



**REPORT OF THE VIRTUAL MEETING OF THE OIE AD HOC GROUP
ON RIFT VALLEY FEVER
14 to 18 June 2021**

A virtual meeting of the OIE *ad hoc* Group on Rift Valley fever (hereafter the Group) was held from 14 to 18 June 2021.

1. Opening

On behalf of Dr Monique Eloit, Director General of the OIE, Dr Matthew Stone, OIE Deputy Director General for International Standards and Science, welcomed and thanked the Group for its commitment and the extensive support towards the OIE mandates. Dr Stone acknowledged that Rift Valley fever (RVF) is a complex disease having significant implications for both human and animal health, and is therefore a good model for implementing the One Health approach.

Dr Stone explained that the objective of the meeting was to develop up-to-date science-based recommendations to revise OIE *Terrestrial Animal Health Code (Terrestrial Code)* Chapter 8.15 ‘Infection with Rift Valley fever virus’, in particular to provide improved guidance to Members on surveillance and notification requirements.

Dr Stone emphasised that the members of the Group were nominated by the Director General of the OIE according to their internationally recognised expertise and geographically balanced representation. He noted that all members of the Group were asked to declare any actual or potential conflict of interest and respect the confidentiality of the process.

The Group was advised that *Terrestrial Code* Chapter 8.15 was under revision and was circulated for Member comments after the February 2020 Specialist Commissions meetings.

2. Adoption of the agenda and appointment of chairperson and rapporteur

Dr Gideon Brückner was appointed Chair and the OIE Secretariat acted as rapporteurs. The Group endorsed the proposed agenda.

The terms of reference, agenda, and list of participants are provided as [Appendices I, II and III](#), respectively.

3. Recovery of disease freedom

Dr Gideon Brückner noted the importance of reviewing Chapter 8.15 and reminded the Group that the Chapter is supported by other horizontal chapters of the *Terrestrial Code*, particularly Chapters, 1.1, 1.4 and 1.5. Dr Etienne Bonbon, president of the Terrestrial Animal Health Standards Commission, outlined the key points in these chapters and noted that with the current recommendations, countries are unable to recover freedom in fewer than 10 years following an incursion. The Group noted that the key question was not whether it was possible to eradicate the disease/infection, but rather the timeframe that would be needed using active pathogen-specific surveillance, to demonstrate absence of infection. The Group acknowledged the complex epidemiology of Rift Valley fever virus (RVFV), particularly virus transmission and the variability in inter-epizootic periods. It was noted that, while theoretically it may be possible with active pathogen-specific surveillance in susceptible hosts and vectors to gather evidence of virus circulation, the complex epidemiology, including the role of

ecological factors, vectors and wildlife, and the variation in the epidemiology of the disease between countries made it difficult to demonstrate absence of virus circulation.

It was also noted that, to date, there has been no scientifically documented situation where an incursion had occurred, and freedom recovered in fewer than 10 years. The Group concluded that there was insufficient scientific evidence to support adding an article on fast recovery of freedom to the chapter, and recommended that the current guidance in the chapter remain unchanged.

4. Risks posed by semen (draft Article 8.15.9. ‘Recommendations for importation of semen and in vivo derived embryos of susceptible animals from countries or zones infected with RVFV’)

The Group reviewed available literature and discussed in detail the risk posed by semen. The Group noted that there was insufficient scientific evidence in the literature to indicate that semen remains infective following recovery of infected animals. The Group concluded that the risk mitigation recommendations in the current article should be sufficient to prevent disease transmission. However, the Group acknowledged the gap in available information and strongly recommended that new information on the risk of RVFV in semen is taken into consideration should this become available.

4.1. Literature

1. Haneche F., Leparc-Goffart I., Simon F., Hentzien M., Martinez-Pourcher V., Caumes E. & Maquart M. (2016). – Rift Valley fever in kidney transplant recipient returning from Mali with viral RNA detected in semen up to four months from symptom onset, France, autumn 2015. *Eurosurveillance*, 21 (18). doi:10.2807/1560-7917.ES.2016.21.18.30222.

