World Journal of Medical Sciences 12 (4): 361-369, 2015
ISSN 1817-3055

DOI: 10.5829/idosi.wjms.2015.12.4.95260

Assessment of Linkage Between Ministry of Health and Ministry of Agriculture and Rural Development in Effective Prevention and Control of Epizootics

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Abstract: A questionnaire survey was conducted in two Federal ministries of Ethiopia, namely MoH and MoARD and other four regional Agricultural and Health bureaus from the period of November, 2008 to April, 2009, to assess linkages and collaborative work between two ministries in effective prevention and control of epizootics. A total of 50 questionnaire survey and interviews were conducted to assess the linkages. The result indicated that absence of research works on the magnitude of zoonotic diseases in the country (28%) and absence of clear cut responsibilities of these two organizations (6%) are main drawback for inter organizational work of these ministries. According to 76% of the respondents there is no regular collaborative work between these ministries. 96% of participants also confirmed that there is no any communication or exchange of information among the two ministries and respective regional bureaus. The loophole on the policy (34.2%), a single record of joint work on avian flu outbreak prevention task force in 2006(62%) and lack of training and upgrading skills of their employees on zoonotics revealed that proper attention was not given for integration of work. In conclusion lack of common understanding between the two professional's bodies and, absence of research works shows the impact of prevalence of zoonotic diseases in the country. Absence of initiation and motivation to stand first in discharging responsibilities from both ministries and regional bureaus, lack of communication and updating of information and sharing with each other and absence of clear cut responsibilities in the organization on the policy matter are the main problems for collaborative work and linkages between MoH and MoARD and their respective regional bureaus.

Key words: Collaboration · Zoonoses · Prevention · Control · MoH · MoARD

INTRODUCTION

The world zoonoses is derived from the Greek word *i.e.* Zoon (Animal) and noses (ill/diseases) which is literally known as animal diseases [1]. The world health organization (WHO) defined zoonoses as those diseases and infectious naturally transmitted between non-human vertebrate animals and humans [2].

Man has always been in contact with animal since the time immemorial. In ecological term mankind is a herd and highly socialized animal that tend to congregate into large units. Such congregation provides ideal environment for the spread of herd diseases however before, the dawn of civilization human suffered relatively little form epidemic disease. Since the population was low and dispersed, there was insufficient environmental kindling in which to start the fires of an epidemic [3].

Consequently, specific herd diseases that require proximity of large population did not yet exist in mankind until fairly recent times [4].

As mankind progressively urbanized in close proximity to other domesticated herd animals, the pathogens in these animals eventually adapted and made the leap to human species. Thus, most of human illness can be traced to simillar (identical) illness in domesticated animals. Many modern diseases, even epidemic prone once started out as zoonotic diseases, measles for examples measles originated from pig. Influenza from foul, diphtheria, small pox, AIDS, common cold and tuberculosis may also evolved in other species [5].

Emerging Zoonotic diseases have become increasingly important. Recent examples include high pathogenic avian influenza subtype H_5N_1 in Asia and Eastern Europe and Africa, Monkey pox in the United

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States, Severe Acute Respiratory Syndrome (SARS) in china in 2003, Nipha virus outbreak in Malaysia in 1998-1999 and Bangladesh and BSE in Europe. Many of the agents of bioterrorism are zoonotic in origin [6]. In fact, five of the top six 'category A' disease agent designated as potential bioterror threats by the United States Center for Disease control and prevention (CDC) are zoonoses. These are anthrax, botulism, plague, tularemia and viral hemorrhagic fevers; small pox is not classified as zoonoses [3]. Well known and preventable zoonotic diseases remain important in certain countries and have a high morbidity with the potential for high mortality [4]. As the battle to control known infectious diseases continues, other new threats have emerged, over the past two decades more than 30 emerging diseases have been identified in human for the first time. Consequently more than 75% of the emerging report pathogens and 800 pathogens affecting human's worldwide originated from animal or animal products [7].

The situation is getting worse from time to time throughout human history as the result of population explosion, with technological advancement of transportation; the world became a small village for microbes. Movement of human population for tourism or migration, legal or illegal trans-boundary animals and animal product movement, intensive farming system and intensive animal production with globalization of trade that gives little value for national boundaries consumption of bush meat, importing and dumping of used tires that serve as reservoirs for mosquito breeding, seriously affect the existing of disease prevention and control system. Change of human behavior like increasing number and types of animals kept as pets and animal watching clubs creates a chance of contact and close proclivity of human beings with domestic animal and wild animal disease reservoir are the other surface of problems in controlling such global problem [2].

