

New research identifies lack of appropriate control tools for many major infectious diseases of animals

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New research published in *The Lancet Planetary Health* has identified a lack of appropriate control tools for many infectious diseases of animals

that can have a significant impact upon the UN Sustainable Development Goals (SDGs).

International efforts should focus on developing control tools for a range of priority infectious diseases of animals, including Nipah virus infection, African swine fever, foot and mouth disease and [bovine tuberculosis](#), scientists say, but progress is needed across a wide range of zoonotic, endemic and epidemic (including pandemic) diseases to secure a healthy planet for humans, animals and the environment.

The study, led by Dr. Johannes Charlier, project manager of DISCONTTOOLS, and including an international team of [animal health](#) experts, assessed the current state of available control tools for 53 major infectious diseases of animals.

The researchers found that while easy to use and accurate diagnostics are available for many animal diseases, there is an urgent need for the development of stable and durable diagnostics that can differentiate infected animals from vaccinated animals and assess other disease characteristics like transmissibility, impact on animal productivity and welfare.

They add that there is also a pressing need to exploit rapid technological advances and to make diagnostics widely available and affordable. The scientists call for further research to improve the convenience of use and duration of immunity, and to establish performant marker vaccines.

The research highlights that the largest gap in animal pharmaceuticals is the threat of pathogens developing resistance to available drugs—particularly for bacterial and parasitic (protozoal, helminth and arthropod) pathogens.

Dr. Charlier and his fellow researchers propose five research priorities

for animal [health](#) that will help deliver a sustainable and healthy planet. They are vaccinology, antimicrobial resistance, climate mitigation and adaptation, digital health and epidemic preparedness.

Dr. Charlier says that "Animal health is a prerequisite for global health, [economic development](#), food security, food quality and poverty reduction while mitigating against climate change and biodiversity loss."

"If we are to achieve the SDGs, further research into appropriate control tools is needed to reduce the burden of animal diseases, including zoonoses, and to manage emerging diseases, pandemic threats and antimicrobial and antiparasitic resistance."

The scientists used DISCONTTOOLS—an open-access database and key resource for the STAR-IDAZ International Research Consortium, as well as for other funders of animal health research including trusts and industry bodies—to assess the current state of appropriate control tools for 53 major infectious diseases of animals.

DISCONTTOOLS identifies the gaps in knowledge needing to be addressed to speed up the development of new DISEASE CONTROL TOOLS (diagnostics, vaccines and pharmaceuticals) and reduce the burden of animal diseases. This delivers benefits in terms of animal health and welfare, public health and a safe and secure food supply.

The DISCONTTOOLS resource was then used to prioritize the list of infectious animal diseases where appropriate control tools are lacking and where addressing this need would have the greatest impact towards achieving the relevant SDGs.

Dr. Charlier added that "for achieving maximal impact it is important to devote appropriate attention to both epidemic, zoonotic and endemic diseases. While epidemic diseases attract a lot of attention because of

their sudden and devastating impact, the huge impact of more chronic diseases is less visible and hence often forgotten."

"Prevention of these diseases will not only require development of new technologies, but also sustained investment in diagnostic networks and research infrastructures, supply chains, capacity building, and international, trans-sectoral coordination."

Roxane Feller, secretary general of AnimalhealthEurope (the trade association of the animal medicines industry) and management board member of DISCONTTOOLS, supports the study and added that "the potential for transfer of infectious diseases between animals and people is a One Health challenge recognized at the highest level, signaling that it is high-time for all of us to move from firefighting to fire prevention."

"The impacts of animal disease stretch even further beyond [public health](#), from devastating socio-economic effects for those who rely on livestock for income, to negative environmental effects through feed used and emissions created with no food output."

"By public and private investments in innovative early research, the animal health industry as a whole can focus on unlocking the secrets needed to develop new generations of vaccines, diagnostics and other therapies to prevent animal disease and avoid the negative effects."

Alex Morrow from STAR-IDAZ IRC, says that "animal diseases are, in most cases, global problems and so need a focused global approach to understand and control them. To speed up the innovation pipeline from basic science to the required products it is important to work together internationally and along the research pipeline focusing resources in a coordinated way on the critical knowledge gaps and identified product needs: we can't all do everything."

More information: Disease control tools to secure animal and public health in a densely populated world, *The Lancet Planetary Health* (2022). DOI: [10.1016/PIIS2542-5196\(22\)00147-4](https://doi.org/10.1016/PIIS2542-5196(22)00147-4)

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