2. Odendaal L., Clift S.J., Fosgate G.T. & Davis A.S. (2019). – Lesions and Cellular Tropism of Natural Rift Valley Fever Virus Infection in Adult Sheep. *Vet Pathol*, 56 (1), 61–77. doi:10.1177/0300985818806049.

5. Rift Valley fever virus inactivation in milk (draft Article 8.5.11. ‘Recommendations for importation of milk and milk products of susceptible animals from countries or infected with RVFV’)

The Group reviewed available literature on the inactivation of RVFV and other bunyaviruses in milk following pasteurisation. The Group discussed the topic of time and temperature combinations for pasteurisation in depth, and while they acknowledged the gap in research on thermal inactivation of RVFV, it was also noted that there was no evidence to support a risk from pasteurised milk. The Group concluded that there was insufficient scientific evidence to justify a modification in the chapter and considered that pasteurisation as described in the Codex Alimentarius Code of Hygienic Practice for milk and milk products is sufficient to make milk and milk products safe.

The Group strongly recommended that new information on the risk of RVFV in milk and milk products is taken into consideration should this become available.

5.1. Literature

1. LaBeaud A.D., Muiruri S., Sutherland L.J., Dahir S., Gildengorin G., Morrill J., Muchiri E.M., Peters C.J. & King C.H. (2011). – Postepidemic Analysis of Rift Valley Fever Virus Transmission in Northeastern Kenya: A Village Cohort Study. *PLoS Negl Trop Dis*, 5 (8), e1265. doi:10.1371/journal.pntd.0001265.

2. Grossi-Soyster E.N., Lee J., King C.H. & LaBeaud A.D. (2019). – The influence of raw milk exposures on Rift Valley fever virus transmission. *PLoS Negl Trop Dis*, 13 (3), e0007258. doi:10.1371/journal.pntd.0007258.

3. Calisher C.H. & Shope R.E. (1988). – Bunyaviridae: The Bunyaviruses. In *Laboratory Diagnosis of Infectious Diseases Principles and Practice*, Springer New York, New York, NY. pp 626–646doi:10.1007/978-1-4612-3900-0_32.

6. Surveillance

The Group was requested to develop guidance for RVF surveillance during both epizootic and inter-epizootic periods and provide recommendations to revise Article 8.15.13 accordingly.

a) Developing recommendations for the establishment of a baseline for low RVFV activity

The Group concluded that it was not feasible to propose a uniform international standard for the establishment of a baseline for low RVFV activity, as there were too many epidemiological variations and different ecological situations between countries.

b) Considering activities under an early warning system that could signal a transition to an epizootic of RVF

The Group noted that Chapter 8.15 provides different recommendations for the importation of susceptible animals from infected countries or zones depending on whether they were imported during an epizootic or inter-epizootic period (draft Article 8.15.7 and draft Article 8.15.8). Countries requested specific guidance on how to determine whether they were in an epizootic or inter-epizootic period. It was also noted that the current focus of the chapter was mostly to facilitate safe international trade rather than providing recommendations for disease control.

The Group stressed the difficulty in clearly defining inter-epizootic periods. These should take into consideration the epidemiological context and not be defined solely by the level of viral circulation or vector activity as these may be low even in epizootic situations. The Group highlighted that the seroprevalence may be relatively high in more resistant hosts during inter-epizootic periods even in the absence of clinical signs. The Group also noted that although ecological factors may indicate an increased risk for RVFV transmission, these were unreliable in predicting RVF epizootics.

