

Risk assessment of seven emerging vector-borne animal diseases for the Netherlands: a structured approach

Herman J. W. van Roermund, Egil A. J. Fischer, Aline A. de Koeijer, **Clazien J. de Vos**, Central Veterinary Institute, part of Wageningen UR, Lelystad, Netherlands. Contact: clazien.devos@wur.nl

Purpose

The risk of seven vector-borne animal diseases (VBADs) for the Netherlands was assessed with the aim to prioritize diseases for preparedness and to identify common parameters that contribute most to the risk.

Methods

The risk assessment was performed for tularaemia, bovine babesiosis, epizootic haemorrhagic disease (EHD), Crimean-Congo haemorrhagic fever (CCHF), Rift Valley fever (RVF), West Nile (WN), and African horse sickness (AHS). These include protozoan, bacterial and viral diseases that are either transmitted by ticks, biting midges or mosquitoes, five of which are zoonotic.

The MINTRISK calculation methodology¹ was used. This method provides a questionnaire in which semi-quantitative answers need to be given and the uncertainty in the answers is to be made explicit. Using Monte Carlo simulation a semi-quantitative estimate of the risk is given, along with the risk contribution of the different answers and uncertainty intervals.

Results

The risk of CCHF is negligible because no competent tick vector is present in the Netherlands. The risk of all other VBADs was estimated to be moderate to high. WN has the highest risk with a high probability of introduction and moderate impact. Tularaemia and bovine babesiosis both have a high probability of introduction but low impact, whereas RVF, EHD and AHS all have a low probability of introduction but high impact. Common parameters contributing most to the risk include trade volumes and vectorial capacity.

Conclusions

The risk of most VBADs that we evaluated is moderate to high for the Netherlands, although clear differences were observed when comparing the VBADs for their probability of introduction and impact. MINTRISK provided insight into the main elements contributing to the risk of each VBAD, thus indicating which parameters can be targeted for risk management and which require further study.

Relevance

Preparedness for VBADs is an important issue in North-Western Europe after recent incursions of VBADs. Assessing the risk of VBADs with MINTRISK allows for comparison and indicates those parameters that contribute most to the risk.

¹ De Koeijer et al., 8th Annual Meeting EPIZONE, September 2014, Copenhagen, Denmark.