Food and Agriculture Organization of the United Nations

Information factsheet
December 2016

SMS GATEWAY: **IMPROVING ANIMAL HEALTH THROUGH INFORMATION AND COMMUNICATION TECHNOLOGIES**

Background

An SMS alert system in Bangladesh has helped to combat the spread of avian influenza, bolstering disease prevention, surveillance and reporting among poultry farmers. The FAO SMS Gateway system uses a network of community animal health workers (CAHW) to relay coded text messages by mobile phone through a web-based server based at FAO. The server automatically alerts the country's animal health authorities in the event of suspected cases of the disease. The rapid communication of information from local communities has fostered timely investigation of suspected cases and faster, more effective responses, including culling, if needed.

The challenge

In Bangladesh, backyard poultry production, which is primarily managed by women, accounts for half the 300 million heads of poultry raised nationwide. In rural areas, nearly 90 percent of households keep chickens and/or ducks in their yards.
H5N1 Highly Pathogenic Avian Influenza (HPAI) first infected humans in 1997 during a poultry outbreak in Hong Kong SAR, China. Following its widespread re-emergence in 2003 and 2004, this avian virus spread from Asia to Europe and Africa and has become a major problem in some countries, resulting in millions of poultry infections, several hundred human cases and many deaths. Bangladesh is one of the countries that have been severely affected. Outbreaks in poultry have significantly affected livelihoods, economies and international trade.

Replicability and scaling up

The SMS Gateway can be easily adapted to monitor other diseases. A version of the SMS Gateway system is currently working in Indonesia, where the government is using an SMS alert system to help control influenza. The initiative, part of the National Animal Health Information System (iSIKHNAS), allows field staff (paravets and vets), village reporters and other personnel to send coded SMS messages to the animal health agency about suspected or confirmed cases of H5N1 Highly Pathogenic Avian Influenza. The system is also being used to monitor other livestock diseases. Registered users can access a wide variety of information from the system through their phone, via SMS or instant messaging (IM). Computer users with internet access can access data through the iSIKHNAS website: www.isikhnas.com. Any replication or scaling up of the programme will need to address the issue of establishing funding systems that are self-sustaining and make a careful analysis of the financial, human resources and equipment required for a successful outcome. It is important to embed a gender sensitive approach in any scheme based on this model, and advisable to include sex disaggregated data in monitoring and evaluation of its impact.

Methodological approach

By the end of the first phase of the project in 2013, 1,006 Community Animal Health Workers were involved in the SMS Gateway initiative in Bangladesh, of whom 10 percent were women. There were 103 Additional Veterinary Surgeons, 30 percent of whom were women. All Community Animal Health Workers underwent initial training in case definition and identification of highly pathogenic avian influenza. Training was also provided for poultry farmers, in order to raise awareness of the project, as well as animal health issues, disease prevention and disease reporting. Key elements in the system included mobile phones used by the Community Animal Health Workers, a

Disease action plan? After carrying out a routine visit, the Community Animal Health Worker uses a mobile phone to send a text message, indicating the state of health of the farmer's flock. The coded message is received by a server hosted at FAO. If the code indicates suspected disease, an automatic SMS from the server alerts the district-level Upazila Livestock Officer and the Additional Veterinary Surgeon, who arranges for an investigation. If the threat is considered real, a sample is sent to a Field Disease Investigation Laboratory or the Central Disease Investigation Laboratory in Dhaka. In the case of H5N1 Highly Pathogenic Avian Influenza confirmation, the flock is culled. If birds are culled, the farmer must observe a three-month quarantine period, but can also expect to receive monetary compensation for the temporary loss of livelihood.

How does SMS gateway work?

The FAO SMS Gateway reroutes coded messages from field workers by way of a simple mobile phone to a server placed in the FAO office in Dhaka. Using specially designed software, the server processes the coded messages sent by Community Animal Health Workers and, in the event of a suspected H5N1 Highly Pathogenic Avian Influenza outbreak, it sends out an automatic alert by SMS to the relevant Upazilla Livestock Officer.
In order to be read by the FAO SMS Gateway system, the SMS must contain a specific code representing important information, keyed in by the Community Animal Health Worker. For example, if a Community Animal Health Worker sends out the following SMS: DLS T 2000 D 2 S 32 B, the message will be interpreted as: Total number of birds: 2 000. Number of dead birds: 2. Number of sick birds: 32. Outbreak happening at a backyard farm.

Impact

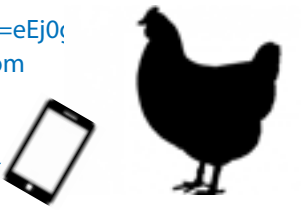
Following implementation of the SMS Gateway system, the response time for H5N1 Highly Pathogenic Avian Influenza outbreaks was drastically reduced: in 2007, the range of activities from detection to disinfection used to take about 4.8 days, while in 2011, after the introduction of the SMS Gateway system, response time was reduced to 1.43 days. In one well documented case, a farmer reported bird deaths to a Community Animal Health Worker, who then sent a text message to alert authorities. Within 24 hours, on-site and laboratory checks led to confirmation of the H5N1 Highly Pathogenic Avian Influenza virus. The rapid response by authorities and subsequent culling of the farmer's entire flock kept the disease from spreading to adjacent farms. In 2011, 87 percent of the 61 outbreaks recorded in Bangladesh were reported using SMS Gateway.

Best practices

- Success was partly due to a decision to make use of widely available mobile phones.
- It is helpful to use an existing network of field staff, who should have the trust of local communities.
- Information sharing and training is critical at every level.
- Government support is crucial, as is collaboration between public and private sectors, international partners and donors, and community-based organizations.
- In order to promote farmers' cooperation, there must be compensation for financial losses caused by culling.

References and resources

- Article - Messages from the farm - www.fao.org/fileadmin/templates/rap/files/Field_programme/2014Bangladesh-message.pdf
- Article - USAID - Ideas that work - www.fao.org/docrep/014/al908e/al908e00.pdf
- Video documentary - Messages from the farm - https://www.youtube.com/watch?v=eEj0
- Indonesia National Animal Health Information System (iSIKHNAS) - www.isikhnas.com
- FAO Animal health thematic page - www.fao.org/animal-health/en/
- FAO Animal production and health - www.fao.org/ag/againfo/home/en/index.htm
- EMPRES - Animal health - www.fao.org/ag/againfo/programmes/en/empres/home.



I6792EN/1/03.17