CEPI

RVF Epidemiology and Modelling Workshop
Nairobi, 4–5 June 2024

Attendees

Abdallah M. Samy	Luke Nyakarahuka
Alemseged Abdissa	M. Kariuki Njenga
Angela Ndiu	Mark Otiende
Assaf Anyamba	Martin Groschup
Bachirou Tinto	Mathew Muturi
Baratang Alison Lubisi	Maureen Kamau
Bernard Bett	Mike Tildesley
Brian Bird	Ndeye Sakha Bob
Carine Punt	Njoki Kimani
Carolin Vegvari	Paul Oloo
Christina Spiropoulou	Paul Wichgers Schreur
Christophe Fraser	Peter Hart
Dadi Marami	Peter Thompson
Dick Luyimbazi	Petra Fay
Gabrielle Breugelmans	Pierre Formenty
Grace Mwangoka	Pranav Pandit
Heidi Sneddon	Quirine ten Bosch
Ilona Gluecks	Radhika Gharpure
Jakob Cramer	Rebekah Kading (pre-recorded)
James Heighway	Richard Njouom
Janusz Paweska	Rosemary Njogu
Jeanette Dawa	Samuel Kerama
Jess Clark	Samuel Oyola
Jochen Auerbach	Sarah Cleaveland
Joel Montgomery	Sean Moore
John Gitonga	Seda Tezcan-Ulger
John Juma	Serge Nzietchueng
Juan F Vesga	Sherry Ama Mawuko Johnson
Julius Lutwama	Silvia Situma
Keli Gerken	Volker Gerdts
Lodovico Paganini (pre-recorded)	Yewande Alimi
Lucille Blumberg	

Report drafted by: Radhika Gharpure, Carolin Vegvari, Peter Hart (CEPI)

Executive Summary

Rift Valley Fever (RVF) is a zoonotic, vector-borne viral disease that has caused outbreaks across Africa, Indian Ocean islands, and the Arabian Peninsula. RVF leads to abortions and deaths in livestock, can cause severe disease and death in humans, and can have profound effects on peoples' lives and livelihoods. Therefore, RVF is considered a priority by multiple international organizations such as the World Health Organization, Food and Agriculture Organization of the United Nations, World Organization for Animal Health, and the US Centers for Disease Control and Prevention. No RVF vaccine is currently licensed for use in humans; incomplete understanding of RVF epidemiology and the unpredictable nature of RVF outbreaks pose major challenges to planning late-stage clinical trials and identifying suitable pathways for licensure for human RVF vaccines.

This 2-day workshop brought together public health and animal health experts, researchers, epidemiologists, modelers, regulators, funders, and decision-makers to discuss advances and gaps in epidemiology and modelling specifically relevant to human RVF vaccine development.

Workshop objectives were:
- Better understand RVF epidemiology with consideration of recent findings and regional perspectives and how epidemiology can inform vaccine efficacy studies;
- Explore epidemiological modelling for RVF outbreak prediction and efficacy study planning;
- Facilitate collaboration and knowledge sharing among global experts and the RVF research and decision-making community; and
- Inform on CEPI's upcoming, July 2024 RVF Epidemiology and Modelling Call for Proposals.

Key findings/priorities identified during the workshop were:
1. **Looking beyond outbreaks:** We need to better understand the complex ecology of the virus, including interepidemic maintenance, endemicity/hyperendemicity in geographies that might serve as sites for future clinical trials, and predictors of outbreak occurrence, particularly in the context of climate change.
2. **Better data for better models:** Modelling can be a valuable tool to characterize the public health impact and outbreak potential of the virus, evaluate intervention strategies, and simulate optimal clinical trial approaches. However, models rely on accurate and representative input data.
3. **New, improved, and accessible diagnostics:** There is a need for validated diagnostics, including point-of-care screening tests and Differentiating Infected from Vaccinated Animals (DIVA) assays, to better characterize the burden and spectrum of RVF disease. Improved diagnostics will benefit surveillance and address epidemiologic data gaps.
4. **Defining human vaccine use cases**: While new human vaccine candidates show potential in early phase clinical trials, unanswered questions remain about the use case for human vaccines, regulatory pathways, manufacturing, procurement, equitable access, and delivery strategies, including demand for and deployment of human vaccines in the context of animal RVF vaccination.
5. **People-centered approaches:** Early engagement of social scientists and local communities will be needed to assess local perceptions and inform the use case, as community acceptance is critical for the success of RVF vaccine trials and implementation.

