

RVF Modelling and Risk Analysis for the Middle East

OIE Office Paris - 29 May 2009

Report

Objective of the meeting

Developing guidelines to establish a prediction model of potential RVF virus activity in the Middle East.

Participants

OIE Central Bureau:	Lea Knopf, Karim Ben Jebara, Gideon Bruckner, Gaston Funes, Laure Weber-Vintzel, Elisabeth Erlacher-Vindel
FAO:	Stéphane de la Rocque
NASA/Univ. of Maryland:	Assaf Anyamba
OIE – ME:	Ghazi Yehia, Pierre Primot, Hany Imam
Yemen:	Mansour Mohamed Al Qadasi, Shaif Al Shawafi

On behalf of the OIE Central Bureau, **Dr Lea Knopf** welcomed all the participants.

Then **Dr Ghazi Yehia** briefly exposed the particularities of the Middle East considering the RVF risk, notably in terms of animal imports. Animal trade is an avenue of potential introduction of the virus into the region and he insisted on the necessity to respect the OIE standards on RVF at both export and import levels. He mentioned the work already done in such matter particularly the establishment of pre-export quarantine facilities in the Horn of Africa (Djibouti, Somalia) to implement sanitary measures required by importing countries from the Middle East. Nevertheless the region already experienced RVF outbreaks and it is critical now to have in place structures to monitor RVF vectors and create a framework for relevant prediction model for the region.

Dr Stéphane de la Rocque presented some lessons learned from the 2000 outbreaks, the specificities of the ecology and epidemiology of the disease in these sort of ecosystems and the work done through EMPRES underlining the importance of forecasting models in order to implement relevant strategies. He pointed out that forecasting is only one part of a global strategy for RVF prevention and control, and that FAO and WHO are currently revisiting this strategy in order to develop practical guidelines for decision makers. He mentioned also that a technical meeting on this subject was organized in September 2008 in Rome and provided a copy of the summary document and recommendations to this meeting.

Dr Shaif Al Shawafi described briefly the RVF event in Yemen that occurred in 2000 – 2001. He highlighted the importance of livestock trade in the introduction and occurrence of RVF to the sub-region

Dr Al Qadasi exposed also that serological surveillance is conducted since 2006 and that 900 samples have been collected between June 2008 and April 2009. All were negative. However, some positives livestock cases were detected in 2007 at a quarantine station, highlighting the constant risk of re-introduction of the virus in Yemen

Dr De la Rocque explained that it is important to well understand the vector ecology in each concerned region because the ecology of RVF varies considerably.

He highlighted also that initial investigations to understand the ecology of the disease in the region are essential in order to forecast, as accurately as possible, potential vector activities.

Dr Assaf Anyamba presented the work done in his institution, mainly in the Horn of Africa, to establish risk mapping models for vector activity with operational reporting on a monthly basis. He described the different steps implemented to build this model, insisting on the necessity to first well understand the vector ecology in the concerned region. He highlighted the need solid communication infrastructure/mechanism to distribute efficiently alert messages.

Dr Karim Ben Jebara mentioned that presently early warning is not sufficient and in many region where the disease is present, humans playing the role of disease sentinel because of the lack of surveillance in livestock.

Dr De la Rocque specified that forecasting is only a tool to help in decision taking and should not be used as they are but should be integrated in a relevant risk analysis considering all aspects of the epidemiology of the disease.

Dr Assaf Anyamba explained that with the use of these forecasting models you may have several months before the possible occurrence of the disease and that prevention measures could be implemented in order to reduce the possible consequence of such event. Vaccination is a tool but not the only one. Surveillance, vector control, education and public awareness are also important programmes that need to be set up in tandem with other preventive measures.

Dr Ghazi Yehia mentioned that it is important is to set-up an early warning system customized for the region and distributed widely to stakeholders in order to make the relevant decisions for prevention and control.

Dr Stéphane de la Rocque explained that a lot of work has already been done and it would be interesting to first review what is relevant for the Middle East. He proposed to start by supporting research activity on such matters in the frame of a "consortium of expertise".

Dr Assaf Anyamba mentioned that it is relevant to set up an infrastructure for monitoring the different input data in order to set up a forecasting model similar to the African system.

Dr Karim Ben Jebara explained that according to the specificities of the region a key role should be done by the OIE Regional Representation for the Middle East. He advocated also increasing RVF surveillance all around the region in order to collect relevant data before developing forecasting models. The GLEWS could be also implicated in such a programme. He proposed to discuss this subject during the next meeting of the GLEWS in June 2009.

Dr De la Rocque proposed to this group to adopt the global guidelines of the meeting held in Rome in 2008 and proposed that a working group be established, with clear terms of reference. He explained also that FAO and WHO are presently discussing to increase the funding of the technical expertise on RVF, in order to ensure the sustainability of monitoring and prediction models.

Dr Elisabeth Erlacher-Vindel proposed that a pilot project could be developed as a first step.

Conclusions and future actions:

- The Middle East has particularities and complex heterogeneity in terms of climate, geographic conditions and culture, impacting vector ecology and risk factor for introduction/persistence of RVF infection; The epidemiology of the disease is not clearly understood in its different ecosystems;
- RVF is an important issue for the region in terms of public health and economy, affecting the trade and the livelihood of breeders;
- It would be favourable to establish system to exchange information more formally with the concerned countries and their different stakeholders;
- There is a lack of field data on RVF and vector ecology in the Middle East;
- There is a lack of a dedicated surveillance system in the Middle East;
- A lot of work has already been done on predicting models, principally in Africa;
- There is a gap between early warning messages and actions implemented at a regional/national level to prevent the occurrence and/or the impact of the disease;
- Risk analysis based on early warning messages are rarely conducted in the region;
- According to regional specificities, the OIE – FAO Regional Animal Health Centre for the Middle East could have a key role in the implementation of a programme on RVF in the region, if possible other relevant vector borne diseases should be considered along;
- A working group on "RVF modelling for the Middle East" composed by: Dr Yehia, Dr De la Rocque, Dr Anyamba, Dr Ben Jebara, Dr Knopf and a representative of WHO (Dr Formenty) is to be established (the Terms of Reference should be written jointly by FAO, WHO and OIE);
- This issue should be presented during the next meeting of the GLEWS in June 2009;
- The establishment of a relevant predicting model and risk analysis for the Middle East shall be done on a sustainable basis;
- Countries should be better aware of forecasting information in regards to RVF risk factors as well as to be encouraged to analyse such information in order to apply preventive measures with a regional coordinated approach;
- The regional scope of such a model should cover the region from Egypt eastwards to Pakistan/Iran as defined by OIE Middle East Regional Office.