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RIFT VALLEY FEVER:
The State of the Diagnostic Landscape

ABOUT RIFT VALLEY FEVER

First identified in the Rift Valley of Kenya in 1931, Rift Valley Fever (RVF) is a cyclical disease, reemerging roughly every five to fifteen years. RVF is a viral disease that primarily affects domestic livestock – cattle, sheep, and goats – but that can occasionally infect humans[1]. The disease can be transmitted to humans through mosquitoes, but most cases in humans stem from exposure to the blood, milk, or organs of infected animals. There has never been a case of human-to-human transmission. Most human cases are asymptomatic or mild. However, a small proportion develop severe disease, including hemorrhagic fever, encephalitis, blindness, liver issues, and sometimes death.

An outbreak in East Africa in 1997 infected approximately 90,000 people and led to 500 deaths. In the last 50 years, outbreaks have been reported across all regions of Africa and as far away as Yemen (Fig. 1). The geographical spread of RVF is being impacted by warming temperatures.
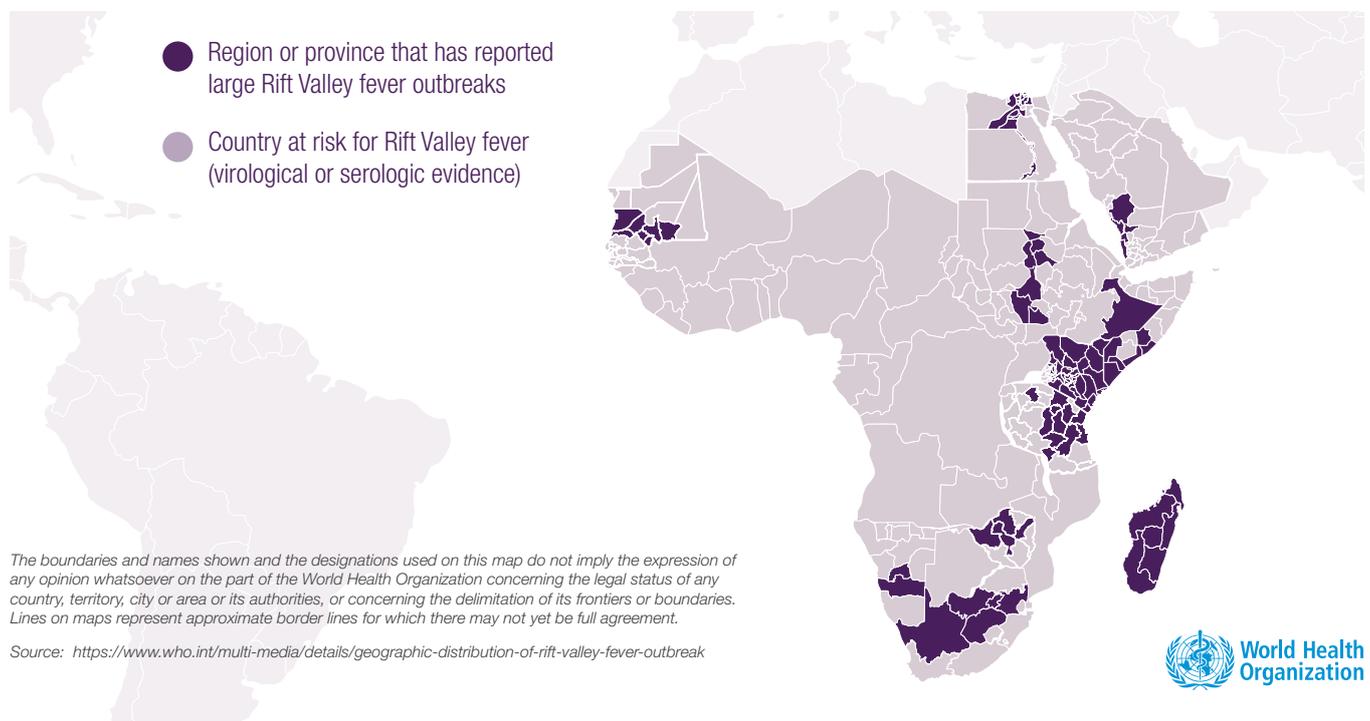
RECENT OUTBREAK

An outbreak of RVF was declared in Senegal in September 2025 and as of 30 October, the Senegal Ministry of Health had reported 358 confirmed human cases and 28 deaths (7.8% case fatality rate). In Mauritania, there were 46 confirmed human cases and 14 deaths reported as of 30 October (30% case fatality rate).[2]

Multiple active animal outbreaks have simultaneously been reported in both countries, highlighting the need for a One Health approach that integrates human, animal, and environmental surveillance to prevent and control future outbreaks.[4]

While RVF is endemic in these countries, the current outbreak across Senegal and Mauritania is unusual in both its magnitude and its severity.

