New approach needed to tackle emerging zoonotic diseases

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(Medical Xpress)—A more coordinated approach to surveillance is required if emerging diseases which can spread from animals to humans are to be tackled, say scientists.

Around 75 per cent of all recently emerging diseases are infections that can be transmitted between animals and humans, which are known as zoonoses. Many of these diseases are first observed causing disease in animals, for example Ebola Virus in great apes, West Nile Virus in crows, and Rift Valley Fever in livestock.

Writing in *Philosophical Transactions B* of The Royal Society, researchers at the University of Glasgow are calling for a shift in focus of surveillance for zoonoses to build systems that tackle both emerging global threats and endemic zoonoses in developing countries.

This, they argue, will overcome barriers to the reporting of emerging diseases and also help alleviate the burden of endemic diseases, that have huge impacts upon the health and livelihoods of impoverished communities throughout the developing world.

Lead researcher Dr Jo Halliday from the Institute of Biodiversity, Animal Health and Comparative Medicine, said: "Early detection of disease outbreaks in human and animal populations is crucial to the effective surveillance of emerging diseases. At the moment though, there are several barriers to disease reporting and surveillance that limit the effectiveness of disease surveillance and control efforts and the impacts

of these barriers are most severe in the developing world."

Dr Halliday said: "Because of the potential for rapid international spread of infectious diseases, this reduced capacity for early detection of disease outbreaks in many developing regions has implications for the global community as a whole."

To overcome these problems, the researchers propose the development of 'linked strategies' that simultaneously tackle the important public health problems posed by endemic zoonoses in developing countries as well as building capacity that can help detect and control future disease threats.

Dr Halliday added: "It is important to focus efforts and investments on building core capacities that are common to many surveillance systems and inherently adaptable. While a lot of investment has gone into the technical aspect of surveillance – such as laboratory equipment and communication infrastructures – there is a need to recognise the constraints to reporting at the grassroots level.

"Animal and human health workers are the primary source of surveillance data and it is important to understand their ability and willingness to report disease outbreaks.

"Building systems that tackle existing disease problems can help to build the core capacities required for successful surveillance of all zoonotic diseases and also identify appropriate mechanisms for incentivising reporting to build sustainable systems.

"Mobile phone technology has enormous potential for improving health systems, including surveillance. Massive increases in network coverage, handset ownership and therefore familiarity with the technology mean that mobile phones hold particular promise in areas that are currently

least well served by existing systems. A key strength is that they can be used to provide feedback, information and advice that can help to incentivize reporting.

"Future investments should also build upon a much greater understanding of why individuals choose to act and report disease, rather than focusing exclusively on technology of the tools used. Simply put, effective surveillance on the global scale is only feasible if individuals want to contribute and are not disadvantaged by reporting.

"Incentives could include remuneration, meeting performance contracts, reinforcement of social standing by triggering an effective response and a global fund to financially compensate countries that report outbreaks."

The researchers argue that many endemic zoonoses are prime areas for investment in disease control measures and that many surveillance systems that were set up to deal with specific pathogens – such as polio or influenza – have now expanded their surveillance efforts to other diseases.

Dr Halliday said: "Investment in the surveillance of endemic zoonotic pathogens provides a mechanism for building exactly the core capacities that are likely to enable the detection of emerging infections.

"This is a more equitable and sustainable mechanism for building the culture of surveillance and the core capacities that are needed for all zoonotic pathogens, including emerging disease threats."

Provided by University of Glasgow