The increased burden of zoonotic diseases to public health, the social and political impact, the creation of public fear and anxiety because of the sudden onset and the availability of little knowledge of the mode of transmission and mechanism of control as well as the development of drug resistance and absence of new drugs in the pipeline, signaled the need of multidisciplinary concern and integrated zoonotic diseases surveillance, notification, preparedness, prevention and control programs with well organized regulatory bodies are required. Therefore, the United Nations Food and Agricultural Organization (FAO), World Health Organization (WHO) and Office International Des Epizootics (OIE) are leading front of preventing and controlling zoonotic diseases at international level. In Ethiopia, Ministry of Health (MoH) and Ministry of Agriculture and Rural Development (MoARD) as well as other research based organization have involved in zoonotic diseases prevention and control at national level in a very fragmented way with no national coordination or government regulatory and policy support and no documented communication mechanism and exchange of information.

Therefore, in order to have well-functioning and secure public health service with regard to zoonotic and transboundary diseases control and prevention mechanism, consequence and exemplary research work are must and has great role infact. Although the problems are widespread in Ethiopia, preventive, control measures and regulatory mechanisms are not well studied also. Moreover defined research which represents the magnitude and outcome of those zoonotic diseases in the country is scant. Therefore, the objective of this study is

- To assess the existing linkage between Ministry of health and Ministry of Agriculture and Rural Development in effective prevention and control of zoonotic and transboundary diseases in Ethiopia.

MATERIALS AND METHOD

The Study Site: The research is carried out in Addis Ababa on federal MoH and MoARD offices and some of their respective regional offices like Oromia Region Health and Agricultural Bureaus, Addis Ababa city Administration Agricultural and Health Bureaus, Tigray Region Agricultural and Health Bureaus, Amhara Region Agricultural and Health Bureaus and SNNP Region Agricultural and Health Bureaus.

Study Design: The study was conducted using questionnaire survey (its attached on the annex I) and interviews made with responsible officials in the federal MoH and MoARD and some other randomly selected regional agricultural and health bureaus including: Oromia Region Health and Agricultural Bureaus, Addis Ababa city Administration Agricultural and Health Bureaus, Tigray Region Agricultural and Health Bureaus, Amhara Region Agricultural and Health Bureaus and SNNP Region Agricultural and Health Bureaus. In addition to these offices some research organizations are also incorporated on the research.

Questionnaire Survey and Interviews: A total of 50 responsible officials and researchers were interviewed and filled the questionnaire. Most of the respondents were directors of disease prevention and control department from both ministries and bureaus. In the survey, the existence of integrated activities, as well s the occurrence and absence of updated information exchange were gathered.

Data Management and Analysis: The qualitative data from the official, the Ministry offices and respective regional bureau will be collected and organized; analysis was made using simple statistical calculations on subjective measurement of respondent answers.

RESULT

As most of the respondents are DVM holders, MD and public health related professionals, almost all of the respondents revealed that zoonotic diseases are those diseases that can transmit from animal to humans and vice versa regarding their knowledge's on zoonotic diseases.

Regarding the question which zoonotic diseases are they facing ever since they start their job, 88% of the respondents indicated rabies, hydatidosis, tuberculosis, brucellosis and Cysticercus bovis as the main zoonotic diseases. 8% of the respondents said that, toxoplasmosis in HIV positive people and Ringworm are the main diseases faced them. Anthrax, BSE and RVF are the other stated disease replied by the rest 4% of respondents. Here it must be mentioned that is avian influenza is the disease which came primarily in their minds of almost all respondents.

96% of the respondents agreed that proper attention was not given in combating zoonotic problems. Insufficient epidemiological research data available to know the real magnitude of the problem, lack of coordination, communication and lack of capacity are the different justification for the lack of attention. The rest of the respondents (4%) stated that proper attention was given to battle zoonoses diseases, by giving their host institutes and specific department activities.