Ultimately, RVF is a prototypical One Health pathogen, requiring a multidisciplinary approach to prevention and control. RVF is a global public and animal health priority and is considered a priority by Africa CDC and many countries on the African continent, largely due to its potential to cause substantial economic losses. Successful interventions will require continued engagement with high-level government stakeholders and communities.

Opening remarks

Gabrielle Breugelmans (CEPI)
Yewande Alimi (Africa Centres for Disease Control and Prevention, Ethiopia)

Drs. Breugelmans and Alimi opened the meeting and welcomed the participants on behalf of CEPI and Africa CDC. Both speakers noted the importance of a One Health approach to RVF, bringing together different disciplines in a multisectoral, transdisciplinary approach. Dr. Breugelmans commented on the fitting setting for the meeting, in the country where RVF was first discovered in 1931. Despite considerable advances in understanding the virus, it continues to pose a risk for outbreaks, particularly in the face of the changing global climate. Thus, this workshop is an opportunity to convene experts for fruitful discussions and innovative ideas, and to harness the power of epidemiology and modelling for addressing RVF knowledge gaps.

Dr. Alimi noted that many countries in the region, as well as the Economic Community of West African States, have listed RVF as a priority disease, due to the high disease and economic implication. She also noted the importance of addressing the science-policy interface, including how epidemiology/modelling findings can guide resource prioritization, as well as the need for equitable access to future vaccines.

Session 1: CEPI RVF activities and vaccine development projects

Petra Fay (Wellcome Trust) – Chair
Peter Hart (CEPI) – *CEPI's RVF Activities*
Paul Wichgers Schreur (Wageningen University, Netherlands) – *LARISSA vaccine project*
Brian Bird (University of California, Davis, USA) – *DDVax vaccine project*

Dr. Hart opened the session by providing an overview of the two CEPI-funded live-attenuated RVF vaccine candidates, as well as the broader RVF vaccine landscape. He noted that no new RVF vaccines are in late-stage vaccine clinical trials, largely due to the cost and complexity of planning for these studies. Although the current CEPI target is to advance RVF candidate vaccines through phase 2a, strategic discussions are ongoing about the potential scenarios and implications of moving vaccines through efficacy studies and potential licensure.

Dr. Schreur presented an overview of Wageningen's progress to date on a live-attenuated hRVFV-4s vaccine. The vaccine has been shown to be safe in rodents, ruminants, and non-human primates, efficacious in young and pregnant ruminants, and well-tolerated in the phase I study among naive volunteers in Belgium, with mild and transient side effects common to routinely administered vaccines Immunogenicity studies showed anti-nucleocapsid antibodies in most individuals (with dose-response) and decline by 1 year after vaccination. Additional non-clinical studies, epidemiology/modelling activities, and a phase II study for safety/immunogenicity (possibly including a booster extension) are planned in the LARISSA II project. Epidemiological and Modelling data gaps identified by Dr. Schreur included: lack of robust local and regional data on mosquito vectors (including density and vector control measures) and human/animal case burden data, the use of antibody titers as a proxy for efficacy in phase III trials, risk of human infection by occupation/exposure, the use of adaptive/reactive outbreak study designs, clinical endpoints and secondary outcomes prevented by vaccination, and opportunities for supplementary data collection during outbreaks (e.g., entomology and qualitative surveys).

