One Health Pandemic Prevention:
Leveraging innovation in surveillance and disease control
to be better prepared for zoonotic disease spillover

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Integrating and using big data

- Population Growth
- Mass Livestock Production
- Climate Change
- Global Air Travel
- Bioterrorism
- Urbanization
- Deforestation
- Wildlife Disruption
- Antibiotic Resistance
- Mass Gatherings
1. **Science and Technology innovations**
   - Demographics of animal populations
   - Understanding infectious disease risk and spread
   - Intelligence and surveillance system coordination
   - Diagnostics and molecular epidemiology

2. **Regulatory innovations**
   - Good Regulatory Practices to co-design systems and engage stakeholders for improved compliance
   - Data stewardship and interoperability
   - E-learning tools

3. **Strategy and Governance innovations**
   - Foresight, threat and vulnerability assessment
   - Collaboration and partnerships
   - Governance for leadership, advocacy and coordination
Understanding animal populations and their contact structure relative to risks is (still) fundamental to infectious disease risk management.

Fig. 1.

Model structure and ecological survey overview. (A) Elevation in Ethiopia. (B) Division into lowlands (Afar and Somali regions) (brown) and highlands (green). (C) Modelled animals are grouped into villages, which are differentiated as lowlands or highlands. The arrows in (A) show possible transmission routes between villages in the same region, and between regions. An arrow is dashed as $x_{ABC}$ was set to 0. (D) The number of sampled units.

A dynamic model of transmission and elimination of peste des petits ruminants in Ethiopia

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Free PMC article
The genetic revolution and bioinformatics data sharing is providing incredible insights into how epidemics propagate and evolve.
Laboratories in LMICs are struggling with basic elements of sustainability: equipment maintenance and calibration, training and retention of staff, essential utilities.

PVS Lab Indicators

Nearly 80 indicators have been identified to date to measure the level of investment and describe lab management capacity across the 16 missions in the legacy cohort.
Supporting data sharing and interoperability for efficiency, speed and insights: OIE initiatives include OIE-WAHIS, OIE-AMU, OIE-PVS, OIE-Official Status, OIE-Observatory
OIE Training Platform and Serious Games are improving E-Learning offerings for VS Capacity Building and Public Engagement
AMR: Global Governance systems for leadership, advocacy, coordinated action and resource mobilisation

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Terms of Reference

Global Leaders Group Terms of Reference - English (pdf) 123 KB
Agro-Threats, Agro-Crimes and Emergency Preparedness: Veterinary Services must partner and integrate into National Emergency Management Systems

Guidelines for Simulation Exercises

A consistent set of good practices for preparing, delivering, and learning from animal health and welfare and veterinary public health simulation exercises for Veterinary Services

Assessment Phase Studies

Global Vulnerability Assessment for Agro-Crime and Agro-Terrorism

Cost Benefit Analysis of Investing in Emergency Management
United Against Rabies Global Forum is engaging partners to support national programmes and the global control strategy.

United Against Rabies: One Health in Action, Partnering for Success

A global virtual event announcing the new United Against Rabies Forum, with high level speakers including ministers, experts and activists from around the world. First shown 22 September 2020, moderated by Patrícia Amira.
African Swine Fever Global Initiative: supporting innovations in disease control to protect wild and managed populations

Global control of African swine fever
A GF-TADs initiative

2020-2025

Global control of ASF is achieved*

Outcomes

- Human resources in animal health are strengthened and disease control is improved
- Communication and risk management are strengthened and the ability to conduct risk communication is improved

Outcomes

- Improved implementation of international standards and capacity is improved
- Regional coordination and cooperation are strengthened
- Development agencies and technical assistance providers support capacity building

Objectives

- Strengthen national coordination and capacity
- Support initiatives to prevent and control AF

Key factors for success

- Intelligence framework
- Capability
- Risk communication
- Resources

Problem Statement

ASF is a global threat to food security with negative socio-economic impact. Although control is feasible, success requires regional and global coordination.
OIE Wildlife Health Framework is expanding our commitment to wildlife within the One Health programme, but demands new partnerships and new commitments.
Global Burden of Animal Disease will support investment in livestock programmes by demonstrating impact of disease and performance of programmes in economic terms.

