Expert opinion on the use of participatory approach for the evaluation of animal health surveillance systems: results of a web-survey

V MARIANO[1,2], C CALBA[1,3], V ANTOINE-MOUSSIAUX[4], F DI IACOVO[5], FL GOUTARD[1,6]*
[1]CIRAD, UPR AGIRs, F-34398 Montpellier, France; [2]Istituto Zooprofilattico Sperimentale delle Regioni Lazio e Toscana "M Aleandri", Sez Grosseto, Grosseto, Italy; [3]INSERM, Marseille, France; [4]Faculty of Veterinary Medicine, University of Liege (Ulg), Liege, Belgium; [5]Dept. of Veterinary Scienc, University of Pisa, Viale Piagge 2, Pisa, Italy; [6]Kasetsart University, 10900 Bangkok, Thailand

*goutard@cirad.fr

Abstract
Animal health surveillance systems (SS) are essential to support sanitary measures for public health purpose. Their effectiveness is influenced by the reliability of the data collected and managed by the actors of the surveillance, which in turn depends on their willingness to participate and their acceptability of the system. These attributes are complex, often subjective and strongly related to socio-economic factors. Furthermore, methods to understand and evaluate this complexity are still missing. This gap could be addressed through the use of participatory methods. The flexibility and multidisciplinary aspects of participation could promote the active involvement of stakeholders in the evaluation process, and help to estimate qualitative attributes of surveillance systems better. To validate the potential use of participatory approach (PA) for the evaluation of animal health SS, a web-survey was sent to 187 participants worldwide; these participants were experts in participatory epidemiology, surveillance, and/or epidemiology. The 53 experts responding confirmed the need to apply PA in the evaluation of SS in both developing and developed countries. The sub subsequent on-line meeting, with a restricted panel of experts, provided some in-depth discussion and helped in the interpretation of the data. The study confirmed that the social learning output of PA would be useful to increase the general understanding of the current SS and their blocking points, thus providing hints to improve their acceptability and operational functionality.

Keywords: *Qualitative approach, participation, acceptability, surveillance, evaluation.*

Introduction
The World Organisation for Animal Health (OIE) describes animal health Surveillance System (SS) as a "*tool to monitor disease trends, to facilitate the control of disease or infection, to provide data for use in risk analysis, for animal or public health purposes, and to substantiate the rationale for sanitary measures*" (1). For this reason Animal Health SSs are core responsibility of governments and represent the main activities of the Official Veterinary Services. However data collection depends on the local private sector willingness and/or their possibility to report cases (i.e. farmers, private owners, private practitioners, private laboratories) (2). Despite the key-role played by local stakeholders, the conventional top-down regulation of SS usually does not involve these bottom stakeholders in the developing process of SS (3). Often SS are imposed from up stakeholders (central authorities) to bottom stakeholders without providing motivations to collaborate and without considering local needs and constraints (4,5). This could lead to mistrust between central authorities and local private sector (6), lowering local stakeholders' acceptability of SS objectives and limiting their commitment to support surveillance activities.

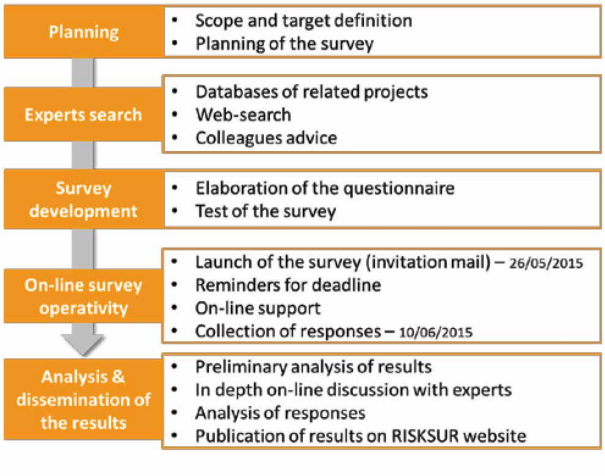
Participatory approach, being a multidisciplinary, flexible approach which permits the involvement of different stakeholders, could foster a bottom-up problem-solving strategy (3). Considering the needs of all the stakeholders involved in the SS during its design, could increase the acceptability of the system and thus the overall success of the surveillance system (5). As well, to improve the operational state of the current SSs, the use of PA could represent a solution to be exploited in the evaluation of current SS.