Dr. Bird presented an overview of the live-attenuated DDVax vaccine and progress to date. Active goals for the development team include Good Manufacturing Practice (GMP) manufacture, phase I and II

clinical trials planned in Tanzania, ongoing human, animal, and vector surveillance activities within Tanzania, immunologic assay development, and qualitative survey work. The DDvax vaccine has also been safe and efficacious in a variety of animal species including rodents, pregnant and non-pregnant ruminants, and non-human primates. Dr. Bird also described collaborations with the Ifakara Health Institute and their Bagamoyo Clinical Trial Facility in Tanzania, and efforts to conduct longitudinal surveillance for RVF in Central Tanzania, including detection of ongoing enzootic transmission in humans, animals, and livestock. Unanswered questions identified by Dr. Bird included identifying endemic/hyperendemic zones for future vaccine efficacy studies, changes in pathogenesis of the virus over time, the prevalence of maternal/fetal complications in pregnant persons as well as impact in immunocompromised persons, the complex ecology and ecological drivers of RVF maintenance during interepidemic periods, modelling outbreak triggers, and optimizing the use and deployment of future vaccines.

Question and answer (Q&A) discussions focused on how human vaccine development can learn from animal vaccines, differences between the two vaccines, including removal of an additional virulence gene, evaluation of immune protection beyond 2 years, genetic similarity of the vaccine virus strains to circulating RVF, and operational/logistical issues (costs, issues, access) for getting vaccines licensed in Africa.

Session 2: RVF epidemiology and regional perspectives

Gabrielle Breugelmans (CEPI) – Chair
Keli Gerken (University of Liverpool, UK) – *A review of RVF epidemiology from 1999–2021*
John Juma (International Livestock Research Institute, Kenya) – *RVF Genomic Epidemiology*
Kariuki Njenga (Washington State University, Kenya) – *East Africa regional perspective*
Janusz Paweska (National Institute for Communicable Diseases [retired], South Africa) – *Southern Africa regional perspective*
Ndeye Sakha Bob (Institut Pasteur de Dakar, Senegal) – *West and Central Africa regional perspective*
Seda Tezcan-Ulger (Mersin University, Turkey) – *Europe and Middle East regional perspective*

Dr. Gerken provided an overview of the CEPI-sponsored systematic literature review (https://doi.org/10.1371/journal.pntd.0009852) describing evidence and knowledge gaps in RVF epidemiology, as relevant for the design of vaccine efficacy studies. Dr. Gerken described an increase in the number of RVF outbreaks occurring in more locations in recent years; however, it is unclear whether this represents a true shift in epidemiology or increased detection. Additional challenges include the sporadic availability of RVF data, a narrow window to identify viremia after infection, and difficulties in the interpretation of ELISA/serology. Dr. Gerken also described unanswered questions regarding the maintenance of RVF during interepidemic periods, challenges in identifying animal cases in the absence of systematic surveillance, and challenges in ascertaining human risk and clinical severity by exposure type. The presentation emphasized that data gaps must be filled to inform modelling efforts and can thus identify priorities for field data collection. Questions to Dr. Gerken during the Q&A included how differences in clinical outcomes and exposures might affect clinical trial planning, and the importance of making diagnostics, such as point-of-care screening tests, accessible in RVF-endemic areas.

Dr. Juma presented on genomic epidemiology efforts for RVF, and the potential for genomic epidemiology to answer questions about the evolutionary dynamics of virus variants, transmission dynamics such as directionality of infection, and vaccine relevance of different circulating strains. Dr. Juma described the development of a lineage classification tool, and phylogenetic analyses comparing circulating strains to each other and to vaccine strains. Additionally, Dr. Juma described results of overlaying environmental and phylogenetic data, with the intent to inform outbreak prediction and

intervention design. The presentation emphasized that genomics may shed light on the changing ecology of the RVF virus, thereby informing vaccine development. Q&A questions included if climate might have affected the dominance of certain viral lineages, whether animal vaccination might explain the decline in RVF genetic diversity, and how best to account for potential correlation between multiple environmental variables in future modelling efforts.

