

## 2018, ISSUE 73, ABSTRACTS

### **AEEMA MEETING, May 31<sup>st</sup>, 2018 - COMMUNICATIONS: ACCEPTABILITY OF CONTROL MEASURES AGAINST TRANSMISSIBLE DISEASES**

#### **Introduction and frame**

Dufour Barbara, Rivière Julie and Gardon Sébastien

Acceptability is a broad concept that includes many meanings (acceptability in the broad sense, social acceptability, scientific acceptability ...). The AEEMA scientific meeting was focused in 2018 on acceptability of collective control measures against animal or human contagious diseases. Whether during the design phase of a control plan, its implementation in the field or its evaluation to identify potential adaptation of the measures, the many actors involved in these different phases (public authorities, breeders, veterinarians, laboratories, scientists, etc.) may, at one time or another, perceive some decisions or measures as difficult to accept (or even unacceptable) or difficult to achieve. The general public can also, in certain cases and in particular according to the communication in the media, have a negative perception of some scientifically justifiable measures (for example mass slaughter to avoid the spread of highly contagious diseases). The acceptability of the stakeholders is therefore an essential critical point for the implementation of a collective control, as the non-acceptability of objectives, methods or tools can lead to their partial or total rejection, and can therefore limit or even compromise the efforts of a collective plan. The acceptability's determinants can be found in technics, economy, politics or socio-psychology. The methods for estimating acceptability and its consequences on a control plan can come from those of sociology, epidemiology or economics. Finally, the means to improve the acceptability of measures are the consultation with all the stakeholders during the preparation of the control plan, the regular listening of the actors in the field and the taking into account of the perception by the general public in the difficulties experienced and their integration during the implementation of the plan; and, of course, communication on the objectives, methods and tools needed (with their limitations) to facilitate understanding and ownership by each of the actors involved.

#### **Fighting zoonosis, selling animal products and protecting wildlife: three sociotechnical systems facing *ibex brucellosis* in the Bargy range (France)**

Arpin Isabelle

Control measures, including a massive culling of ibex, were implemented following the discovery of enzootic brucellosis in the ibex population in the Bargy range in 2012 (*Haute-Savoie*, France). They triggered strong reactions, stemming for different reasons from farming professionals and from nature conservationists. Studying these reactions helps grasp how the Bargy ibex brucellosis is reconfiguring several sociotechnical systems: the system aiming to eradicate brucellosis in the ibex population itself but also two older systems that were assembled separately but that brucellosis has suddenly connected. One aims to produce raw-milk cheese on a large scale and the other to conserve endangered species such as ibex. Partially diverging conceptions of health were developed in each of them but their solutions to maintain and improve health - total protection vs total eradication of sick and exposed

individuals turn out to be equally impossible in the case of the Bargy ibex brucellosis. This episode therefore leads to redefine the animals' characteristics that matter in their conservation, by adding genetic and immunocompetence criteria to classical demographical criteria. It also leads to think about the conditions under which humans and animals can live with pathogens.

### **Babies' vaccination: what do highlight the surveys about parents' adherence to vaccination?**

Quelet Sylvie, Gautier Arnaud and Jestin Christine

The results of various surveys highlighted that adherence to babies' vaccination is a complex phenomenon, involving several sociodemographic determinants to be taken into account to overcome reluctance and restore confidence in vaccination.

### **Issues and key factors of the respect of biosecurity recommendations for the control of H5N8 avian influenza in France, 2016-2017**

Paul Mathilde, Delpont Mattias, Racicot Manon, Guérin Jean-Luc and Vaillancourt Jean-Pierre

Biosecurity measures in the poultry sector have recently received great attention in France, with the recent emergence of two successive outbreaks of H5 highly pathogenic avian influenza which occurred in 2015-2016 and 2016-2017. The 2016-2017 H5N8 epidemics pointed out difficulties associated with biosecurity compliance, i.e. the discrepancy between existing recommendations and actual biosecurity practices observed on farms. Literature shows that, in addition to structural (organization of production sites) and financial factors (investments required), psycho-social factors also play an important role in biosecurity behaviors. Those factors include beliefs and attitudes regarding biosecurity, social norms (influence of the other people), perceived self-efficacy (beliefs about the ability to achieve particular performances), risk perception and personality traits.

