Knowledge, attitude and practice towards zoonoses among public health workers in Nyanza province, Kenya

Peter Omemo,[1] Eric Ogola,[2] Gamaliel Omondi,[3] Job Wasonga,[4] Darryn Knobel[5]

[1]Veterinary Public Health Division, Veterinary Department, Kisumu District, Kenya; [2]Kenya Medical Research Institute, Centres for Disease Control, Kisumu, Kenya; [3]Ministry of Public Health and Sanitation, Nairobi, Kenya; [4]Association of Public Health Officers of Kenya, Nyanza Province Branch, Kenya; [5]Department of Veterinary Tropical Diseases, University of Pretoria, South Africa

Abstract

We sought to determine the knowledge and attitude of public health workers (PHWs) with respect to emerging and re-emerging zoonotic diseases and the practice of *one health approach* in the surveillance of zoonoses in the community. A cross-sectional study was conducted in 12 randomly selected districts of Nyanza province, Kenya. One hundred and ten randomly-selected PHWs were assessed using a structured questionnaire. Data were collected on their knowledge, attitudes and practices about common zoonotic diseases. Eighty-nine (81%) questionnaires were received back. Eighty-seven (98%) said they discuss zoonotic diseases with the local villagers during their community health work. The most commonly discussed disease was rabies (n=39). Seventy-six (85%) respondents reported ever discussing zoonoses with their veterinary colleagues. Over 85% of the PHWs asked for refresher training on H1N1, and 51% require training on highly pathogenic avian influenza (H5N1). Despite fair knowledge of rabies among the PHWs in Nyanza province, there is need for improving their attitude of the emerging and re-emerging zoonoses. There is also need to improve their practice in terms of collaboration with the veterinarians in zoonoses surveillance in the community.

Introduction

A succinct definition of public health, which is broad in scope and of wide appeal, is *collaborative action for population-wide health improvement*. This definition emphasizes the hallmark of the public health community.[1] The competencies required by the public health workforce include an ability to identify, monitor, and manage population health problems, and to inform, evaluate and advocate for appropriate health and inter-sectoral interventions.[2] In Africa, zoonotic diseases including rabies, brucellosis, anthrax and sleeping sickness are still widespread.[3] Both domestic and wild animals have been known to be important reservoirs of zoonoses.[4] In the developing countries both animal and public health surveillance systems have been slow to act on emerging and re-emerging zoonoses in sub-Saharan Africa.[5] This could be due to lack of knowledge or insufficient systematic continuing education and opportunities to acquire new knowledge on zoonoses for the front line health workers.[6] This results in poor quality of epidemiological data on zoonoses and their control measures in both animal and human populations particularly in sub-Saharan Africa.[7]

In Kenya, Rift Valley fever, rabies, brucellosis, etc. have been documented as being among the most common zoonoses but a public health worker on routine surveillance of community health will probably talk about a wide array of diseases other than zoonotic diseases.[8] This underscores the fact that public health workers have not been giving due consideration to animals as carriers of diseases that can be transmitted to humans.[9] When a public health worker is not well informed of how a particular zoonotic disease manifests or does not know how to investigate for its presence, there is a higher chance of developing a wrong attitude as one would not bother to collaborate with the veterinarians.[10] Knowledge of reservoirs of zoonoses and the way they are transmitted to humans has enabled not only early detection and reporting but also their control.[11,12]

Survey materials and methods

A cross-sectional survey was carried out in Nyanza province, Kenya, between November 2010 and January 2011. Twelve districts were randomly chosen using the table of random numbers. The districts sampled were: Homa-Bay, Kisumu East, Rongo, Kuria West, Rachuonyo, Gucha, Kisii South, Ugenya, Kisii Central, Ndhiwa, Suba, and Nyatike located around Lake Victoria in western Kenya.

The inhabitants of Nyanza province generally keep some type of livestock including dogs and cats.