Regional perspectives on RVF were presented by Drs. Njenga (East Africa), Paweska (Southern Africa), Bob (West Africa), and Tezcan-Ulger (Turkey). Dr. Njenga emphasized the importance of understanding the cryptic maintenance cycle of RVF for predicting outbreaks, and that the number of clusters in East Africa has increased since 2008, largely corresponding to increases in temperature and rainfall in highland regions. Additionally, Dr. Njenga described the uniquely high level of sustained RVF transmission in southwestern Uganda, which could potentially serve as a site for future vaccine efficacy studies. Dr. Paweska presented on RVF outbreaks in South Africa, where the interval between major outbreaks is approximately 20-30 years, and most case patients report direct contact with infected animals. Additionally, he emphasized that multiple laboratory tests are necessary for laboratory confirmation of RVF infection, depending on the timing of specimen collection. In Dr. Ndeye's presentation, she described that there is still relatively limited information on the epidemiology of RVF in West Africa, but that there appear to be an increasing number of outbreaks over time, with major outbreaks in Mauritania and possibly Niger, and minor outbreak or sporadic cases in Senegal and possibly Mali. Finally, Dr. Tezcan-Ulger presented on evidence for the low-level enzootic RVF circulation and transmission documented in livestock in various regions of Turkey, based largely on serologic data, as well as studies documenting positive serology in persons. Q&A discussion points for the regional presenters included the importance of using validated ELISA assays and/or other confirmatory testing, and where/how to look for maintenance of the virus in interepidemic periods, to inform potential vaccine trial site selection.

Session 3: Modelling for outbreak prediction and clinical trial planning

Sean Moore (University of Notre Dame, USA) – Chair
Assaf Anyamba (Oak Ridge National Laboratory, USA) – *Modelling/prediction of RVF outbreaks*
Christophe Fraser (University of Oxford, UK) – *Modelling for clinical trial planning*

Dr. Anyamba presented on models using global scale climate data (e.g., rainfall patterns) and other inputs (livestock and human density, vegetation and land use, and temperature) to predict RVF outbreak occurrence. Dr. Anyamba discussed the utility of using anomalies in satellite-based climate data to act as a proxy for disease vector proliferation and consequent RVF disease incidence, as extreme changes in precipitation/temperature in either direction can affect RVF emergence and spread. Model challenges include the sparsity of RVF outbreak data, as well as unknown baseline immunity among livestock in affected regions. Questions to Dr Anyamba from the audience explored the utility of additional data sources (e.g., human movement patterns from cell phone data, geography-specific rainfall thresholds, and livestock density inputs from FAO datasets).

Dr. Fraser presented on the utility of simulations to improve clinical trials, and specifically on the Prepare by Simulations and Trial Optimization (PRESTO) initiative for clinical trial modelling. The PRESTO simulation tools will allow for comparison of different study types (e.g., individual vs. ring-cluster randomized control trial), clinical endpoints, and design characteristics (e.g., sample size, randomization technique) using factors such as generation time, disease severity, population characteristics, transmission patterns, and clinical outcomes. Questions from participants focused on potential use of these tools for RVF vaccine clinical trial design, including specifics of the diagnostic

performance indicator inputs, and whether tools could also model therapeutic clinical trials, possibly nested within vaccine efficacy trials.

Session 4: Regulatory considerations for RVF vaccine trials

Jochen Auerbach (CEPI) – Chair
Samuel Kerama (Pharmacy and Poisons Board, Kenya) – *Perspective of African regulators*
Lodovico Paganini (Swissmedic, Switzerland) – *Swissmedic MAGHP procedure (pre-recorded)*

Dr. Kerama presented on regulatory considerations for vaccine development in the Kenyan context. For pathogens with unpredictable outbreaks and for which there can be difficulties obtaining sufficient cases for traditional efficacy trials, potential solutions can include adaptive study designs, use of surrogate endpoints, pooling of data from multi-region trials, use of modelling/simulations, and/or retrospective case-control analyses. Dr. Kerama also discussed the possibility of expediting country-specific regulatory timelines by reviews and coordination from regional platforms such as the East Africa Community (EAC), Intergovernmental Authority on African Development (IGAD), or Africa Vaccine Regulatory Forum (AVAREF), as well as the importance of including locally collected data (rather than external data) for ethics and relevancy considerations. Finally, Dr. Kerama discussed next steps including capacity building for both regulators and researchers, development of master protocols for adaptive studies, development of information sharing platforms, regulatory reliance strengthening, and consideration of One Health approaches.

