Terrestrial examples of substantiating freedom through outcome-based surveillance: what, why and how?

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The use of animal disease surveillance to substantiate claims of freedom from specific diseases and infections has become an important task for Veterinary Services in many countries and regions and the OIE standards in the Terrestrial Animal Health Code (Terrestrial Code) and the Aquatic Animal Health Code (Aquatic Code) provide valuable guidance. Access to export markets, minimising control and eradication costs, improving animal welfare, limiting the use of antimicrobials, securing goodwill from domestic and international consumers, and optimising working conditions for farmers are among the benefits to be gained from a documented and recognised disease-free status.

Outcome-based surveillance standards aim at substantiating 'freedom' from a disease or infection in populations by estimating that, if all samples tested negative, the true prevalence lies below a specified proportion (the design prevalence), with a specified minimum confidence (i.e., the likelihood that the outcome accurately describes the true status of the population).

This science-based methodology has been developed to minimise the costs and the heterogeneity incurred by the traditional administrative and rigid surveillance standards specifying detailed sampling and testing procedures as they have been applied to the ranges of herds and animals across different production systems.

This presentation will discuss terrestrial animal diseases (e.g., trichinellosis, bovine tuberculosis and Echinococcus multilocularis infestations), for which international regulations support and/or scientific studies validate various modifications of outcome-based surveillance for use in substantiating national or regional freedom. Different levels of complexity of design and associated statistical procedures have been used in these examples, and their pros and cons will be discussed.

The presentation will make reference to some key scientific papers outlining the methodology and its components, advantages and limitations, as well as to reviews of applications in both terrestrial and aquatic disease surveillance.