The Group proposed revising Article 8.15.1 to better define the inter-epizootic period:

- Reference to levels of vector activity and RVFV transmission were removed from the definition of inter-epizootic period 2) c). The Group proposed defining ‘inter-epizootic period’ as a period between two epizootics. The Group considered that the subsequent revisions proposed to Article 8.15.13 will help Members identify epizootics, and that the revision to 2) c) removes the need for Members to define low levels of vector activity or low rates of RVFV transmission. The Group reiterated that inter-epizootic periods are highly variable.
- The Group also noted that the terminology ‘epizootic’ and ‘inter-epizootic’ had been replaced in the wider scientific community by ‘epidemic’ and ‘inter-epidemic’. The Group suggested the Specialist Commissions to consider replacing ‘epizootic’ and ‘inter-epizootic’ throughout Chapter 8.15.

The Group proposed the following revisions to Article 8.15.13 ‘Surveillance’ to provide further guidance to countries on factors that may signal a transition to an epizootic of RVF:

- The following text was added to point 1): ‘An epizootic should be suspected in countries or *zones* infected with RVFV or countries or *zones* adjacent to a country or *zone* in which epizootics have been reported, when ecological conditions favour the breeding of large numbers of mosquito and other *vectors* with concurrent or consequent occurrence of higher incidences of abortions, and fatal disease particularly in new-born lambs, kids and calves marked by necrosis and haemorrhages in the liver, and the occurrence of an influenza-like illness in humans following exposure to body tissues and fluids of susceptible animals or to competent *vectors*.’
- The following text was added to point 2): ‘Ecological conditions can be assessed through the sharing and analysis of meteorological and precipitation/water levels data as well as the monitoring of *vector* activity. Clinical surveillance, e.g. the monitoring of abortions and the use of sentinel herds, can support suspicion of epizootics. Serological surveillance can also be used to assess the level of seroconversions.’
- Point 3) (previously point 1) was revised to: ‘During an epizootic, *surveillance* should be conducted to define the extent of the affected area (epizootic area) for the purpose of disease prevention and control as well of movements and trade of susceptible animals (see draft Article 8.15.7).’
- Point 4) (previously point 2) was revised to provide more specific guidance on surveillance during the inter-epizootic period by making references to sentinel livestock herds and the monitoring of ecological factors.

c) Assessing if the examination of vectors for the presence of RVFV could be considered as a suitable surveillance method for RVF and if so, providing recommendations

The Group noted that variations in ecology of vectors affect RVFV transmission differently in different contexts and noted that vectors may have low viral positivity rate even during epizootics. The Group concluded that the estimation of the distribution and abundance of vectors is a recommended surveillance method. However, the Group did not recommend investigation of the presence of RVFV in vectors as a core component of RVF surveillance. The Group proposed amending Article 8.15.13 to emphasise that the examination of vectors for the presence of RVFV is a surveillance method with low sensitivity, and therefore is not recommended.

d) Advising on the use of human surveillance data to support RVF surveillance in animals

The Group supported the One Health approach for RVF prevention and control, and recommended that countries should endeavour to promote interaction with and collaboration between human, animal, and environmental health sectors to facilitate the exchange of disease and ecological data. The Group proposed an addition to Article 8.15.3 to highlight the importance of coordination between *Veterinary Authorities* and public health authorities, and the role of human surveillance data in supporting RVF surveillance in animals.

7. Other recommendations for revisions to Chapter 8.15.

The Group proposed the following changes:

- Article 8.15.3 2) b) was revised to replace human ‘cases’ with ‘infections’, as the term ‘case’ is used in the *Terrestrial Code* to refer to animals. The term ‘occurred’ was replaced with ‘have been reported by the public health authorities’.
- ‘During dawn or dusk’ was removed from point 3) in Article 8.15.5. and replaced with ‘in epizootic areas’ as some vectors may be active at other times.

- Item 2) c) was removed from Article 8.15.6 to be consistent with the subsequent changes made to draft Article 8.15.7.