In this article, we took forward an expert opinion, to assess the potential usefulness of participatory tools for the evaluation of Animal Health surveillance systems. Secondary objectives were to define according to the experts, the circumstances in which they are the more suitable and their applicability.

Materials and methods
A brief summary of the methodology utilised to collect expert opinion is summarised in Figure 1. At first, the scope and the target of the study were defined. Then a detailed planning on the information to be collected and on the kind of experts required was prepared. Once it was decided to use an on-line survey, the search for experts in the fields of veterinary surveillance, epidemiology, and participatory epidemiology was launched. A group of 160 experts worldwide was identified with the help of (i) contacts of colleagues working in the fields of participatory epidemiology (PE), (ii) a google scholar search for the field "Participatory Epidemiology", (iii) experts already included in database collected from related projects. The list of experts was increased to 187 people by respondents' advice. The survey consisted of 17 closed-end questions and one open-ended question. The closed-ended questions were either multiple choice questions, simple

or associated with a scoring system from 1 to 5 (e.g. for usefulness, 1= not useful and 5= very highly useful). The experts were asked to respond expressing their opinion and to assess their confidence in their answers for each question with a score from 1 to 10. The anonymous response to the survey was a guarantee. The questionnaire was tested before the start of the web-survey to optimise the consistency of the questions. The study was launched through an invitation mail, containing a link to the web survey and some additional information about the focus of the survey and the terminology in use. The mail was sent to the participants 26 June 2015 and two reminders were then sent 2 June and 5 June.

Figure 1. 5 steps of the expert opinions elicitation.



The results of the survey were analysed using Excel of MSOffice® considering experts opinion as qualitative data, being time-limited judgment based on personal experience and not objective empirical data. An average count of the responses was calculated for multiple choice questions. The different opinion of experts used to evaluate usefulness was calculated using a weighted average score ($\bar{x}_w$) by the formula in eq1 which associate the score attributed to the answer *(x) to the confidence score self-attributes (w) from experts to each question. (Eq 1):*

$$\bar{x}_w = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i}$$

The results were discussed in an on-line meeting with a restricted number of participants (n=5).

Results

Participation to the web-survey and Expert background

The survey counted the participation of 53 experts, mainly belonging to Public Research centres (n=26). It can be noted that primary expertise of respondents was concentred in the field of epidemiology (n=41), veterinary surveillance (n=40) and participatory epidemiology (n=35).

PA in the evaluation of animal health SS

The expert's opinion agreed on the usefulness of PA in the evaluation of SS in both develop ($\bar{x}_w \bar{x}_w$=3.94) and developing countries ($\bar{x}_w \bar{x}_w$ =4.38) settings. The 94% (n=46) of respondents believed that PA could be useful to improve the overall acceptability of the SS by the local stakeholders, the 92% (n=45) by the associations involved in the system, the 80% (n=39) by the private sectors, the 69% (n=34) by the veterinary services and the 71% (n=35) by decision makers. A lower percentage of respondents (57%) believed that PA could improve the acceptability of the SS by laboratories. The same trend in responses can be noted for the effect of PA on the sustainability of SS and the overall impact on the different stakeholders. The utility of PA in SS evaluation is also perceived to be related to the objective of the systems as it has been scored slightly more useful for monitoring of endemic diseases ($\bar{x}_w \bar{x}_w$=4,24) and the detection of new (emerging) and re-emerging diseases ($\bar{x}_w \bar{x}_w$=4,19) rather than for the declaration of disease freedom ($\bar{x}_w \bar{x}_w$=3,49).

The potential added value of using PA for the assessment of evaluation attribute of the SS has been highly agreed for many of the functional, effectiveness and surveillance attributes. The added value of using PA in this context has been considered as the possibility to take in consideration stakeholders' perception and expectations (n=41), to identify blocking points in the surveillance systems operation (n=31) and to collect information related to the general context of surveillance (n=30). On the contrary the primary limits of using PA in the evaluation of SS perceived by the experts were: the need of time to use participation in the field (n=28), the fact that it depends on the stakeholders' willingness to participate (n=27), the need for specific skills for its implementation (n=21), the use of qualitative data and subjectivity (n=18), the lack of trust (n=17) and representativeness in qualitative approach (n=15).