GBADS – the legacy of estimating burdens

**Methods & Capacity**
- Institutionalisation of GBADS methods
- Tools for prioritisation
- Educational materials
- Codes of best practice

**Information**
- Burden of animal disease: plus DALYs
  - Production loss
  - Expenditure
  - Trade
  - Attribution to diseases, co-morbidities, nutrition, injury
  - Estimations of the health loss envelope
  - Split by species and production systems
  - Livestock populations

**Outcomes**
- Livestock and aquaculture population: split by species and production systems
- Estimation of the health loss envelope
- Attribution of livestock and aquaculture losses to species, systems, and markets

**Outputs**
- Livestock and aquaculture population: split by species and production systems
- Estimation of the health loss envelope
- Attribution of livestock and aquaculture losses to species, systems, and markets

**Impact**
- Improved societal outcomes from livestock and aquaculture; a positive impact on SDGs; improved equitability for livestock producers on the margins

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Classification of Production Systems

- Themes: PPS, PLE, AHO

Estimation of the Health Loss Envelope

- Themes: PPS, PLE

Attribution of the Health Loss Envelope

- Themes: PLE, VIE

Accessing Data and Databases

- Themes: Informatics, Engagement with All

Knowledge Engine – analytics

- Themes: Informatics with All

Information Generation

- Themes: Disease Prioritisation, Engagement, Human Health with All

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GBADS will measure and improve societal outcomes from livestock and have a positive impact on the sustainable development goals contributing to a world in which there is zero hunger, good health and well-being, gender equality, decent work and economic growth and responsible consumption and production.
In conclusion …

- Veterinary Services are an essential partner in One Health
- To be a good partner we need to lift our own game by supporting capacity development for VS in LMICs
- Resource constraints across IOs and VS should be a permanent driver for innovation in design and implementation of programmes
- Overcoming disruptions such as from COVID-19 has been an important stimulus for innovation
- Innovation is happening right in front of us, sometimes it is just a matter of identifying it, promoting it and amplifying the uptake and impact
- Incentivise and promote Science, Regulatory and Strategic Innovations – understand and take risks, monitor well, accept fast fails, recognize and reward success.
- Use Design Thinking approaches to introduce innovation into your systems: co-design with users, unconstrained ideation for creativity, prototyping to materialise
The Case for Investment in Animal Health Systems (AHS)

**SDG 1:** End poverty in all its forms everywhere

**SDG 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture

**SDG 3:** Ensure healthy lives and promote well-being for all at all ages

**SDG 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

**SDG 5:** Achieve gender equality and empower all women and girls

**SDG 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

**SDG 11:** Make cities and human settlements inclusive, safe, resilient and sustainable

**SDG 16:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

**KEY TAKEAWAYS**

- Veterinary Services are a global public good: a critical component of sustainable development in terms such as emerging zoonoses, antimicrobial resistance and food safety, as they address “risk at source” for most major infectious threats, including pandemics.

- The OIE is a unique intergovernmental organisation with key attributes as a partner in strengthening veterinary Services, at global, regional or national levels.

- The PVS Pathway shifts away from externally driven, short-term, emergency response type “vertical” approaches addressing only specific diseases, and contributes to a more sustainable, long-term strengthening of “horizontal” systems. The process targets capacity building and good governance of Veterinary Services to improve aquatic and terrestrial animal health and welfare via improved compliance with OIE standards.

**STRENGTHENING VETERINARY SERVICES THROUGH THE OIE PVS PATHWAY**

**THE CASE FOR ENGAGEMENT AND INVESTMENT**

**FEBRUARY 2019**