### **Acceptability by sanitary veterinarians of intradermal tuberculosis as a screening method for bovine tuberculosis in four French départements**

Gully Sarah and Hamelin Estelle

Bovine tuberculosis is a transmissible disease mainly caused by *Mycobacterium bovis*, the monitoring and control of which is mainly based on its screening in cattle farms, by intradermal skin testing. The objective of the study was to investigate the sanitary veterinarian's practices with respect to bovine tuberculosis in the French departments (administrative area) where the prevalence is highest. This work was based on a sociological approach to the implementation of a sovereign action: the application of a public policy to fight against bovine tuberculosis, in order to assess its acceptability by field actors. In order to answer this problematic, we chose to carry out a qualitative sociological survey of sanitary veterinarians by conducting semi-structured interviews and, when it was possible, visual observations of the completion of the intradermal skin test. In total, 42 sanitary veterinarians were met in four departments (*Côte-d'Or, Dordogne, Pyrénées-Atlantiques, Landes*). In the speeches, we identified unacceptability factors: technical factors, such as dangerousness, time required for the skin testing; economic factors (remuneration of the act); and socio-psychological factors, as the difficult positioning between liberal and sanitary veterinarian, the relationship with the breeders and with veterinary services. The main acceptability factors

identified were economic (remuneration, maintenance of the French free status for the export of live animals) and socio-psychological, including the importance of the meaning given by veterinarians to the fight against tuberculosis as a zoonotic disease, their professional conscientiousness and the importance of the relationship with breeders and with veterinary services. Thus, depending on the local context, some factors may be perceived as factors that favor or disadvantage the fight against tuberculosis. This study led to the formulation of recommendations to promote the acceptance by sanitary veterinarians of the intradermal skin test as a screening method for tuberculosis.

### **Participatory approaches and assessing surveillance systems acceptability: AccePT method**

Calba Clémentine, Peyre Marisa, Roger François, Antoine-Moussiaux Nicolas, Hendrikx Pascal, Saegerman Claude and Goutard Flavie Luce

Surveillance systems rely on a network of stakeholders who share information. Socio-economics factors have an influence on their decision to share an information within the system. Nonetheless, those factors must be taken into consideration, especially in the evaluation of surveillance systems. The method “AccePT” (Acceptability participatory toolkit) is based on participatory approaches. It has been developed in order to assess the acceptability of surveillance systems and takes into consideration stakeholders’ trust, their acceptability of the system’s objective and methods. Three tools are implemented through interviews with stakeholders’ system representatives. This method allows to provide context-based recommendations and to take into consideration stakeholders’ perceptions, expectations and needs.

### **Consumers' perceptions of an event and their judgments about control measures: an anticipative approach in the event of a positive screening test of several animals to the BSE**

Fourcadet Olivier

When consumers are made aware of an adverse event that could signal a future exposure to a health threat such as a deadly foodborne disease, they assess their exposure to the danger. Then they conceive a behavioural strategy. This strategy depends on their perception of their exposure. If they decide to suspend their consumption of the incriminated food category, they expect the authorities to address the public about their action plan to restore trust in the food category. The author explores the cognitive scheme of the consumers facing a hypothetical such life-threatening context. The results demonstrate that generations, defined from their status during the last BSE crisis in the late 90s, follow significantly different mental path. Several communication strategies are suggested to restore consumers’ trust.

### **How can we take into account the acceptability of massive slaughters by the public opinion in the choice of control strategies in case of foot-and-mouth disease epizootics in France?**

Marsot Maud, Rautureau Séverine, Dufour Barbara and Durand Benoît

Comparison of control strategies for infectious animal diseases enables optimal strategies to be determined based on their impacts. However, in real life, the choice of a control strategy could be influenced by other parameters, like the acceptability of control measures by the public opinion. The objective was to analyse the choice of a foot and mouth disease control strategy as a “collective” decision-making process in which the decision-maker is influenced

by several stakeholders. We determined how, in France, the optimal control strategy varied according to the relative weights of stakeholders. The mean of public costs (government), export losses (agro-food industries) and the number of herds slaughtered (public opinion) in simulated foot and mouth disease epizootics were quantified in order to compare seven control strategies at the regional level. Thus, we showed that the optimal control strategy chosen during the decision-making varied according to the region considered and to the importance given to each stakeholder.

### **Social marketing: influence' tools to improve acceptability of control measures in the society**

Hébel Pascale

To act on the individuals' behaviour, the public authorities traditionally have several types of tools: information and awareness campaigns, taxation, financial incentives, legislation (Prohibition, Regulation) and institutional or political exemplary (public order). These tools are proving to be less and less effective because of the glut of information and the lack of confidence in the institutions. New tools borrowed from marketing are increasingly being used in the field of public health. This is the case, for example, of nutritional policies that have tested the Nutri-score system more effective than conventional labelling.