The Group noted that the proposed changes to Articles 8.15.1 and 8.15.13 would provide additional guidance to countries in defining epizootic and inter-epizootic periods, but advised that having both draft Articles 8.15.7 and 8.15.8 (which require different risk mitigation during epizootic and inter-epizootic periods) was unnecessary and likely resulted in additional confusion for Members whilst not contributing to risk mitigation.

The Group noted that draft Articles 8.15.7 and 8.15.8 on the importation of susceptible animals differed in only one aspect, in that draft Article 8.15.8 'Recommendations for importation of susceptible animals from countries or zones infected with RVFV during an epizootic' includes a requirement that susceptible animals did not originate from an epizootic area. The Group concluded that because virus circulation still occurred in inter-epizootic periods, the risk mitigation measures should be the same in both epizootic and inter-epizootic periods, and referred to epizootic areas where the disease is present.

Accordingly, the Group proposed that:

- Draft Article 8.15.7 be revised to include the requirement that animals did not originate from an epizootic area and did not transit through an epizootic area, and that the text 'during the inter-epizootic period' be removed from the article title.
- Draft Article 8.15.8 be deleted.

8. Notification

The Group noted that due to the provisions of draft Articles 8.15.7 and 8.15.8 Members were often uncertain about how to define the epizootic and inter-epizootic periods, resulting in confusion as to what findings should be subject to immediate notification as required in Article 1.1.3.

The Group stressed the importance of Members notifying the OIE in accordance with the case definition provided in Article 8.15.1. The revisions to draft Articles 8.15.7 and 8.15.8 will therefore minimise uncertainty with regards importation of susceptible animals, improve transparency in reporting and harmonise the chapter with other disease chapters in the *Terrestrial Code* where the use of the case definition for a disease is the main criterion for reporting.

The Group emphasised that the transition from an inter-epizootic to an epizootic period signifies a change in the distribution and/or incidence of RVF in a Member and therefore complies with point 1) d) of Article 1.1.3. in terms of notification.

9. Finalisation and adoption of the draft report

The Group reviewed and amended the draft report. The Group agreed that the report reflected the discussions.

.../Appendices

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Terms of reference

Purpose

The purpose of the *ad hoc* Group on Rift Valley fever (RVF) is to provide the OIE with up-to-date scientifically based recommendations to revise Chapter 8.15 entitled ‘Infection with Rift Valley fever virus’ of the OIE *Terrestrial Animal Health Code* (Terrestrial Code) to ensure that relevant texts reflect the latest scientific evidence and best practices.

The *ad hoc* Group is convened under the authority of the OIE Director General and reports to the Scientific Commission for Animal Diseases (Scientific Commission).

Background

During the ongoing revision of Chapter 8.15¹, OIE Members and relevant Specialist Commissions noted a number of gaps in the current chapter:

1. **Surveillance:** During inter-epizootic periods, evidence of RVF infection is found mostly through virus isolation and serology, as the sensitivity of passive surveillance is not sufficient to detect clinical signs in people or animals. Members requested further clarification and guidance for implementing effective RVF surveillance during both epizootic and inter-epizootic periods. Such guidance may consider, if appropriate, surveillance in humans and/or disease vectors.
2. **Notification:** Additional guidance is required as to what findings should be subject to Immediate Notification during epizootic and inter-epizootic periods, even in countries that report an endemic status for RVF. The interaction between Chapters 1.1 and 8.15 should leave no room for doubt and encourage implementation of an effective international/regional early warning system.
3. **Disease freedom:** Article 8.15.3 does not provide recommendations for the recovery of freedom in the case of an incursion of RVF in a country that has been historically free. Members requested that the development of recommendations to address this situation be considered.
4. **Risk posed by semen (Article 8.15.9, version under revision):** There is need to provide scientific evidence that semen from animals with antibodies from previous infection would not be infective. In addition, the duration of infectivity of semen after natural infection should be reviewed and amended accordingly.
5. **Virus inactivation in milk (Article 8.5.11, version under revision):** Certain time/temperature combinations used for pasteurisation are not effective to inactivate RVF virus (RVFV). It was requested that expert advice be sought regarding pasteurisation requirements that ensure RVFV inactivation in milk.

