

# To Report or Not to Report: a Psychosocial Investigation aimed at improving Early Detection of Avian Influenza Outbreaks

Elbers ARW (1); Gorgievski MJ (2); Koch G (1); K. Zarafshani K (3)

(1) Central Veterinary Institute of Wageningen UR, Lelystad, Netherlands (armin.elbers@wur.nl)

(2) Institute of Psychology, Erasmus University, Rotterdam, Netherlands

(3) Dept. of Agricultural Extension, Razi University, Kermanshah, Iran

## ABSTRACT

The aim of this study was to identify limitations - and solutions for those limitations – with respect to reporting clinically suspect situations on poultry farms, possibly caused by Avian Influenza (AI) with the ultimate aim to facilitate early detection of AI-outbreaks. Focus group sessions were held with policy makers from the veterinary authorities, and representatives of veterinary practitioners and poultry producers. Personal interviews with a small group of poultry farmers and practitioners were held to check proposed limitations and solutions. An electronic questionnaire was mailed to poultry farmers and veterinary practitioners to investigate perceptions and attitudes concerning clinically suspect situations possibly caused by AI. After triangulating the responses of veterinary authorities, veterinary practitioners and poultry farmers, six themes emerged across all groups: 1) lack of knowledge and uncertainty about clinical signs of AI; 2) guilt, shame and prejudice; 3) negative opinion on control measures; 4) dissatisfaction with post-reporting procedures; 5) lack of trust in government bodies; 6) uncertainty and lack of transparency of reporting procedures. In this paper, solutions to break down barriers for reporting a clinically suspect situation are discussed.

## INTRODUCTION

Outbreaks of notifiable animal diseases (NADs), such as notifiable avian influenza (NAI) have large societal and personal consequences. Livestock farmers and veterinary practitioners are at the frontline of surveillance, and hence it is widely recognized that they play a key role in detecting and reporting suspicions of occurrence of NADs. In theory, notification of contagious livestock illness by farmers to the veterinary authorities can be an effective early detection tool. Therefore, formal rules for reporting clinically suspect situations in livestock by farmers and veterinary practitioners are laid down in national and international legislation all over the world. In essence, not much has changed with respect to the reporting and eradication process of NADs since those early days. Yet, we cannot conclude that the regulations produce a desired effect, because in spite of strict rules and regulations, experience has shown that the time between the first clinical appearance of AI and the actual reporting of farmers of clinically suspect situations to the veterinary authorities is often too long, resulting in extensive spread of the disease to other farms before control measures were put in place. Investigation of the scarce empirical evidence to date on issues concerning delayed reporting and underreporting of clinically suspect situations shows that the problem thus far has mostly been approached as a veterinary-technical problem. If livestock farmers and veterinary practitioners are familiar with the clinical signs of a NAD, they are in the best position to detect NAD suspects. However, often these diseases have not been in the country for many years or sometimes even decades, and farmers and some veterinary practitioners do not recognize the associated clinical signs anymore. Concerning poultry, many endemic diseases cause clinical signs similar to AI. After a considerable period of freedom from AI in a country, farmers and vets will have a tendency to think that clinical signs observed are caused by an endemic disease and not by AI. As a result, farmers fail to recognize the need to report these early clinical signs of AI, which implies that the time needed for ultimate detection of a new infection would provide time for the disease agent to spread. Laboratory confirmation would be necessary in order to exclude AI being the cause of the clinical problems observed. However, laboratory confirmation is in many national regulations only allowed after reporting to the veterinary authorities. Hence, asking for laboratory confirmation may lead to control measures, such as isolation of the farm, until the results of diagnostic testing are available. Moreover, isolation of the farm, especially if this happens for several days, may have negative economic consequences for the farmer. Increasing the reporting rate and shortening the delay time for reporting is crucial, but it is complicated by the fact that little is currently known about the way farmers behave in possible clinically suspect situations, more specifically, their perception and appraisal of the situation, the decision process that follows, and the intentions and behaviors that flow from these perceptions and decisions.

The purpose of our study was to identify limitations and solutions for those limitations in reporting clinically suspect situations possibly caused by AI as perceived by veterinary authorities, poultry farmers and veterinary practitioners, with the ultimate aim of improving early detection of AI outbreaks.

