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<https://www.swisstph.ch/en/about/eph/human-and-animal-health/one-health>

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## Chapeau

Integrated approaches to health like *One Health* seek to demonstrate an incremental benefit of a closer cooperation of human and animal health and other related sectors. Evidence shows clearly progressive benefits from a closer cooperation between sectors as well as between countries for the control of diseases that are transmissible between animals and humans (zoonoses) like rabies or brucellosis (see Chapter 1) and of integrated surveillances-response systems for pandemic prevention (see Chapter 2). The pact for the Summit of the Future is best placed to mobilize continental and global engagement for eliminating diseases and preventing future pandemics through integrated approaches, joining human and animal health, agricultural and environmental sectors in low-, middle- and high-income countries.

## Chapter I. Sustainable development and financing for development

Previous research suggests that dog mass vaccination campaigns can eliminate rabies locally, resulting in large human and animal life gains. Despite these demonstrated benefits, dog vaccination programs remain scarce in Africa. Swiss TPH conducted a benefit-cost analysis to

demonstrate that engaging in vaccination campaigns is the dominant strategy for most countries, even without coordinated action between them. Moreover, Swiss TPH quantified how coordinated policy measures across African countries could impact rabies incidence and associated costs. We show that coordinated dog mass vaccination between countries and Postexposure prophylaxis (PEP) would lead to eliminating dog rabies in Africa with total welfare gains of USD 9.5 billion (95% CI: 8.1 – 11.4 billion) between 2024 and 2054 (30 years). Coordinated disease control between African countries can lead to more socially and ecologically equitable outcomes by reducing the number of lost human lives to the disease to almost zero and possibly eliminating rabies (Bucher et al, 2023). In Kenya, Malteser International in collaboration with Swiss TPH, is going to pilot a One Health approach for rabies elimination in Marsabit County.

## **Chapter II. International peace and security**

The One Health approach can improve global health security across a range of health hazards and the incremental benefits of a One Health approach can be made visible through distinct approaches. Examples from joint health services and infrastructure, surveillance–response systems, surveillance of antimicrobial resistance, food safety and security, environmental hazards, water and sanitation, and zoonoses control clearly show progressive benefits of One Health approaches (Zinsstag et al 2023). They appear to be most effective and sustainable in the prevention, preparedness, and early detection and investigation of evolving health risks and hazards like epidemics and pandemics. COVID-19 has shown how national economies and even the global economy has been impacted within a short time frame. Borders had been closed and political discussions evolved how to counter the pandemic. Global injustice between the rich and the poorer nations regarding the access to vaccines became evident and could have led into international political crisis. For benefits to be maximized and extended, improved One Health operationalization is needed by strengthening multisectoral coordination mechanisms at national, regional, and global levels.

## **Chapter III. Science, technology and innovation and digital cooperation**

Most human pathogens originate from non-human hosts, and certain pathogens persist in animal reservoirs. The transmission of such pathogens to humans may lead to self-sustaining chains of transmission. These pathogens represent the highest risk for future pandemics. For their prevention, the transmission over the species barrier — although rare — should, by all means, be avoided. Surprisingly, in the past COVID-19 pandemic, most of the contemporary research centered around the control of pandemics through drugs and vaccines, with comparatively little scientific inquiry directed towards future prevention. Already in 2012, the World Bank recommended engaging in a systemic One Health approach for zoonoses control, considering integrated surveillance-response and control of human and animal diseases for primarily economic reasons. First examples, like integrated West Nile virus surveillance in mosquitos, wild birds, horses, and humans as seen in Italy, show evidence of financial savings from closer cooperation of human and animal health sectors. Provided a zoonotic origin can be ascertained for the COVID-19 pandemic, integrated wildlife, domestic animal and human disease surveillance-response may contribute preventing future outbreaks. In conclusion, the earlier a zoonotic

pathogen can be detected in the environment, in wildlife or domestic animals; and the better human, animal, and environmental surveillance communicate with each other to prevent an outbreak, the lower the cumulative costs (Zinsstag et al., 2020).

In the arid and semi-arid lands of northern Kenya and in southern Ethiopia Malteser International in collaboration with the Swiss TPH is starting a study to show the cost-efficiency of an integrated surveillance and response system by the local authorities for human, animal, and environment health.

## References

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