Figure 1. Geographic distribution of Rift Valley fever outbreak in 2009 (source: WHO)

- Region or province that has reported large Rift Valley fever outbreaks
- Country at risk for Rift Valley fever (virological or serologic evidence)

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries. Lines on maps represent approximate border lines for which there may not yet be full agreement.

Source: https://www.who.int/multi-media/details/geographic-distribution-of-rift-valley-fever-outbreak

World Health Organization

DIAGNOSING RVF

In humans, it can be difficult to distinguish RVF from other infectious diseases such as malaria, yellow fever, and other viral hemorrhagic fevers. Being able to determine the cause of the disease is critical for individual treatment but is also key from the broader public health perspective, in order to support outbreak management, surveillance, and vaccine development.

In this current outbreak, an assessment carried out by the Food and Agriculture Organization (FAO) in conjunction with WHO and the World Organisation for Animal Health (WOAH) identified three key diagnostic challenges[5]:

1. a shortage of laboratory diagnostic supplies,

2. limited RVF testing capacity in district and regional labs, and

3. insufficient community-based surveillance to support early case detection.

Figure 2. Distribution of a total of 32 RVF test suppliers by country

Number of test suppliers by country

© *Australian Bureau of Statistics, GeoNames, Microsoft, Navinfo, Open Places, OpenStreetMap, Overture Maps Foundtion, Tom Tom, Zenrin*

DIAGNOSTIC LANDSCAPE FOR RIFT VALLEY FEVER (source: FIND DxConnect test directory)

In July 2025, FIND conducted a landscape of commercial diagnostics tests for RVF covering laboratory and point-of-care (POC) settings. This analysis identified 32 RVF test suppliers (Fig. 2), all of which are listed in FIND's DxConnect test directory, which provides a database of all available tests and suppliers globally.[6] The test directory can also be used as a tool to mitigate shortages of diagnostics by providing decision-makers with information regarding potential alternative diagnostics.

In all, 55 commercial RVF diagnostic kits currently on the market were identified for human testing: 33 immunoassays (including 1 POC) and 22 molecular tests (all laboratory based). Only eight products (all PCR kits, self-certified CE-IVDD) had received regulatory certification, while the majority were indicated for research use only (RUO) (Fig. 3).

Focusing specifically on POC technologies, twelve new RVF diagnostics being developed were identified from the literature (Fig. 4): eight POC PCR or isothermal molecular tests and four lateral flow assay (LFA) tests. One method for near-POC RNA extraction was also identified. However, these tests are unlikely to reach the market for several more years.

In summary, there is currently only one diagnostic tool available for use in POC settings, and it lacks performance and regulatory data (Fig. 3). As many cases of RVF occur in rural and isolated areas, a POC test is a critical tool in controlling outbreaks.

Figure 3. Summary of RVF tests on the market with their regulatory status

		REGULATORY APPROVED	RESEARCH USE ONLY (RUO)	UNKNOWN REGULATORY STATUS
Immunoassays	Lab-based	0	31	1
	POC	0	0	1
Molecular tests	Lab-based	8	12	2
	POC	0	0	0

ONE HEALTH APPROACH

Because of the animal-to-human transmission pathway for RVF, it is important to also take into consideration diagnostics for animals through a One Health approach. The key to stopping outbreaks such as the current cases in Senegal and Mauritania is through surveillance of domestic livestock, with controlled culling of infected animals. The most effective approach to preventing RVF in humans and animals is to vaccinate at-risk animals before outbreaks occur.[5] No human RVF vaccines are currently available, with only candidates in early-stage development.[7]

While FIND's DxConnect Test Directory focuses on diagnostic tests for humans, the critical role of animals in RVF and the lack of human POC tests led us to perform a quick, non-comprehensive scan of commercial RVF test kits specifically labeled for veterinary use and mosquito surveillance.

There are a number of laboratory-based immunoassays and molecular tests available for animal testing, along with at least three POC immunoassays. There is also at least one POC molecular test reported for livestock, although its current commercial status is unclear. In addition, at least one commercial POC immunoassay exists for detecting RVF in mosquitoes.

GAPS IN DIAGNOSTIC READINESS

The FIND RVF diagnostic landscape revealed key gaps in diagnostics readiness:

- The majority (54) of lab-based RVF tests **lacked essential performance data**.

- **No independent evaluations of commercial RVF tests for human use were found,** although eight studies on tests developed for animal use have been published.

- To date, there is only **one POC test currently available** – an antigen-based LFA for which there is no performance or regulatory information.

- Development of new diagnostics for RVF is hindered by the **lack of target product profiles (TPP)**, which would guide developers as to the standards and testing conditions that any such diagnostic test would be expected to meet.

