



SHORT COMMUNICATION

Toward One Health: are public health stakeholders aware of the field of animal health?

Fernanda C. Dórea, DVM, MSc, PhD^{1*}, Céline Dupuy, DVM, MSc^{2,3},
Flavie Vial, BSc, MRes, PhD⁴, Tera L. Reynolds, BA, MPH⁵ and
Judy E. Akkina, MPH, PhD⁶

¹Swedish Zoonosis Centre, Department of Disease Control and Epidemiology, National Veterinary Institute (SVA), Uppsala, Sweden; ²Unité Epidémiologie, Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (Anses), Lyon Cedex 07, France; ³Unité d'épidémiologie animale, UR346, INRA, St Genès Champanelle, France; ⁴Veterinary Public Health Institute, Vetsuisse Faculty, Bern, Switzerland; ⁵International Society for Disease Surveillance, Brighton, MA, USA; ⁶United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, Fort Collins, CO, USA

Motivated by the perception that human and veterinary medicines can cooperate in more ways than just fighting zoonoses, the authors organized a roundtable during the 2013 annual meeting of the International Society for Disease Surveillance (ISDS). Collaborations between human and animal health sectors were reported to often rise in response to zoonotic outbreaks (during crisis time) and be mainly based on personal networks. Ways to maintain and strengthen these links were discussed.

Keywords: *One Health; one medicine; public health; animal health; veterinary public health*

*Correspondence to: Fernanda C. Dórea, Swedish Zoonosis Centre, Department of Disease Control and Epidemiology, National Veterinary Institute (SVA), SE-751 89 Uppsala, Sweden, Email: fernanda.dorea@sva.se

Received: 5 March 2014; Accepted: 18 March 2014; Published: 15 April 2014

The emergence of previously unknown infectious diseases, as well as the introduction of infectious diseases to areas where they did not exist, presents significant challenges to the global population. These emergence events threaten public health and can potentially cause an economic burden resulting from their spread in humans, animals, or both. A 2008 study that evaluated 335 emergence events showed that the majority (60.3%) were zoonotic (1).

In a recent review, Paul Gibbs (2) highlights how the threat of emerging zoonoses became a driver for multi-disciplinary collaborations resulting in coining of the term One Health – an umbrella for animal, human, and ecosystem health – at the beginning of this century. The author also stresses that One Health should go beyond disease emergence and not be restricted to zoonotic diseases. Comparative and translational medicines and toxins are examples of how the One Health concept can extend beyond zoonotic pathogens.

Motivated by the perception that human and veterinary medicines can cooperate in more ways than just fighting zoonoses, the authors organized a roundtable during the 2013 annual meeting of the International Society for Disease Surveillance (ISDS). The roundtable posed a specific

question: 'Is there a need to increase awareness of the field of animal health among public health stakeholders?'. Meeting organizers planned discussions around three main topics: investigating whether public health workers have a low awareness of animal health; discussing what losses could result from the lack of collaboration between these two fields; and suggesting ways to improve awareness and collaboration opportunities.

What is animal health and is it important for public health stakeholders to be aware of it?

To start the discussion, the relevant results from a survey of the ISDS community (3) were presented. There were 165 responders from 28 countries. When asked whether they collaborated regularly with workers from a sector different from theirs, 93% answered affirmatively. Seventy-two percent of the respondents were from the human health sector, and among those stating collaboration with another health sector, 60% pointed to collaborations with the animal sector. However, at the 2013 ISDS Conference, only five out of the 180 abstracts presented work related to animal health (three dealing exclusively with animal health and two dealing with both animal health and public health).

It became apparent during the roundtable discussion that most collaboration results from efforts to control a zoonotic disease. Public health workers know of veterinarians working at many health departments in what is called veterinary public health. However, they are not aware of, or have little collaboration themselves, with animal health agencies and epidemiologists. The question raised was, ‘Should they be more aware?’. The audience presented many different opinions. One participant noted that it should not be relevant whether public health epidemiologists are familiar with animal health and/or collaborate with those agencies and individuals responsible for animal health *per se* (i.e. aimed at diseases exclusively affecting animals); instead, they should focus efforts on zoonotic diseases and areas where multi-disciplinary work is more effective and needed. Other participants, however, pointed out that animal and human disciplines have largely overlapping methodologies, and more collaboration would speed development as each discipline learns from the other’s experience.