### **AEEMA MEETING, JUNE, 1<sup>st</sup>, 2018: COMMUNICATIONS**

#### **The restriction of use of critically important antimicrobials in France: impact of the new regulation in veterinary medicine**

Bourély Clémence, Fortané Nicolas, Calavas Didier, Leblond Agnès and Gay Émilie

Since April 2016, the decree No. 2016-317 limits the prescription of critically important antimicrobials (fluoroquinolones and last generations' cephalosporins) to the prior realization of an antibiogram. The objective of this study was to assess the impact of this decree in veterinary medicine. To this end, a qualitative survey based on semi-directive interviews was carried out with 66 veterinarians in the bovine (20), equine (19), swine (16) and poultry (11) sectors. Instead of increasing their use of antibiograms, professionals have revised their prescribing habits to reduce their use of critically important antibiotics. The decree was well accepted because it was expected, had been anticipated and veterinarians attributed legitimacy to this new regulation. In a context of a paradigm shift, French veterinarians have embraced the new regulation regarding the prescription of antibiotics in order to fight antimicrobial resistance and to reinforce or redefine their role on farms.

#### ***Rattus rattus*' population dynamics in Cotonou, Benin**

Lesueur Jérémy, Ayrat Florence, Dossou Joël, Dossou Sylvestre, Etougbetche Jonas, Agossou David, Houemenou Gualbert, Dobigny Gauthier and Bicout Dominique J.

*Rattus rattus* is the main reservoir of numerous zoonotic pathogens in West Africa. Assessing the risk of human exposure to these pathogens requires understanding of the population dynamics of *Rattus rattus*. For this purpose, a compartmental model describing the evolution of the population in three sequential stages (juvenile, subadult and adult) was developed. The model parameters were estimated using data from three capture sessions performed within three districts of Cotonou, the economic capital of Benin. The simulation results show that

*Rattus rattus* population oscillates over time because of the birth rhythmicity. These oscillations are important in the context of an epidemiological survey as they can affect the observed prevalence of leptospirosis in *Rattus rattus* populations.

### **Using sociological data in surveillance system's evaluation: the applied case of bovine tuberculosis in farms**

Poirier Valentine, Rivière Julie, Praud Anne, Gardon Sébastien and Dufour Barbara

Among existing methods of surveillance systems evaluation, stochastic scenario tree modelling allows the estimation of sensitivity, specificity and cost of each component of a system using different kind of data from various sources. However, sociological factors like the compliance to regulatory measures are usually estimated separately given the difficulty to gather and include such data in a quantitative evaluation. We establish, through the example of the evaluation of bovine tuberculosis surveillance in French cattle farms, how to integrate such sociologic factors. First, sociologic studies on the field allow to collect qualitative data about practices that can have an influence on some important tree nodes, and to make hypotheses about the parameters that influence these practices. Then, a survey must be built from these hypotheses for the actors performing these practices, in order to collect qualitative data, which allows testing the hypotheses. Accordingly, to the confirmed hypotheses, nodes must be added to the scenario tree and their branches implemented thanks to the survey qualitative data.

## **EPIDEMIOLOGICAL PAPERS**

### **Study of human brucellosis in the sub-prefecture of Aziz (Algeria)**

Dahmani Ali, Lounes Nedjma, Bouyoucef Abdallah and Rahal Karim

In order to describe the evolution of human brucellosis, in Aziz, a retrospective study was conducted between 2003 and 2015. Aziz sub-prefecture showed very high rates compared to the national rate; more than twice in 2005, ten times more in 2006. Men were six times more affected than women, while during the peak the sex-ratio of infection was 19. Young people (between 21 to 30 years) represent the modal class. Spring and summer show high peak season. One hundred and one families were infected by brucellosis. The high incidence explanatory hypothesis about animal origin of this zoonosis are discussed.

### **Unexpected discovery of African swine fever in Belgium**

Saegerman Claude

On 13 September 2018, unexpectedly, African swine fever (ASF) was reported in wild boars in the province of Luxembourg, southern Belgium. In 1985, Belgium had already experienced an episode of ASF on pig farms in the province of West Flanders, in the north-west of Belgium. The origin was then imported pork meat from Spain given as food to a single boar and this episode was quickly circumscribed. The origin of the current episode in wildlife is not known to date but the distance from previously infected geographical areas (Eastern Europe) is considerable and therefore the most likely origin is attributable to a human activity. The ASF stage in wild boar within the core area of infection still epidemic. Considering the acquired knowledge, it appears difficult to contain the infection when the ASF virus affects a population

of wild boars. The risk of dissemination of the ASF from the province of Luxembourg is real despite the drastic measures taken by the regional (responsible for aspects related to wildlife and animal waste management) and federal (in relation to the pig farms) authorities. The sharing of detailed health information in real time, the mobilization of scientific transdisciplinary groups of collective emergency expertise as a decision support tool, the participation of stakeholders in the control efforts are elements that will determine the outcome of this episode. Given the location of the zone of infection, it is also most useful to agree between neighbouring countries on the basis of a regional ASF control strategy.