Figure 4. Global RVF landscape overview

*Based on a best-effort review of publicly available information and exchanges with selected manufacturers
** Investigation for in-house tests was focused on POC tests
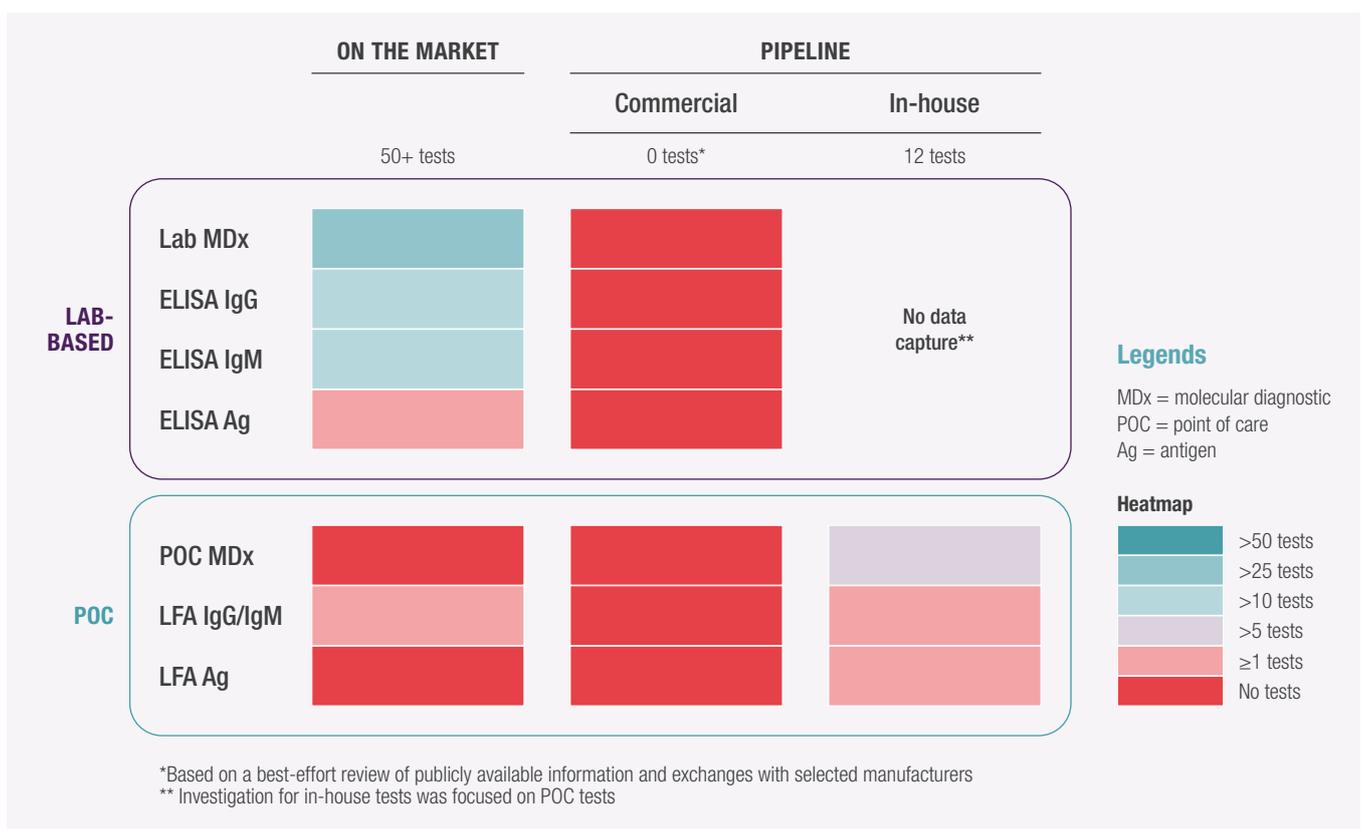
RECOMMENDATIONS

To overcome these critical gaps, FIND recommends:

- that formal TPPs for RVF be developed that incorporate REASSURED criteria and are tailored to the highest-priority RVF use cases, informed by the gaps identified in this landscape analysis

- that an independent evaluation of commercial RVF diagnostic assays be carried out

- working with national and regional health authorities to obtain regulatory approval for commercial RVF diagnostics that meet the TPP criteria

- that innovation and investment in new POC tests be encouraged to expand diagnostic access in peripheral and field settings

Climate change and its impact on RVF

RVF is a significant and growing concern as a climate-sensitive zoonotic disease, with its spread driven by ecological changes like rising temperatures and shifting rainfall. RVF is included as a priority pathogen in both the WHO R&D Blueprint for Epidemics and the Africa CDC priority pathogen list.

In response, WHO established a dedicated **Collaborative Open Research Consortium (CORC) focused on RVF** (the Phenuiviridae CORC) to strengthen RVF diagnostic capacity and advance research. The FIND Pathogen Diagnostics Readiness Index (PDxRI), which assesses diagnostic preparedness for 21 pathogens, is also being reviewed to include RVF.

DxConnect test directory

FIND maintains DxConnect test directory, a searchable, open-access directory of diagnostic tests across multiple diseases. The test directory increases visibility of the global diagnostic landscape by providing actionable information on in vitro diagnostic (IVD) products, helping the global health community make informed decisions to address diagnostic gaps in low- and middle-income countries.

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Acknowledgements