Discussions

Use of PA in the evaluation of animal health SS

This study confirms the added value of using PA to evaluate SSs. Although some limitations on the bias related to the respondent should be considered, evidence that PA can increase the value in the evaluation of SSs is perceived all over the responses to the survey. As in the policy design, there is no doubt that a genuine use of PA can improve the communication between the multiplicities of SS stakeholders, possibly increasing the trust in the system. These approaches encourage the active participation of all the stakeholders rather than treating local stakeholder only as passive recipients of information. Furthermore, it fosters the social learning, intended as the capacity of interested parties to interact, exploring different perspective and learn collaboratively. Some authors like Jakku & Thorburn place social learning in higher value compared even to the subsequent use of the process results, as it can bring to the new and widely applicable management of the system under study (7).

The benefit that could arise from the use of PAs seems to be related to the kind of disease under investigation in the SS. In fact from the expert opinion, the use of PA seems to better fit the SS for endemic disease control and the early detection of disease rather than for the disease declaration of freedom. In the first two cases, the underreporting of cases is a recognised problem often linked to social factors. Reasons for underreporting could be classified as the inability to detect and unwillingness to report (2). On the other side, the logistic difficulties and lack of communication among stakeholders, typical of the inability to report (2), could be quickly investigated and addressed by PAs. As well as the negative consequences of reporting from the local stakeholder, such as lack of compensation, time-consuming and lack of feedback response (2), could be investigated by PAs to find an appropriate solution or at least to mitigate the problem.

Challenges and disadvantages

Some participants defined the willingness of stakeholders to participate in the PA as a limit. This limit should be considered as a consequence of an over usage of current top-down regulation and mistrust in the central authorities rather than associated with the participative approach itself. Jost *et al.* confirm that in Pakistan the use of participatory epidemiology has achieved significant institutional change, leading to revitalised animal health services, transforming them into more customer oriented services (8).

A critical limit felt in the application of PAs is the subjectivity of data analysis. In any case, this limit should be analysed about the aim of the process and to the professionalism with which it is conducted. This problem is linked to the lack of guidelines and skilled operators. Thus courses on the correct application of the participative process should be promoted. As well, a connection with other disciplines, such as social sciences, more experienced in the use of PA, should be endorsed. A collaboration with social sciences could foster the capacity of the veterinary sector to interpret the social context and to integrate the information collected from a different background. Even if this does not sort out entirely the problem of the subjectivity of singular data analysis, this is an acceptable limit compared to the overall social learning which could arise from the correct application of PAs.

Conclusion

The usefulness of PA in both developed and developing countries has been agreed by the participants of the survey. In fact, although in developed countries the uses of quantitative data make possible another kind of assessment, the utilisation of PA could improve the understanding of the social context of the SS. This would be useful to identify blocking points of the current systems in use and promote an overall increased impact of the SSs. Furthermore, the use of PA in SS evaluation would improve the communication among the different stakeholders, enhancing inter-sectoral collaboration. The involvement of the various interested parties in the assessment of SS could increase their sense of belonging to the system and increase its acceptability, the trust in the central authorities and thus their willingness to participate in the surveillance. To overcome the currently perceived limits of the application of PA in the evaluation of SS, there is a need to establish guidelines and good practice for its use in the veterinary sector.

References

1. **OIE.** *1 23rd Edition.* 2014
2. **Halliday J *et al.*** *Philosophical Transactions of the Royal Society B: Biological Sciences* 367(1604), 2872-80, 2012
3. **Catley A *et al.*** *The Veterinary Journal* 191(2), 151-60, 2012
4. **Ranjan R *et al.*** *Stochastic environmental research and risk assessment* 19(5), 315-25, 2005
5. **Wolf C.** *International Food and Agribusiness Management Review* 8(1), 46-61
6. **Palmer S *et al.*** *Sociologia Ruralis* 49(4), 360-74, 2009
7. **Jakku E *et al.*** *Agricultural Systems* 103(9), 675-82, 2010
8. **Jost CC *et al.*** *Rev Sci Tech* 3, 537-49, 2007