



## Focus Article: International Disease Monitoring and Risk Assessment at DEFRA

Helen C. Roberts & Andy Paterson, Animal Health and Veterinary Laboratories Agency (AHVLA), London, UK

The normal business of the movement and trade in equidae and equine products increases the likelihood of introducing an exotic disease to the UK. An introduction of such a disease would have a significant impact on 1) the health and welfare of the UK equine population, 2) human health in the case of, for example, glanders and the equine encephalitides, 3) the UK's ability to trade in live equidae and equine-related products and 4) the reputation of the UK equine industry, wider UK trade and Defra.

The simplest way to reduce such risks would be to ban or severely limit all such movements, but such a ban would totally disrupt the normal business of the equine industry – racing, eventing and breeding etc., and from this it is apparent that all real-world disease control is a balancing act related to the appetite for risk amongst all parties in industry and government.

As such there is an implicit acknowledgement by the industry that normal activities increase the level of risk. However, these risks are reduced by compliance with the conditions on the health certificates and movement licences required; these mitigating conditions are normally either: 1) originating from an area known to be free from disease; 2) a period of time spent in a known location under official supervision; and 3) laboratory testing, confirming that the animal is likely to be free from disease.

It is obvious that diseases do not arise spontaneously and must come from an affected region or other source, and for this reason it is important to be aware of developments in the world-wide disease situation. Occasionally (and often unpredictably) the risk level increases when trading practices change, a new pathogen, or a particularly high risk route is identified; on top of which, there is also the need to consider the long term effects on risk associated with climate change.

International Disease Monitoring and Risk Assessment is a small team consisting of Animal Health and Veterinary Laboratories Agency (AHVLA) scientists and vets working on exotic disease risks on an ad hoc basis within the Veterinary & Science Policy Advice team at Defra. This core of specialist technical advisors provides expertise to produce a variety of reports on current disease risk levels for the UK. This work is all about assessment of risk, and communication of that risk in an easily understood format.

There are four main activities:

1. **Immediate reactive preliminary outbreak assessments (POAs)** to provide information e.g. to interpret the dourine situation in Italy.
2. **Qualitative risk assessments (QRAs)** to assist policy development e.g. the movement of clade 2 i. WNV in Europe.
3. **Informative regular summary reports** for stakeholders e.g. worldwide disease summaries to assist with planning for the 2012 Olympics, and summaries to inform targeting by HMRC Customs officials at ports and airports.
4. **Long term strategic work for policy development** looking at climate change related issues.



The information published in each report comes only from officially published and verified sources such as OIE and EU, although useful intelligence is gathered from a wide informal network of personal contacts and sources such as PROMED.

The risk of incursion to the UK varies according to the country of origin, the disease of concern and the presence of risk factors such as competent vector species, and risk mitigation measures already in place. If the risk with the measures currently in place, is assessed as being greater than negligible, it may be necessary to put in place additional measures e.g. pre-export testing / quarantine or targeted post-import testing.

The required risk mitigation measures are decided upon in collaboration with disease control and import policy colleagues, AHVLA, national disease experts, UK Border Agency or Local Authority officials. The risk mitigation actions chosen are relevant for the country of origin and take into account measures taken at the EU level. These actions may be updated periodically depending information or intelligence. Actions may include increasing level of checks on personal imports at the border; tracing, restricting and testing recent imported live animals; or increasing the level of biosecurity and awareness on animal holdings.

According to the OIE guidelines (OIE, 2011) which provide recommendations and principles for carrying out risk assessments, such analyses should be transparent, objective and defensible if they are to be used to provide clear reasons to an exporting country for the refusal to import, or for the imposition of additional measures. Different approaches are used – qualitative or quantitative – to estimate the risk associated with a particular hazard.

In the UK, it is much less common to undertake quantitative analyses (where the output is a probability with confidence intervals), which are more suited to supporting strategic decision making, as they are usually a lengthy process requiring several months and detailed datasets, and experience has shown that the results of these can be difficult to communicate to stakeholders. Instead, Defra conducts rapid qualitative risk assessments which can be used for routine and responsive decision making, and are designed to aid communication and understanding to non-technical decision makers.