Dr. Paganini delivered a recorded talk on the Marketing Authorization for Global Health Products (MAGHP), a process intended to facilitate and speed up the granting of national marketing authorizations. MAGHP focuses on sub-Saharan Africa and applies to products with a new active pharmaceutical agent (API), new indication, or known API. The MAGHP processes are facilitated by Swissmedic, in coordination with national regulatory agencies and the WHO HQ Disease Programmes who get access to information, provide input, and participate in meetings. MAGHP is intended to build trust/confidence in the regulatory process, build capacity at the NRAs, and facilitate timely national marketing authorizations based on well-informed reliance.

Dr. Auerbach concluded the session by highlighting that pathways to licensure for RVF vaccines should consider the quickest deployment where the highest need is. Decisions about regulatory pathways should include engagement and alignment with experts/stakeholders and consideration of the use-case (e.g., preventive vs. reactive vaccination). Potential basis for licensure or emergency use authorization/listing could be efficacy data from a randomized controlled trial or data generated by applying a correlate/surrogate of protection. In the latter case, post approval real-world evidence data will usually be required. Depending on the vaccine deployment strategy, vaccine stockpile availability and data generation feasibility, efficacy data could also be generated during an outbreak using an adapted pre-reviewed outbreak response protocol. Dr. Auerbach highlighted the potential role for CEPI to act as a facilitator in identifying regulatory bodies, supporting developers to plan engagement and generate the regulatory strategy, conducting use-case and regulatory workshops, and supporting capacity building for regulators with focus on clinical development and vaccine manufacturing oversight related aspects.

Topics raised during the Q&A included opportunities to leverage human vaccination efforts to advance improved animal vaccines and vice versa, the trigger points for determining whether a classical efficacy trial (vs. a data generation based on surrogates/correlates of protection) is feasible for RVF vaccine, the importance of accurately capturing the burden of RVF disease to inform the potential public health impact and efficacy trial feasibility, and the feasibility of getting outbreak protocols pre-approved in the African regulatory context.

Session 5: One Health

Pierre Formenty (World Health Organization, Switzerland) – Chair
Abdallah Samy (Ain Shams University, Egypt) – *Ecological/climate-based modelling for RVF*
Bachirou Tinto (Institut National de Sante Publique, Burkina Faso) – *One Health considerations for RVF control*
Rebekah Kading (Colorado State University, USA) – *Enotmology/vector ecology for understanding RVF*
Alison Lubisi (Agricultural Research Council - Onderstepoort Veterinary Institute, South Africa) – *Wildlife serology as an RVF tool*
Bernard Bett (International Livestock Research Institute, Kenya) – *Livestock health and implications for RVF transmission*
Sarah Cleaveland (University of Glasgow, UK) – *RVF social considerations relevant to vaccination*

Dr. Formenty opened the session by highlighting the significant, long-lasting economic impacts of RVF, for example on the economy of Somalia following a 1997 RVF outbreak that resulted in substantial economic instability and hardship. Dr. Formenty highlighted that RVF outbreaks are first and foremost animal health emergencies, with human cases as the tip of the iceberg, and that a long-term solution will require high-level government engagement and an integrated One Health strategy that includes a safe, immunogenic, and affordable RVF animal vaccine.

Dr. Samy presented on ecological modelling efforts aimed at describing the current and potential distribution of the RVF virus and transmission hotspots, using input data on RVF case distribution, vegetation, human accessibility, and livestock density. Dr. Samy discussed the potential of these modelling approaches to assess the virus-vector and virus-host overlaps in space and time to infer RVF epidemic risk when surveillance data is lacking. Dr. Samy highlighted that modelling can predict the distributional potential of the virus under climate changes and identify hotspots for vaccination, surveillance, and vector control programs; however, the utility of results depends on the resolution of the model and in turn on data availability. Dr. Samy also presented an overview on phylogenetic analyses of RVF virus to infer historical movement patterns across its geographic range and emphasized the importance of integrating regional and international efforts on RVF modelling and genomics to provide a detailed picture of the virus dynamics and evolution.

