Coronavirus research and laboratory animals

The current global COVID-19 pandemic is causing devastating human suffering and distress. Many of us will have much-loved family members who are in high risk groups, or are struggling to cope with bereavement, made all the more difficult by social distancing. The urgent need to better understand the disease, and develop vaccines and treatments, is obviously paramount. Researchers are using many different approaches including computer modelling, experiments using living cells, human trials and clinical case studies - and animal experiments. Nobody can predict the extent to which each of these approaches will contribute to any successful outcomes, or when.

Like other laboratory animal use for applied medical purposes, there is an ethical dilemma for society. Of course, we want vaccines and treatments for coronavirus as soon as possible. But we must also remember the suffering that laboratory animals experience when they are used in some areas of this research. These animals are sentient, and capable of experiencing pain and distress, and this matters.

In the widely-reported race[1] to develop new animal 'models' for coronavirus research using different species, we anticipate that many thousands of animals, including mice, monkeys, ferrets, pigs, dogs and cats are likely to be used worldwide. They are not 'heroes', nor are they 'helping' - these terms can only be applied where an animal has made their own decision to act, clearly not the case here. Sadly, these animals will suffer, and their suffering could be severe. For example, mouse 'models' of coronavirus frequently cause laboured breathing, lethargy and death.

Any humane society should be concerned about these animals, regardless of individual views on the legitimacy of animal research. Public opinion polls[2] have repeatedly shown that most people are concerned about animal use and suffering, even if they are prepared to conditionally accept animal use in medical research. And people are still concerned, even now. A survey conducted last month by Understanding Animal Research showed that many people feel 'conflicted' about animal use in coronavirus research[3]. This dilemma is inevitable, and is recognised within laws that regulate animal use worldwide. Many of these include a 'harm-benefit analysis', which considers the likely harms to animals against the proposed benefits of each research project.

Despite the widespread use of laboratory animals in coronavirus research, there may actually be some indirect positive outcomes. International collaborations are focusing on speeding the drug and vaccine development process by sharing data[4], maximising use of epidemiology and human clinical case studies, using non-animal alternatives and seeing which animal tests can be avoided in vaccine trials[5]. The primary reason for doing this is obviously to end the pandemic sooner, but it will also reduce the impact on lab animals.

The critically important question is whether lessons learned during the pandemic can, and will, be sustained and applied more widely after the crisis has ended. This could lead to lasting reductions in animal use and suffering - but it would require a significant shift in scientific culture, which can be highly competitive. However, maybe experiencing a different

approach will provide a sound basis for individuals to continue collaborating and change scientific culture for the better? We should all hope this happens, not only for animal welfare, but also for the sake of human health.

In fact, another clear lesson from this current situation is that the health and welfare of humans, and animals, are intimately linked. It is highly ironic that so many serious disease outbreaks are attributed to - or may at least be associated with - humans encroaching on the habitats of wild animals, eating wild animals, or farming domestic animals very intensively or using poor practices. And every time, the burden on animals is further increased as laboratory animals are used, and suffer, as a direct result of these human-made problems. The global wildlife trade, farming, and all other human-animal interactions are complex issues with no quick and easy solutions - but unless the ways in which humans use other animals and share the environment with them improve, the cycles of disease and suffering will sadly continue for humans and animals alike.

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References:
1. Mice, hamsters, ferrets, monkeys. Which lab animals can help defeat the new coronavirus?
2. Public attitudes to animal research in 2018
3. Attitudes to animal research under COVID-19 Final
4. Coronavirus: Commission launches data sharing platform for researchers
5. Global regulatory workshop on COVID-19 vaccine development