There are two cadres of public health workers in Kenya namely, public health officers (PHOs) and public health technicians (PHTs). PHOs undergo diploma or degree level training. PHTs undergo certificate level training. For the purpose of this study, both cadres of personnel have been referred to as public health workers (PHWs).

The distribution of the two categories of personnel in the districts is random and both execute the same tasks although the PHOs supervise PHTs in the field. In total, 61 PHOs and 28 PHTs participated in the questionnaire survey.

Data collection

A semi-structured open-ended questionnaire was developed and pre-tested before being distributed to the selected districts. The distribution to the staff at the district level was random. The diseases assessed were: Rift Valley fever, anthrax, rabies, brucellosis, highly pathogenic avian influenza, echinococcosis, taeniasis and swine influenza. Data were also collected on training needs of the respondents with regard to zoonotic diseases. On knowledge about zoonotic transmission, the emphasis was on emerging and re-emerging zoonoses. Questions were asked about etiology, transmission and control of avian influenza (H5N1) and H1N1 viruses.

Data analysis

All the responses on whether the public health worker could remember the etiology, transmission and control of certain emerging zoonoses were assessed in relation to the

Correspondence: Peter Omemo, Veterinary Public Health Division, Veterinary Department, Kisumu District, Kenya.
E-mail: peteromemo@yahoo.com

Key words: zoonoses, public health workers, knowledge, attitude, practice.

Acknowledgements: this survey was made possible through the facilitation of the Provincial Public Health Officer, Nyanza province and the many District Public Health Officers. We acknowledge the cooperation of the various Public Health Workers who took part in the study.

Contributions: the authors contributed equally.

Conflict of interests: the authors report no conflict of interests.

Received for publication: 29 October 2011.
Accepted for publication: 22 August 2012.

Journal of Public Health in Africa 2012; 3:e22
doi:10.4081/jphia.2012.e22

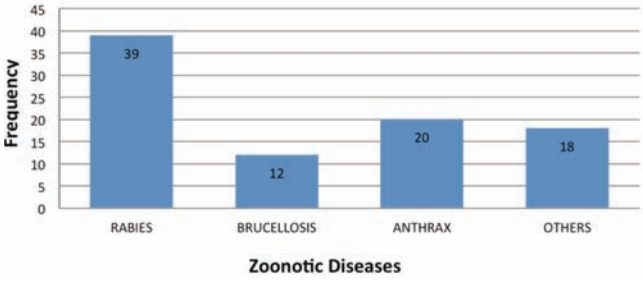

Figure 1. Distribution of commonly discussed zoonotic diseases by the public health workers.

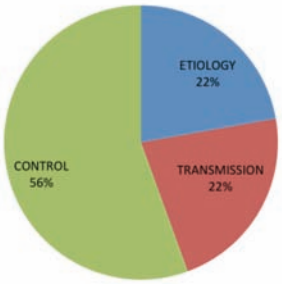

Figure 2. Public health workers correct knowledge of etiology, transmission and control of H5N1.

information provided by zoonoses text books[13] and were assigned as: *True* if the response was the same or closely similar to the documented, *False* if it was not and *Partial* if the respondent had some correct knowledge of a particular aspect of a zoonosis and incorrect on the other aspect. Frequency data were analyzed using SPSS software.

Results

Completed questionnaires were received from 89 (81%) of the respondent (n=110). Gender distribution of the respondents was 71 (80%) male and 18 (20%) female. Sixty-two (70%) respondents reported having encountered zoonotic diseases in the course of their work. Rabies was listed as the most common disease encountered by these respondents 50 (56%) followed by brucellosis 8 (9%). Almost all respondents 87 (98%) discuss zoonotic diseases with the members of the community in the course of their work. The most commonly discussed diseases were: rabies (n=39), anthrax (n=20) and brucellosis (n=12) (Figure 1). Seventy-six (85%) respondents reported ever discussing zoonoses with colleagues in the veterinary profession. Among those who replied in the negative (n=13), the majority (10) stated that there has never been a joint forum to discuss zoonoses in the community. Majority of the respondents felt competent to discuss rabies (85%), anthrax (76.4%), taeniasis (56.2%), brucellosis (48%), echinococcosis (hydatidosis) (47%), Rift Valley fever (36%), H1N1 (31%), while H5N1 was only 8%. The percentage of respondents who felt that they needed refresher training in the zoonotic disease control was: H1N1 (85.4%), H5N1 (50.6%), rabies (38.2%), Rift Valley fever (28.1%), echinococcosis (20.2%), brucellosis (14.6%), anthrax (12.4%) and taeniasis (7.9%). Assessment of knowledge showed that only 12 (13.5%) respondents had correct knowledge of the etiology (n=4), transmission (n=4) and/or control (n=10) of H5N1 (Figure 2).