¹ https://www.oie.int/fileadmin/Home/eng/International_Standard_Setting/docs/pdf/SCAD/A_SCAD_Sept2020.pdf

Specific issues to be addressed

To allow Members to mitigate the animal and public health risks posed by RVFV infection and to prevent its international spread, the ad hoc Group should address the following points:

- Consider developing requirements for the recovery of country or zone freedom in case of incursion of RVF in a country that has been historically free and, if needed, provide recommendations to revise Article 8.15.3 accordingly.
- Review available scientific information about the duration of infectivity of semen after RVF natural infection, and provide recommendations to revise Article 8.15.9 (version under revision) accordingly.
- Review available scientific information regarding infectivity of semen in animals with antibodies against RVF from previous infection, and provide recommendations to revise Article 8.15.9 (version under revision) accordingly.
- Review available scientific information regarding time/temperature combinations used to ensure inactivation of RVFV in milk, and provide recommendations to revise Article 8.15.11 (version under revision) accordingly.
- Develop guidance for effective RVF surveillance during both epizootic and inter-epizootic periods, and provide recommendations to revise Article 8.15.13 accordingly. This may include:
 - developing recommendations for the establishment of baseline for low RVFV activity;
 - considering activities under an early warning system that could signal a transition to an epizootic of RVF;
 - assessing if the examination of vectors for the presence of RVFV could be considered as a suitable surveillance method for RVF and if so, providing recommendations;
 - advising on the use of human surveillance data to support RVF surveillance in animals.
- Provide any other recommendation to update Chapter 8.15 15 necessary to address the issues identified in this ToR.

Considerations

The *ad hoc* Group members should consider the following:

- Relevant discussions of the Scientific Commission and the Code Commission related revisions of Chapter 8.15 (i.e., September 2018, February 2019, September 2019, February 2020, and September 2020 meetings reports - summary to be provided among the Working Documents).
- Other relevant *Terrestrial Code* chapters, in particular Chapter 1.4 entitled 'Animal health surveillance' and Chapter 1.5 entitled 'Surveillance for arthropod vectors of animal disease'.
- All proposed amendments should be consistent with the structure and scope of the *Terrestrial Code* (i.e., improving control of transboundary diseases in animals).

Prerequisites

Ad hoc Group members should:

- sign the OIE Undertaking on Confidentiality of Information (if not done already)
- complete the Declaration of Interest Form
- be familiar with the structure of the *Terrestrial Code* and the *Terrestrial Manual*, and the use of Glossary definitions
- provide, prior to the meeting, any relevant scientific literature to support the discussion
- be familiar with Chapters 1.4, 1.5, and 8.15 of the *Terrestrial Code* (to be provided in the Working Documents)
- understand that the membership of the Group may be revised between group meetings to reflect changing needs and priorities (for example, if additional expertise becomes necessary).

Deliverables

A meeting report including proposed revised texts and the rationale for proposed amendments.

Reporting / timeline

The *ad hoc* Group will finalise its meeting report within 6 weeks after the end of the last meeting.

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Agenda

1. Opening and welcome address (OIE DDG)
 2. Appointment of chair
 3. Opening address by chair
 4. Adoption of Terms of Reference
 5. Housekeeping and working procedures
 6. Proposed working program in support of TOR:
 - Day 1: 14 June: Recovery of status for RVFV infection: Article 8.15.3
Surveillance for RVFV infection: Article 8.15.13
 - Day 2: 15 June: Infectivity of semen: Article 8.15.9
Inactivation of RVFV in milk: Article 8.15.11
 - Day 3: 16 June: Review discussions of 14 and 15 June and finalise recommendations for draft report
Discussion on notification of RVF cases in accordance with Chapter 1.1
 - Day 4: 18 June: Review and adoption of draft report
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List of participants

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