The group discussed how this dichotomy remains even in the case of zoonotic diseases. Disease control strategies in human and animal populations remain largely independent from one another. One example mentioned was *Salmonella* outbreak investigations, which are often closed once their source has been identified as an animal product. Stronger collaborations with the animal health sector would allow continuing investigations to better understand the entire contamination pathway and result in control measures to prevent further outbreaks in both humans and animals.

A very practical comment reminded the audience that this is not only a question of ‘should we do it?’ but also, ‘How could we do it?’. A participant said, ‘We should care about animal health for the sake of it. However, in reality, people gain an interest in animal health because of zoonoses. It may be difficult to foster interest in animal health by the human health sector if we leave zoonoses out of the equation’.

Examples of fruitful collaborations

A former Ohio Department of Health worker reported that the veterinary college, the Department of Health, USDA Wildlife Services, and state agriculture partners used to routinely hold joint meetings to discuss surveillance coordination. ‘We did it very easily and we kept individual goals in mind, but the important thing is that it opened doors for so many other collaborations and activities: education of veterinary students and public health students, a rabies baiting program, coordinating efforts and logistics, etc.’. This case highlighted many ways agencies can benefit from multi-disciplinary collaborations. It also led to a discussion on how building and routinely fostering/nurturing personal connections among the agencies can greatly improve the coordination

of efforts when rapid action is needed, such as during an outbreak control situation.

A success story was reported from Singapore, where a true One Health governmental initiative was built by joining animal health, human health, and environmental health interests. The initiative’s aim was to develop joint activities in four areas: capability development, protocol development, risk communication, and information sharing. Another success story came from the University of Illinois, where a system called ‘Indicator’ was created for animal and human health workers to routinely look at cases together.

A state epidemiologist from North Dakota also reported successful collaboration stories. In her view, the threat of zoonoses in the state, such as tuberculosis and West Nile virus, caused public health and animal health agencies to understand the need to collaborate and work together. She discussed how collaborations built to fight specific diseases opened doors for joint work that strengthened disease control efforts against new emerging threats in the state. A participant from the US Department of Defense shared his experience meeting three times a year with others from institutions involved in human, animal (including wildlife), plant, and environmental health.

Most participants enthusiastically agreed that ‘the bridges must be built in a time of peace’, but also pointed out that in reality, most fruitful collaborations were established after a zoonotic disease outbreak forced animal and public health workers to connect and work together. Overall, most participants recognized that such collaborations are often built on a personal, rather than institutional, level, and each worker must actively build networks of public and animal health workers to guarantee fast communication and crisis response.

Differences among disciplines – possible barrier?

Participants discussed whether different goals and strategies among the human and animal disciplines could hinder collaboration. Some differences included the economic value of animals (livestock in particular), different epidemiological units (individual in humans versus herds in animals), and different concerns regarding data sharing and protection, which can be less strict in animal health.

Some participants suggested that differences represent learning opportunities, rather than barriers. For example, new methods develop much faster in human health due to more resources, and animal health can benefit from these developments. However, in other fields, animal health scientists have more available research subjects and individual data, and in those cases they could lead the development of new methods.

The group also identified many obstacles. One participant mentioned the animal industry’s economic interests. Another participant disagreed, stating that animal

owners' economic considerations do not necessarily mean that animal and public health workers have different missions. Veterinary health agencies also cite maintaining the health and welfare of animals as their primary institutional goal.

While their missions may be similar, health workers often have different work cultures and ways of handling their target populations. Increased collaboration needs to be based on educating workers from both disciplines on issues they will face when working together with animal and human populations. The importance of a joint mission statement and joint communication strategy to the public should not be underestimated. Communication failures resulting in different messages from human and animal agencies often result in mistrust by the public.