Dr. Tinto presented on One Health considerations for RVF, including the need for One Health approaches for surveillance, prevention, diagnosis, and discovery of vaccines/therapeutics. The "One Health" concept considers that human, animal, and environmental health are closely linked, and thus consideration of mosquito vector biology, climate, livestock and wildlife health, and human health simultaneously is important for early detection, monitoring, and control of RVF.

Dr. Kading delivered a recorded talk on vector ecology, highlighting that many different mosquito species are capable of transmitting RVF (i.e., vector competence); however, it is also important to understand vectorial capacity based on characteristics such as vector/host density, lifespan, survival, biting rate, and viral incubation period. Dr. Kading highlighted the following gaps/opportunities for RVF vector ecology research: vector surveillance and control strategies; vector invasion/expansion potential; vector competence/vectorial capacity; vertical transmission; potential interaction with other viruses (e.g., other phleboviruses); and mosquito immunity and mechanisms of infection.

Dr. Lubisi presented on the potential role of wildlife immunology for informing RVF research and vaccine development. As wildlife can be naturally infected during RVF outbreaks, generally have subclinical infection, and are genetically similar to clinically susceptible livestock, they might serve as non-traditional animal models for understanding naturally occurring, non-severe disease. Dr. Lubisi highlighted outstanding questions about which wildlife species might serve as reservoirs, procedures

for studying free-ranging wildlife, lack of laboratory diagnostic tests for use in wildlife, and lack of data to characterize wildlife immune response.

Dr. Bett discussed data on the incidence/temporality of RVF infections in livestock, and how these might impact efficacy trial design for human RVF vaccines. Dr. Bett discussed that differences in livestock production systems, population structures, and settings (e.g., peri-urban vs. pastoral) can result in differences in risk for RVF exposure; additionally, factors such as animal movement, stress, nutrition, and coinfection can influence immunity and infection risk in livestock. These characteristics in livestock production/health should be considered in the design of future clinical trials as they impact disease transmission and human infection risk.

Dr. Cleaveland highlighted social and community considerations relevant to RVF research and potential vaccine trials, drawing on prior qualitative evaluations and lessons from other diseases. Dr. Cleaveland highlighted the importance of involving social scientists to drive community engagement during the development of RVF vaccines and described the broad-ranging importance of livestock in many communities (e.g., providing food security, social capital, income, and health/wellbeing). The presentation covered multiple social science considerations for RVF vaccination, such as evaluating perceptions about offering both human/animal vaccination, the potential for integrated vaccine delivery, and the importance of end-to-end engagement and trust to ensure vaccine confidence.

Discussion during the Q&A session focused on how best to integrate efforts for human and animal RVF vaccination, lessons learned from challenges with rabies vaccination, how to account for mosquito density (in addition to human and animal density) when planning future clinical studies, how to begin planning community engagement/qualitative work to inform the use case, and strategies for data sharing and collaboration across sectors/settings, including for global sequencing data.

Session 6: RVF epidemiology and modelling priorities for vaccine efficacy studies

Chairs:
Jacob Kramer (CEPI) – Co-chair
Grace Mwangoka (Ifakara Health Institute, Tanzania) – Co-chair

Panelists:
Lucille Blumberg (National Institute for Communicable Diseases [retired], South Africa)
Sherry Johnson (University of Ghana, Ghana)
Julius Lutwama (Uganda Virus Research Institute, Uganda)
Mathew Muturi (Center for Epidemiological Modelling and Analysis, Kenya)
Juan Vesga (UK Health Security Agency, UK)

