

# One Health at the Project Level: Reducing the Threat of Rift Valley Fever through Ecology, Epidemiology and Socio-Economics

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This single-disease project level One Health (OH) approach provides evidence and support for wider roll-out of OH frameworks to realize more effective disease control efforts to high priority local disease threats, contributing to the overall ability to reduce disease burden.

Abstract Reference  
PP10

## BACKGROUND

We present operationalisation of OH at the project level in the contexts of prevent-detect-respond-recover. One Health (OH) frameworks are a powerful tool for changing the narrative in national responses to zoonoses. Research projects such as this, can be a leading force in cross-sectoral collaborations by increasing inter-sectoral dialogue, driving the development of synergistic partnerships and supporting the prioritization of interconnected approaches to human, animal and environmental threats. We showcase OH research at the project level, focusing on sustained zoonotic disease surveillance and outbreak investigations of Rift Valley fever virus (RVFV).

## METHODS

Our approach utilises the One Health operational framework implementation and tools at the project level, as prescribed by the World Bank Group and EcoHealth Alliance(1) in the contexts of prevent-detect-respond-recover.

- **Prevent:** multisectoral and transdisciplinary **risk assessment** and **serological surveillance**
  - Human and animal surveillance at 275 farms in the central Free State Province of South Africa
  - **Active** climate and weather and vector **surveillance** on 23 and 8 farms respectively over 5 years with continuation at 5 and 8 sites respectively to date
- **Detect:** **passive surveillance** by encouraging reporting of suspect disease cases for abortions and mortality.
  - Leverages existing private sector resources (livestock owners) for early RVF detection.
  - Access to laboratory diagnostic services.
- **Respond:** mobilisation of an outbreak first response unit to assist with provincial outbreak investigation/control.
- **Recover:** contributing project gained knowledge and information in assisting the private sector and industry to establish national plans for RVFV.



Figure 1. Field team members setting up mosquito tents for RVFV vector surveillance.



Figure 2. Sheep cohort sampled for serological RVFV surveillance.

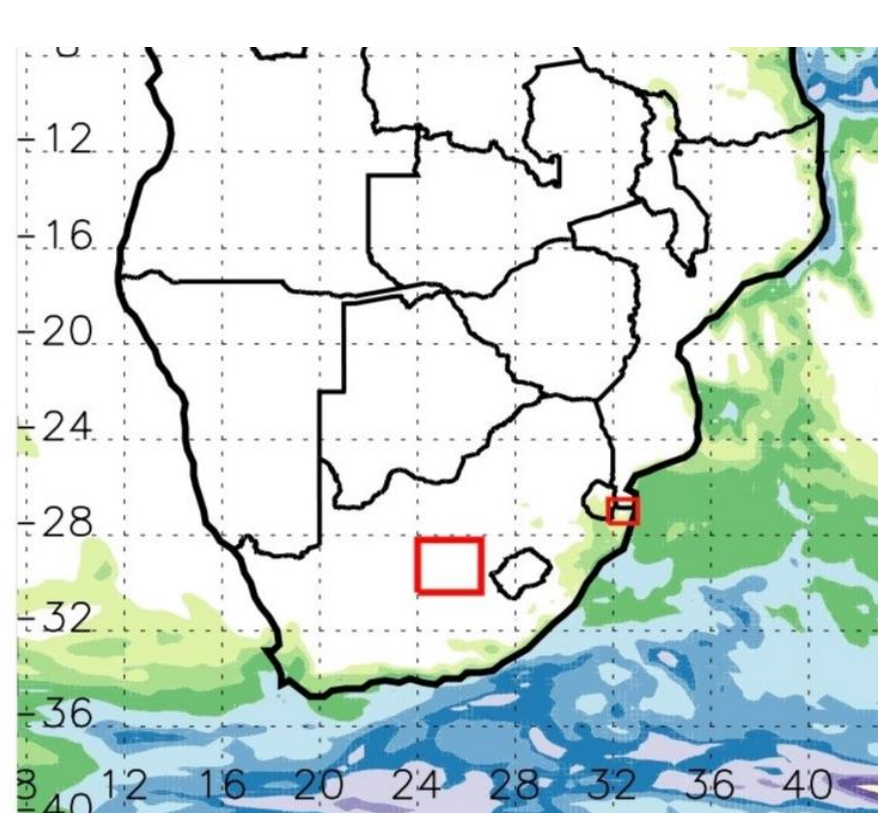


Figure 3. Climate and weather surveillance data. The red box denotes the study site.

## RESULTS

As an example of OH operationalisation:

- Improved **effectiveness** and efficiency for RVFV disease prevention and detection efforts.
- Technically skilled transdisciplinary workforce/capacity building.
- Increases in quality and quantity of field data collection contributing to the improved development of more inclusive disease risk models enhancing prediction and control strategies
- Increased communication efficiencies and information sharing.
- Better **resource efficiency and financial saving(2)** for investment and operating costs of joint human-animal-environmental studies.
- Identification of broader **socio-economic impacts** of RVFV, not previously captured in livestock-specific estimates alone.
- Establishment of tentative contact between provincial ministries and continued population specific awareness.



Figure 4. As an example of our communication and information sharing with communities, we developed the "Diseases Spread by Mosquitoes and Ticks" available in multiple languages intended to be distributed to prevent the spread of disease.

- Establishment of project level Public-Private Partnerships (**PPP**) across health sectors and industry to increase capacity for prevention and detection, preparedness and response to RVF outbreaks.
- Public sector responsibilities of disease control are met through these partnerships.
- The relationships and capabilities developed can be used for future engagements.
  - For example, responding to an animal health emergency or suspected outbreak (epidemiological investigation; ongoing vector surveillance; animal sampling and shipment) that exceeds the capacity of the public sector.
  - Effective prevention, control and eradication requires partnership.

From a scientific standpoint, this OH research has contributed significantly to more integrated overarching data with regards to the drivers of RVF infection at the human-animal-environmental interface.



Figure 5. Public-private partnership suspected outbreak investigation/control

## CONCLUSIONS

Research (project level) can be a leading force in cross-sectoral collaborations. Investment in surveillance and laboratory activities may be linked to research activities, and inter-sectoral dialogue and prioritization exercises for action may drive new research. Altogether, our findings validate several benefits of OH, including improved knowledge, skills and data quality, allowing for prioritisation of potential intervention points. An operational framework presenting a multi-sectoral approach to disease surveillance, diagnosis and response is required to mitigate and control further pandemics and ultimately protect local and global public health and goods and preserving the ecosystem to ensure sustainable health gains. Although focusing on a single disease, the potential for piggy backing additional like diseases (grouping diseases) can be more impactful and a better use of resources when included in community projects.

## ACKNOWLEDGEMENTS



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## MORE INFORMATION / REFERENCES

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