## METHODS

To learn more about why poultry farmers decide to report or not to report clinically suspect situations possibly caused by AI, our study combined a qualitative and a quantitative research design. For the qualitative part of our study, focus group sessions were held with policy makers of the Ministry of Agriculture, Nature and Food Quality, the Food and Consumer Product Safety Authority, Board members of livestock sections from the Royal Dutch Veterinary Association and with Board members of the two poultry farmer unions present in the Netherland. Subsequently, personal in-depth interviews with five poultry farmers and four poultry veterinary practitioners were held to check if there might be other limitations, solutions and incentives with respect to reporting clinically suspect situations as suggested in the focus group meetings. Based on the results of the qualitative research, an electronic questionnaire was posted on the website of a poultry farmer union for several weeks and posted for three weeks on the website of the Royal Dutch Veterinary Association, inviting veterinary practitioners that work with poultry to respond. The questionnaire did not just probe into possible limitations, but also possible solutions to break down the barriers. A grounded theory approach was used to analyze the content of focus group and in-depth interviews.

## RESULTS

After triangulating the responses of veterinary authorities, veterinary practitioners and poultry farmers, six themes emerged across all groups: 1) lack of knowledge and uncertainty about clinical signs of AI; 2) guilt, shame and prejudice; 3) negative opinion on control measures; 4) dissatisfaction with post-reporting procedures; 5) lack of trust in government bodies; 6) uncertainty and lack of transparency of reporting procedures.

A total of 33 poultry farmers and 334 veterinary practitioners responded to the electronic questionnaire. Results of the quantitative study underscored the qualitative results. However, in some instances poultry farmers and veterinary practitioners differed significantly concerning opinions and attitudes towards reporting clinically suspect situations. To highlight a few differences, although both poultry farmers and veterinary practitioners were reluctant to report false alarms, this tendency was stronger for poultry farmers than veterinarians. Relatively more poultry farmers than vets indicated that they would report (much) faster a suspect clinical situation when clinical signs of AI were more specific. In addition, relatively more poultry farmers than vets indicated that they would report (much) faster a suspect clinical situation when there is a strong relationship between poultry farmer and vet. Relatively more poultry farmers than vets feel awful and ashamed respectively, reporting a suspicion, when retrospectively this was a false alarm. In addition, about 50% of poultry farmers and vets indicated that reporting a suspect situation, when retrospectively this was false alarm, had a (very) negative consequence for the financial situation of the farm. A total of 44% of poultry farmers and 13% of vets indicated that reporting a suspicion, when retrospectively this was a false alarm, would result in a (very) negative image of the farm. About 20% of poultry farmers and vets feel that it is a more terrible thing to report a suspicion, when retrospectively this was a false alarm, than to have missed a real case of AI.

## DISCUSSION

The estimated (because with an electronic questionnaire on a website you do not exactly know the size of your population) response rate in poultry farmers was low, in vets good. The subject of reporting clinically suspect situations possibly caused by NADs to the veterinary authorities is considered a very sensitive item within the poultry industry, and this might be the reason why not many poultry farmers have taken the time to respond. Nevertheless, results of the quantitative study underscored the result of the qualitative studies and we are therefore confident that we have captured what is felt by farmers and practitioners in the field.

A need for continuous training of poultry farmers and veterinary practitioners with respect to recognizing clinical signs associated with AI was ventilated. This can partly be facilitated by offering web-based information. While providing this information, we should be cautious not only to show the typical high mortality caused by HPAI infections but also the mild clinical signs associated with LPAI infections. Although specific rules were set with respect to reporting an AI-suspect situation after the HPAI H7N7 epidemic in 2003 in the Netherlands, poultry farmers indicated not to agree on these rules. Poultry farmers did not see why they should report such situations when they encounter signs they interpret as being linked to other diseases or other causes. In the case of e.g. a failing ventilation system causing a temporarily high mortality, it is understandable that the farmer is not willing to report a high mortality. However, in the case of poultry diseases that produce similar clinical signs as AI, it is irresponsible and a risky situation that farmers