Discussion

Many factors have been mentioned as contributing to under-reporting of zoonotic diseases particularly in sub-Sahara Africa. Surveillance and control of zoonoses depend largely on the level of understanding of the diseases by the frontline PHWs.

In order to prevent and control zoonotic diseases in humans and animals, there is need for both veterinarians and PHWs to understand the interconnections that exist among human, animal and environmental health. Efforts should be made to equip PHWs with adequate knowledge on the emerging and re-emerging zoonoses. A large number of respondents in this study indicated their desire for refresher training in emerging influenza viruses (H1N1 and H5N1). There is also need to strengthen links between human and animal health workers by organizing joint forums on zoonotic disease surveillance under the *one health approach*.

Conclusions

The results showed that PHWs had good knowledge of rabies, anthrax and taeniasis but deficient in brucellosis, echinococcosis, Rift Valley fever and H1N1, while only 7.9% felt competent to talk about H5N1. Lack of joint forums between public health workers and veterinarians was found to impede the enhancement of the *one health approach.* Public health workers need more knowledge, correct attitude and skills to enable them conduct surveillance and teach the public precautionary measures against zoonotic diseases.

References

1. Beaglehole R, Bonita R, Horton R, et al. Public health in the new era: improving health through collective action. Lancet 2004; 363:2084-6.
2. Pan American Health Organization. Public health capacity in Latin America and the Caribbean: assessment and strengthening. Washington, DC: Pan American Health Organization; 2007.
3. Murphy FA. Emerging zoonoses. Emerg Infect Dis 1998;3:429-35.
4. Haydon DT, Cleaveland S, Taylor LH, Laurenson MK. Identifying reservoirs of infection: a conceptual and practical challenge. Emerg Infect Dis 2002;8:1468-73.
5. Kahn LH. Confronting zoonoses, linking human and veterinary medicine. Emerg Infect Dis 2006;12:556-61.
6. Asano K, Suzuki K, Asano R, Sakai T. [Investigation on zoonoses among veterinary technicians]. Kansenshogaku Zasshi 2003;77:323-30. [Article in Japanese].
7. Perry BD, Randolf TF, McDermott JJ, et al. Investing in animal health research to alleviate poverty. Nairobi, Kenya: International Livestock Research Institute (ILRI); 2002. p 133.
8. Steinmann P, Bonfoh B, Farah Z, et al. Seroprevalence of Q-fever in febrile individuals in Mali. Trop Med Int Health 2005; 10:612-7.
9. Holden S. The economics of the delivery of veterinary services. Rev Sci Tech 1999;18: 425-39.
10. Beaglehole R, Sanders D, Dal Poz M. The public health workforce in sub-Saharan Africa: challenges and opportunities. Ethn Dis 2003;13 Suppl 2:S24-30.
11. Hubert WT, McCulloch WF, Schnurrenberger PR. Chapter 2. In: Charles C Thomas, editor. Diseases transmitted from animals to man. 6th edition. Springfield, IL: Charters C Thomas; 1975. p17.
12. Martin E, Jones H. Zoonoses: recognition, control, and prevention, vol. 1. Ames, IA: State University Press; 1995.
13. Palmer SR, Soulby EJL, Simpson DIH. Zoonoses: biology, clinical practice, and public health control. New York: Oxford University Press; 1998. p 266.