Comparative assessment of the surveillance systems for equine infectious anaemia, equine viral arteritis and contagious equine metritis in France

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Abstract

Equine infectious anaemia, equine viral arteritis and contagious equine metritis are three important equine diseases in France, although only few cases have been detected over the last ten years in the country. In view of the potential serious economic impact of these diseases, three surveillance systems have been implemented to monitor them (one for each disease). These systems comprise almost the same components: compulsory notification of suspected cases, voluntary surveillance, breeding stock surveillance, pre-export and pre-sale testing. However, the poor synergy between components and between systems prevents optimal surveillance. Our objectives were to assess the surveillance systems using a semi-quantitative evaluation method (called 'OASIS'), to identify their strengths and weaknesses and to propose improvements.

We have identified mutual strengths, including laboratories' efficacy, surveillance tools and data collection. The major mutual weaknesses are the absence of central institutional organizations and the poor data management and analysis. We have highlighted many possible synergies that could improve effectiveness and efficiency of the surveillance as a whole, including the implementation of new joint tools or the pooling of existing teams, tools or skills, including investigation teams, collection data form and automated data transfers.

OASIS is a standardized tool which facilitates comparison and readily highlights the strengths of each component which could be extended to other components. Such a comparative evaluation could conceivably be applied to other surveillance systems, industries and countries. This approach requires minimal financial resources and little time and would be especially relevant to enhance the surveillance efficiency when resources are limited.

Keywords: *Evaluation, assessment, horse, surveillance systems, equine infectious anaemia*

Introduction

Equine infectious anaemia (EIA), equine viral arteritis (EVA) and contagious equine metritis (CEM) are three of the most frequently monitored equine infectious diseases in France. Three surveillance systems have been implemented to monitor them, one for each disease. Surveillance systems need to be evaluated to ensure they meet their goals and provide high-quality health information in a timely and efficient manner. The objectives of this study were to assess the three surveillance systems by means of the OASIS method and to compare the results of the assessments in order to propose improvements, especially to increase the links and synergies between the different components and systems.

Materials and methods

Surveillance systems and components

The French surveillance systems for EIA, EVA and CEM include surveillance components (2) managed by the animal health authorities, including French ministry of agriculture's food directorate (DGAL), national reference laboratories (NRLs), French agency for food, environmental and occupational health and safety (Anses) and French horse and riding institute (IFCE) (Table 1). Moreover, two components are directed by private partners: the pre-sale testing by sales companies and a voluntary passive surveillance component by the RESPE, an association of veterinarians who report clinical suspicions. Breeding stock surveillance is managed by both IFCE and private partners (stud books).

Table 1. Surveillance components for EIA, EVA and CEM currently implemented in France (1).

Surveillance component	Disease monitored	Managers	Type of surveillance*	Target population
Compulsory notifications of suspected cases	EIA, EVA, CAM	Public authorities	Passive (compulsory)	Entire equine population
Surveillance of breeding stock	EIA, EVA, CEM	Public authorities and private partner	Active (voluntary)	Breeding stock of certain breeds and all stallions used for semen collection
Voluntary passive surveillance (RESPE)	EVA**	Private partners	Passive (voluntary)	Equine population monitored by voluntary veterinarians
Pre-sales surveillance	EIA, EVA, CEM	Private partners	Active (voluntary)	Equids purchased
Pre-export testing	EIA, EVA, CEM	Public authorities	Active (compulsory)	Equids expected to be exported

*Passive surveillance is used to detect infected animals with clinical signs or that have died from the disease, whereas active surveillance is used to detect asymptomatic infected animals; **And EIA since 2015

Assessment method

We used the OASIS flash variant, which is faster than the conventional OASIS method, especially for the first step related to data collection (3,4). Data were collected by reviewing the literature and regulations, and through phone discussions and individual meetings with people from central institutional organizations. The second stage consisted in rating each criterion with the help of a detailed scoring guide. For each disease, eight or nine experts were selected and brought face-to-face to perform the rating over a one-day meeting. Last, experts compared the results of the three assessments to identify the mutual and specific strengths and weaknesses, and they drew up recommendations.

Results

Strengths and weaknesses

The major mutual strength is the laboratories' efficacy (Figure 1), especially due to the existence of a network of accredited laboratories and an NRL for each disease, the quality of diagnostic tests, standardization of methods and quality assurance. Surveillance tools (samples, reporting procedures), data collection and other criteria related to timeliness are also quite good (Figures 1, 2 and 3). The major mutual weaknesses are the absence of central institutional organizations (steering committee, management team and scientific and technical committee), the poor coordination and the poor data management and analysis, that hinder systems' acceptability and flexibility.