(and sometimes veterinary practitioners) make a diagnosis purely on the basis of observable clinical signs. Only laboratory diagnostics are able to exclude AI as a possible cause for the disease problems observed. Furthermore, from the discussion it became clear that many poultry farmers only assume that there is an AI problem if the mortality is exponentially increasing, which is linked to HPAI. They do not recognize LPAI to be a problem for poultry farmers. Poultry farmers claim that it is actually not a real AI problem: it is something created by politicians just to bother the farmers. Because of that conviction, they are reluctant to report LPAI outbreaks that may produce clinical signs that are less pronounced with mortality that may only be increased temporarily, although a clear dip (but temporarily in most cases) in egg production and feed intake and/or water consumption is seen. They seem to shut their eyes for the fact that LPAI infections might be caused by a H5 or H7 subtype now categorized as Notifiable LPAI (NLPAI), which are capable of mutation towards HPAI. Clearly, more communication about the risk of LPAI infections for the poultry industry is needed. Another route to facilitate early detection of (LP)AI is to test samples from post-mortem material of chickens or turkeys using a reverse transcriptase-polymerase chain reaction (PCR) test on AI genome. This should be post-mortem material accompanied by an anamnesis indicating a slightly increased mortality and/or a decrease in feed and/or water intake or a decrease in egg production (6). Since 2007, veterinary poultry practices and the Animal Health Service in the Netherlands are urged to submit throat and cloacal swabs from birds presented for post-mortem examination in specific circumstances. It is perceived as not being useful and cost-effective to screen all post-mortem submissions, it is recommended to submit swabs from birds with the following post-mortem results: a) broilers : severe respiratory problems; b) turkeys: severe respiratory problems, diarrhea, inflamed intestines; c) layers: severe respiratory problems, mild to severe peritonitis in combination with a dip in egg production; all poultry types: no pathological findings during post-mortem, but an anamnesis of slightly increased mortality and/or a dip in production and/or a decrease in feed and/or water intake.

Farmers lacked insight into procedures to report a clinically suspect situation and, perhaps more importantly, the process that would follow after a notification. A high level of transparency of the notification process, and what to expect after notification would help to decrease the uncertainty farmers feel. Furthermore, transparency with respect to the notification process will help to build-up trust of the farmer community in the veterinary authorities, and trust in each other might prove to be a key issue in trying to improve early detection of AI. A clear explanation of the National Guidelines explaining when, what and how to report a clinical suspect situation, and a transparent decision-tree on what to expect in time after the notification up to the final decision to clear the farm of suspicion or to isolate the farm because of a laboratory confirmation of an AI-infection, would be helpful. This can be facilitated by the veterinary authorities by means of offering web-based information.

There seems to be a gap between what the authorities expect from poultry farmers and veterinary practitioners regarding reporting a clinically suspect situation and what poultry farmers and vets really feel as their responsibility. There is a common believe among poultry farmers and farmer unions that AI is the primary responsibility of the government. Changing such an attitude and thinking will take a huge effort in communication and time. Important requirements to achieve that goal are: a credible communicator, a high level of similarity between the audience (farmers) and the communicator, and finally the message and the communicator must be perceived as trustworthy. Since government bodies are not perceived as highly credible and/or trustworthy by farmers, there is a specific need for a figurehead arising from the poultry industry to take on that challenge.

It appears that the relationship between farmer and practitioner plays a role in the willingness to report a suspect situation, and that there is also an area of tension between farmer and vet if it comes to reporting (retrospectively) a false alarm: "do I (farmer) trust the competence of my vet?" and "Am I (vet) loosing a client (farmer) if my reporting is a false alarm?" Our present study indicates that vets have a more negative image of the consequences of a false alarm for the relationship between farmer and vet than the farmer has. This would call for recalibration of the relationship between vets and farmers by the vets.

## **ACKNOWLEDGEMENTS**

The authors like to thank the veterinary practitioners and the poultry farmers that responded to the electronic questionnaire. Furthermore, we like to thank the policy makers from the veterinary authorities, and representatives of veterinary practitioners and poultry farmer unions and poultry farmers for their opinions and ideas during the focus group sessions. The authors like to thank the student assistants Ebru Duman and Meriam Tsang for their help during data collection. This study was commissioned and funded by the Department of Food Quality and Animal Health of the Dutch Ministry of Agriculture, Nature and Food Quality (WOT project # 01-001-004-01).