The culture differences between animal health and human health became apparent during the roundtable. Health workers from both disciplines expressed concern about whether one side could appropriately handle epidemiological knowledge/data from the other side. Several participants had experienced difficulties in sharing data or samples. Others strongly defended their right *not* to share such data, as agencies must guarantee confidentiality to access the information in the first place. The group mentioned examples of public over-reaction to common animal health issues, such as anthrax. But the audience was positive that trust can be built when both sides are committed.

Solutions – how can collaborations be strengthened?

Participants touched on the need for animal and public health institutions to integrate their functions around the One Health framework, rather than building informal networks of specific individuals. Judy Akkina described the One Health Coordination Office established by USDA's Animal and Plant Health Inspection Service (APHIS), Veterinary Services, whose 'goal is to form a culture of internationally recognized experts to meet the need of animal health integration with public health; to build and to strengthen collaborations'. This office's focus areas are pandemic and animal disease preparedness, zoonoses engagement and response, global health security, pre-harvest food safety, and antimicrobial resistance.

Céline Dupuy mentioned the example of the Triple-S (Syndromic Surveillance Systems in Europe), a 3-year project that provided a platform for animal and public health scientists to discuss how to implement syndromic surveillance systems and build guidelines.

The audience agreed that conferences intended for both public and animal health scientists and stakeholders would be good venues to establish relationships, and the ISDS annual meeting was cited as one such opportunity. An invitation was extended to the discussion group to

participate in the International Conference on Animal Health Surveillance in Havana, Cuba, May 7–9, 2014. Of interest is a comment from the audience regarding the need to extend this discussion to those tasked with surveillance design and implementation. Gray literature resources on One Health are still scattered and hard to make sense of, and that is a limitation to reach many health stakeholders.

The roundtable leaders felt strongly that concrete opportunities need to follow these proposals, starting with writing this document. Other actions should include the promotion of One Health webinars and utilizing the support offered by the ISDS.

Since this roundtable, ISDS support of One Health activities has resulted in the organization of the first ISDS animal health literature review. The ISDS organizes bimonthly literature reviews to cover recent publications on predefined health topics. Discussions among participants identified possible topics that could interest both human and animal health sectors, such as evaluation of surveillance systems' cost effectiveness and performance (e.g. data quality, sensitivity, and specificity). Future literature reviews will highlight publications from both sectors. These literature reviews will also provide a good opportunity to identify future speakers for One Health webinars.

Conclusions

The roundtable showed interest in One Health not only from animal health scientists but also many public health stakeholders who realize the importance of building common programs and establishing closer connections. Even though collaborations between human and animal health sectors are often built to respond to zoonotic outbreaks (during crisis time) and are mainly based on personal networks, this roundtable highlighted the interest in maintaining such collaborations after the crisis. Ways to maintain and strengthen these links should be investigated and documented, and some examples include joint surveillance planning, tabletop exercises for emergency response, laboratory capacity and testing cooperation, and regular One Health stakeholder meetings and trainings.

The support of the ISDS by promoting the roundtable, joint literature reviews, and webinars has been very important to stimulate connections. This interest needs to result in concrete actions aimed at permanently integrating the animal health and One Health theme into the Society's program. These actions may serve as examples to epidemiologists and health workers across professional organizations.

Acknowledgements

The authors thank the ISDS for hosting the roundtable.

Conflict of interest and funding

The authors have not received any funding or benefits from industry or elsewhere to conduct this study.

References

1. Jones KE, Patel NG, Levy MA, Storeygard A, Balk D, et al. Global trends in emerging infectious diseases. *Nature* 2008; 451: 990–3.
2. Gibbs EPJ. The evolution of One Health: a decade of progress and challenges for the future. *Vet Rec* 2014; 174: 85–91.
3. Reynolds T, Storn B, Fine A, Burkom H, Stout T, del Rio V. Data sources and analytical techniques: a survey to the ISDS community. Available from: http://www.syndromic.org/storage/documents/isds-conference/2013-Conference/presentations/del-rio-isds_2013_v2.pdf [cited 5 March 2014].