Figure 1. Results of the assessment of ten functional sections of the French EIA, EVA and CEM surveillance systems (the level of satisfaction for each section is displayed as a percentage score) (1).
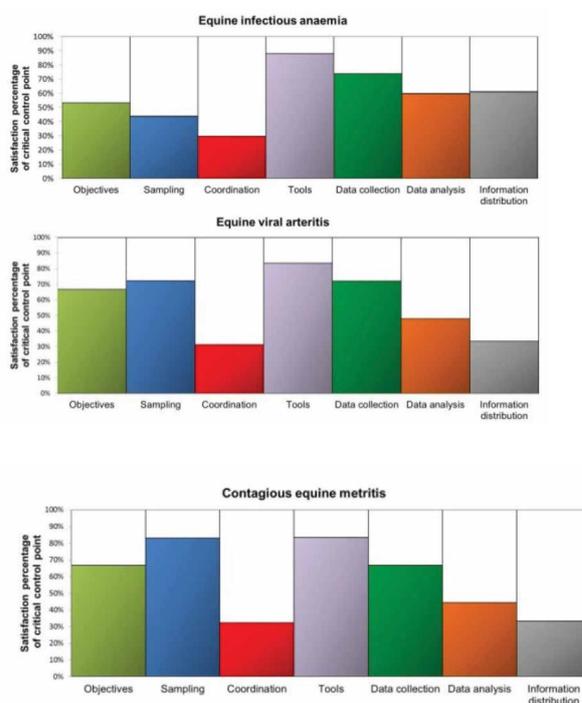
### Recommendations for improvement

Many recommenda-tions are the same for all systems: creation of central institutional organizations (steering committee, manage-ment unit, scientific and technical committee), sharing collected data, performing full epidemiological analysis.

Furthermore, strengths (tools, teams, skills) specific to a component or system could be shared and used by the other components or systems, such as automated data transfers currently used by accredited laboratories and the IFCE for breeding stock only. Regarding communication, annual reports should be implemented for EVA and CEM, based on the EIA model to improve motivation and awareness of all the partners. Data collection forms created by the RESPE and IFCE should be shared with other components. Moreover, several investigation teams can be activated either by DGAL, stud books or the RESPE. The work of these teams should be better coordinated according to formal, standardized procedures.

Figure 2. Results of the assessment of seven critical control points of the French EIA, EVA and CEM surveillance systems (1).

Figure 3. Results of the assessment of ten attributes of the French EIA, EVA and CEM surveillance systems (the level of satisfaction for each attribute is displayed as a percentage score) (1).
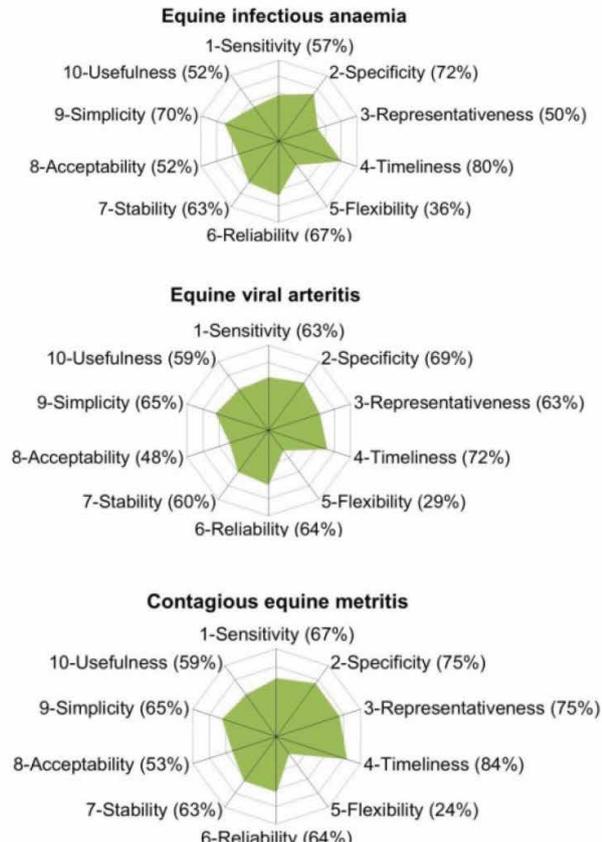
Discussion

The OASIS flash method is a standardized, easy-to-use tool which facilitates comparison and readily highlights the possible synergies, requiring minimal financial resources. Additional economic analyses and quantitative assessments of the surveillance sensitivity should be planned to measure the potential impact of proposed improvements, and to prioritize them according to their cost-effectiveness.

Despite several weaknesses and poor coordination between components, the quality of the three surveillance systems is quite good. Many recommendations are the same for all systems and improvements should be implemented jointly in the future.

Conclusion

The comparative assessment of three surveillance systems has highlighted many synergies that could improve effectiveness and efficiency of surveillance. Such a comparative assessment could be applied to other surveillance systems and other animal species. The approach is especially relevant when resources are limited. It could be a preliminary step towards merging or better connecting several surveillance systems either in the same animal industry or in several animal industries within the same country.

References

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