How has Covid-19 changed our views of the One Health agenda?

The current Covid-19 pandemic has changed our perception of disease threats and their control in many ways. Before January 2020, the word ‘zoonotic’ was unfamiliar to the majority of the population, and even now I wonder whether many truly understand what it means.

Yet, when we talk about 75 per cent of new or emerging infectious diseases in people coming from animals, individuals really sit up and take notice. This link between animals and people has highlighted the importance of the One Health agenda. Collaboration between human and animal health researchers offers the possibility to advance the understanding of zoonotic diseases and encourages a common translational approach to medicine through the sharing of ideas. Although the One Health concept has been with us for a number of years, unfortunately its objectives have yet to be fully implemented and its benefits realised.

A One Health threat presented by Covid-19 is the observation that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can be passed from people into animals. This ability to infect other species and potentially be transmitted back into people will need to be carefully monitored through improved screening programmes.

The scientific community’s rapid response to the Covid-19 outbreak, and the development of vaccines within one year of the viral genome being sequenced is truly remarkable, and it has significantly changed our perception of what can be achieved. However, before we get carried away, we should note that this was the result of decades of investment in vaccine know-how and novel delivery technologies. Indeed, many groups had already demonstrated a proof of concept through developing prototype vaccines against other related zoonotic coronaviruses, and highly effective vaccines against animal coronaviruses have been available for many years. Thus, when this current pandemic occurred, we already knew that it was possible to vaccinate against diseases caused by coronaviruses and we had the appropriate technology and tools ready to go. It was great that there was some interaction between human and veterinary vaccine researchers in the early stages of the Covid-19 vaccine development programmes, but I don’t think that this was as significant as it could have been; some of the important lessons from animal health were not fully considered, such as that broad cross-protective immunity can be developed by combining different coronavirus strains within a vaccine.

We should not expect vaccines to be available so rapidly against all new pandemic threats – the normal development time for a typical human vaccine is 10 to 15 years and this should be considered when developing any new preparedness strategy. In contrast, vaccines against veterinary diseases generally take only three to six years to develop, and this can be speeded up further in response to new emerging threats. To achieve this rapid response, a clear vaccine development plan has to be in place based on a known vaccine platform technology, combined with the support of industry, government and the regulatory authorities. Human health researchers should learn from such an approach and ensure that these same fundamentals are involved in preparedness strategies for new human health threats.

Many new vaccine technologies often find their first application within veterinary medicine. There are now several examples of registered commercial veterinary vaccines derived though biotechnology. These same technologies are now, for the first time, forming the basis of many of the Covid-19 vaccine strategies.

Clearly there is much to learn from veterinary medicine and the opportunities that it provides for us to develop and test improved disease control strategies for both animals and people.

I feel that any future pandemic preparedness strategy cannot ignore the importance of such a partnership.

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