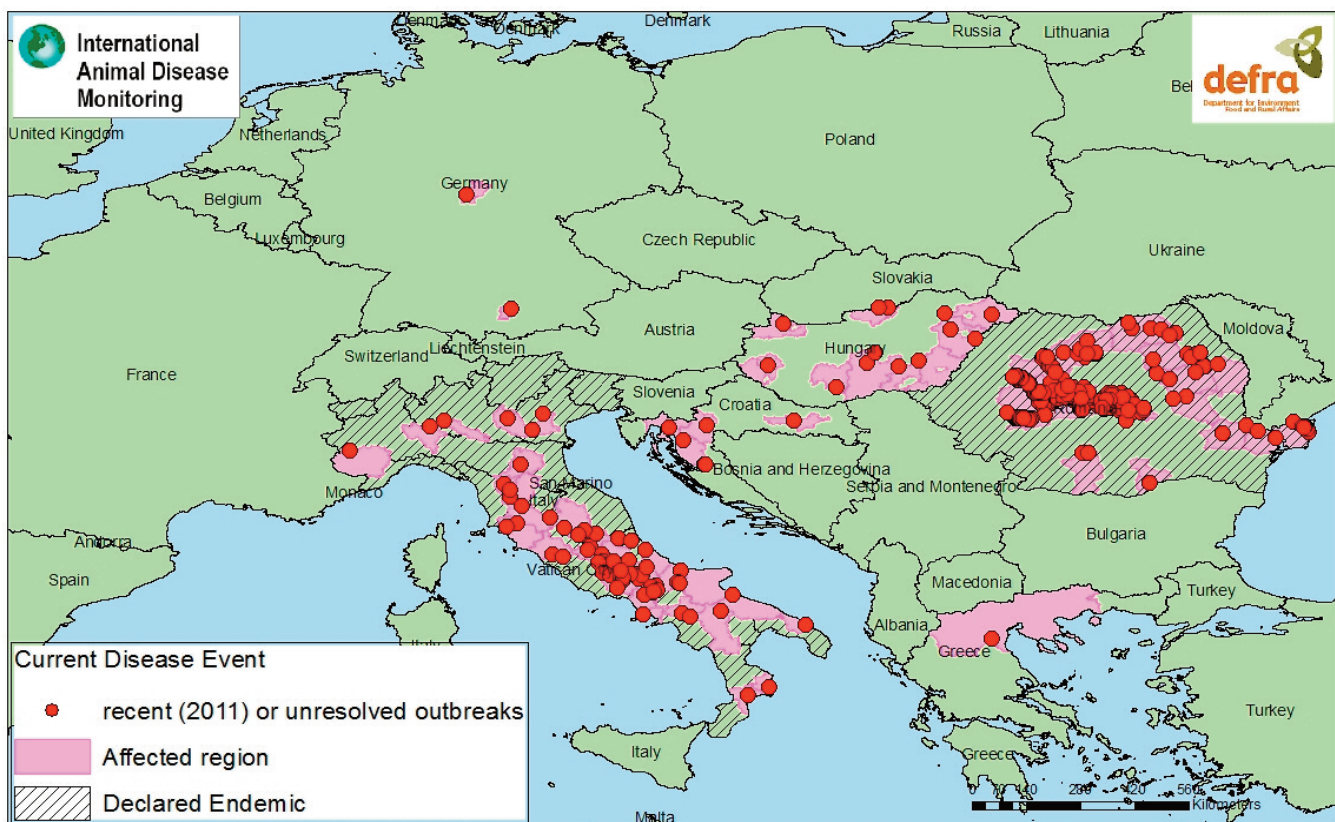
These qualitative risk assessments provide a structured account of 1) the hazard giving rise to the risk, 2) the factors increasing or decreasing the likelihood of the associated adverse events taking place, and 3) knowledge gaps; and thereby allow informed decision to be made.

It is generally accepted that there are five components of a risk analysis:

- 1) **Hazard Identification:** categorising the biological or pathogenic agent associated with the importation of a commodity e.g. African horse sickness virus. Hazards identified are appropriate to the species, commodity, presence in the exporting country and whether subject to control measures. If this evaluation does not identify a hazard at this stage, the risk assessment process can stop.
- 2) **Risk Assessment (RA):** based on scientific evidence, the RA should also document uncertainties, data gaps and assumptions. Steps in the RA are:
  - a. Entry Assessment (the pathway responsible for introducing the agent into an environment);

- b. Exposure Assessment (pathways whereby animals or humans are exposed to the hazard, within the importing country);
  - c. Consequence Assessment, whether public health consequences, surveillance and control costs, production losses, this can involve a full economic impact assessment.
- 3) **Risk Estimate:** Taking into account the entire pathway, the final output is usually a risk level described in agreed, standardised terms as defined by the European Food Safety Authority (EFSA) (negligible, very low, low, medium or high). It is important for risk communication that standardised terms are used and understood by all parties.
- 4) **Risk Management:** for risk levels that are considered to be greater than negligible, it may be considered necessary to implement some form of risk mitigation measures.
- 5) **Risk Communication:** is an essential and often overlooked comment of risk analysis. Pictures speak a thousand words and one of our most important forms of communication is the use of maps. For example, below is the latest map showing the Equine Infectious Anaemia situation in Europe. Defra publishes all risk assessments on the Defra website (<http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/monitoring/index.htm>). Such maps are used for Communication through the Equine Core Group, which is one of Defra's most important links with the industry.

Figure 1: Equine infectious anaemia outbreaks in Europe in 2011



Actual Scale 1:13,000,000  
Date prepared 29/11/2011  
Map prepared by IDM

### Equine Infectious Anaemia outbreaks in Europe in 2011





While most of the International Disease Monitoring risk assessments are carried out as a result of a change in the animal health situation in another country, assessments are also carried out in response to future policy change or changing import regulations and measures (taken at the EU, rather than UK level). A recent FVO mission to the UK commented as follows:

*“The very favourable animal health situation for equidae in the UK is substantiated by an elaborate risk-based surveillance, prompt declaration and intense control activities in case of outbreak.” FVO Mission to evaluate the implementation of animal health rules in respect of intra-union trade in equidae and equine semen, embryos and ova. June, 2011 (European Commission, 2011).*

Defra continues to provide disease monitoring and risk assessment in an effort to maintain this favourable animal health situation.

### References

OIE (2011) Terrestrial Animal Health Code: Chapter 2.1 Import Risk Analysis.

[http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre\\_1.2.1.htm](http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_1.2.1.htm) Accessed 15/11/2011.

European Commission (2011) Animal Health – live equidae, semen, embryos and ova – intra-Union trade.

[http://ec.europa.eu/food/fvo/rep\\_details\\_en.cfm?rep\\_id=2760](http://ec.europa.eu/food/fvo/rep_details_en.cfm?rep_id=2760) Accessed 15/11/2011.