagation of SARS-CoV-2 for scientific progress and conservation projects, presenting the specific case of the northern white rhinoceros (*Ceratotherium simum cottoni*) as part of the BioRescue project.

Bob Fischer in the following article also addresses the problem of the consequences of the blocking of human activity towards various species of wild animals by asking himself whether it was a moral error to establish a human-animal interaction that has created a sort of dependence not more manageable during the pandemic.

Continuing on the theme of wild animals and conservation, Francesca Bandoli and Paolo Cavicchio discuss the impact of the pandemic on zoological institutions by presenting the situation of the Pistoia Zoo as a case study, focusing attention on the conditions that have generated moral stress for the staff.

A discussion of the issues generated by the COVID-19 pandemic in the context of *ex-situ* conservation have been further developed by Claudia Gili et al., who in this case took into consideration aquatic organisms, contingency procedures and repercussions in the field of animal welfare.

Serena Adamelli et al. how emergency management procedures have been built from a One Health perspective, in the area of assistance to pets, by the National Association of Civil Protection Volunteers EMERVET, taking into account every possible factors related to the welfare of animals and the safety of operators.

Lieve Lucia Meers et al. underline the difficulty to build safety protocols in controlling the spread of the SARS-CoV-2 taking into account the diversity of programs of animal-assisted interventions (AAIs) in relation to possible conflicts between ethical values of autonomy and well-being between humans and animals.

Viola Galligioni's contribution concerns laboratory animals and aims to describe how the COVID-19 pandemic has had an impact on different areas such as animals, ethical review, projects evaluation, projects authorization, Culture of Care in the context of *in vivo* research and the European frame work.

Temple Grandin describes the consequences of the interruptions in the flow of the food chain, especially in the pork industry, which led to the massive killing of many animals and moral stress in the operators who performed it, not to mention the food waste as a secondary aspect.

Paola Cane and David Primrose also deal with the topic of the food supply chain, focusing on its vulnerability during crises and giving the example of food fraud.

These articles integrate perspectives from different disciplines to draw lessons from COVID-19 in animal management during the pandemic and articulate a forward pathway for future ethical policy proposals and their communication. Scientific Policy Advice is Never Value-Free: where possible, those value judgments need to be made transparent. In this way they can be subjected to democratic control and public deliberation. The appropriate

mandate of a scientific policy advisor has to reflect both the inherent value of scientific policy advice in general, and the specific roles of expertise from different disciplines.

COVID-19 may just be one of the non last manifestation of the increasing anthropogenic influence on the natural environment and the near future should find us prepared to handle ethical dilemmas involving animals in unpredictable and uncertain contexts.

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