In this panel, the participants and audience members discussed gaps in epidemiology, modelling, and social sciences relevant to developing a use case and planning late-stage clinical trials for future RVF human vaccines. Participants debated whether reactive (vaccination campaigns in response to outbreaks) or preventive (integration into routine immunization) vaccination strategies would be a better use of the vaccine, given current understanding of RVF epidemiology; both strategies might have unique advantages and challenges in terms of cost, feasibility, and uptake. Additionally, the panel discussed considerations for selecting relevant clinical endpoints (e.g., infection vs. severe disease) and the potential for using existing animal models for correlates of protection. Other discussion points included: (1) understanding whether vaccination could decrease the size of an RVF outbreak; (2) defining risk prediction methods and triggers for reactive vaccination; (3) investigating the role of prior infection and the duration of immunity; (4) better characterizing symptomatology, including mild or subclinical

illnesses, to inform a clinical case definition; (5) describing clinical characteristics and outcomes of coinfections with other common pathogens, including malaria; (6) standardizing vs. adapting the vaccine use case across different settings; (7) the importance of accurate, commercially-available validated diagnostic assays; and (8) parameters that should be considered in designing a clinical trial (e.g., incidence and attack rate, animal vaccination status) and the uncertainty regarding whether such a trial would be feasible for RVF.

Epidemiology and modelling showcase

Quirine ten Bosch (Wageningen University, Netherlands)
Jessica Clark (University of Glasgow, UK)
Juan Vesga (UK Health Security Agency, UK)
Volker Gerdts (University of Saskatchewan, Canada)
Keli Gerken (University of Liverpool, UK)
Sarah Cleaveland (University of Glasgow, UK)
Silvia Situma (Washington State University, Kenya)
Dadi Marami (Swiss Tropical and Public Health Institute, Ethiopia)
Sherry Johnson (University of Ghana, Ghana)
Bachirou Tinto (Institut National de Sante Publique, Burkina Faso)
Peter Thompson (University of Pretoria, South Africa)
Mike Tildesley (Warwick University, UK)
Pranav Pandit (University of California, Davis, USA)
Luke Nyakarahuka (Uganda Virus Research Institute, Uganda)
Martin Groschup (Friedrich Loeffler Institut, Germany)

This session allowed workshop participants to showcase existing epidemiology and modelling efforts relevant to RVF vaccine development, with the intent of sharing ideas, data sources, and methods to develop future collaborative, multidisciplinary approaches for addressing RVF research gaps.

Showcase participants gave short presentations on various topics relevant to RVF epidemiology, modelling, and laboratory testing. Epidemiology and surveillance topics included seroprevalence studies, descriptive epidemiology and clinical spectrum of cases, sample collection and biobanking for humans and animals (including vector species), and innovative approaches to sampling and surveillance. Modelling topics included RVF spillover and outbreaks, interepidemic transmission, clinical trial design and feasibility, host competency and reservoirs, climate impacts on risk distribution, and optimal deployment strategies for vaccination. Laboratory topics included a presentation about high-containment capacity for animal models and GMP, as well as the importance of point-of-care assays and other diagnostics validated with external quality assessment studies.

Overall, participants expressed enthusiasm for future collaborations to continue advancing the evidence base for RVF prevention and control. Showcase presenters, topics, and presentations will be shared in a repository to facilitate collaboration with potential partners not in attendance at the workshop; this information will be shared in conjunction with the RVF July webinar (details below).

CEPI Call for Proposals: RVF epidemiology and modelling

Carolin Vegvari (CEPI)

This session provided a short overview of a CEPI Call for Proposals (CfP) planned to launch in July 2024. The CfP will support new or existing RVF Epidemiology and Modelling consortia to answer key research gaps on the feasibility of RVF vaccine efficacy studies using existing data and/or samples.

Additional information about the CfP was shared on an upcoming webinar hosted by the Global Health Network, titled "Rift Valley Fever – Epidemiology and Modelling for Vaccine Development" on Monday, July 8, 2024, at 16:30-17:30 (London). The webinar covered RVF epidemiology, knowledge gaps that impede the development of RVF vaccines for human use, and details about the upcoming CfP. The recording is available at: https://www.youtube.com/watch?v=urTM3p_dfG8.