From those who respond that no attention was given, 34% of the respondents emphasized on the absence of communication between the two ministries (MoH and MoARD) which lead the professionals to have poor awareness, motivation, collaboration and less attention to these nationwide problems. Whereas, the 46% of the respondents stress and believes shortages of sufficient epidemiological survey on the real magnitude, prevalence and incidence of zoonotic diseases in the country result in providing lack attention. Absence of specific responsible body and loophole on the structure of public health concerns in the two ministries are the remaining justification given by the rest 20% of the respondents.

According to 40% of the respondents, MoARD and Regional Agricultural Bureaus have major responsibilities to combat such zoonotic problems and the same respondents, verify that as zoonotic diseases are mostly originating from animals, this ministry and its respective regional bureaus has primary responsibilities in combating such matter. Whereas, the other 24% of respondents said that, MoH should stand as a first body to fight zoonotic diseases and related problems because they say this ministry is the prime responsible institute for the public health. Rather MoARD has to be responsible to the economic loss due to zoonotic and non-zoonotic diseases of the animals. But they have to consider the participation of veterinary public health officers in their structure. Of course, some of the respondents believe high international attention on public health problems by international and national governmental and nongovernmental organizations made MoH strong in both finance and capacity. The rest 36% of the respondents replied both ministries and regional agricultural and health bureaus should have equal responsibilities as this problem is a national concern.

It is observed from 62% of the respondents from both ministries that they participate in nationwide task force committee. All referred to the committee established for the prevention of emerging avian flu pandemic in2006. All stated that the task force can't remain active after the fear declined. The remaining respondents said some collaborative work was done in 2007 G.C to prevent emerging of RVF due to its outbreak in border town of Ethiopia and Kenya. Apart from this 32% of the respondents explained that they do not participate in any of the task force, meeting, panel discussion and seminars held by both ministries regarding zoonotic diseases. The rest 6% of the respondents stated irregular meeting between officers of the two ministries and panel discussion held very rarely on the prevention and control of rabies.

72% of the respondents replied they do not attend any training program to upgrade themselves in control and prevention of zoonotic diseaes. The rest 28% of the respondents said they do have short term training proposed by their institutions.

Out of 28% of respondents who have taken training and courses on zoonotic diseases, 81.4% confirmed that they took these trainings about avian flu surveillance and prevention strategies during avian influenza outbreak in other countries. The remaining trainees said they got training on epidemiology and public health practices facilitated by their organization.

For the question forwarded to get their opinion on the role of veterinarians and physicians in prevention and control of epizootic, 62% of the respondents said common understanding, integrated work with communication, early detection and early reporting to respected bureaus are expected from both professionals. The remaining 38% of the respondent reported proper handling of zoonotic diseases, like treatment and control is expected from veterinarians than that of physicians.

Concerning about the advantage of working together, the respondent narrated in the following manner. 56% of the respondents' emphasis mainly collaborative work and exchange of information at onset of problems helps to take actions timely and effectively before happening of great disaster. The rest 44% of the respondents gave that working together has an advantage of increasing/strengthen the skill and financial capacity of the two participants who are working together.

The question concerning the role of MoH and MoARD including regional agricultural and health bureaus, 48% of the respondents replied that there should be common regulatory and coordinating body between two the ministries structure. 32% of the respondents believed that surveillance, prevention and control of zoonotic diseases should be the role of the agriculture and veterinary sector. Due to zoonoses impact on the society and having access on primary information in relation to its patient as a reason 20% of the respondents said MoH must have the role of giving information and has to have surveillance and prevention program in order to secure the health of the community.

Most of the respondents agreed that there was no collaboration between MoH and MoARD. Accordingly, 76% responded that there is no collaboration between two ministries. 20% responded that there is teamwork even if it's in weak stage, whereas, the remaining 4% responded that they are not sure whether there is collaborative work or not.

Those 76% respondents, who responded that there is no collaboration, justify their opinion in the following way: 65.8% reason out that, lack of common understanding and awareness between two professionals is leading to decrease in motivation from both ministries and regional bureaus. The remaining 34.2% respondents gave details that, the loophole of the policy *i.e.* the absence of specified low showing the exact mandate and responsible body of zoonotic diseases leads to the absence of integrated work on common issues.

96% of the respondents agreed that, there is no any regular updating and exchanging of information among the two ministries. The rest 4% replied that they believe there is exchange of information, although it is irregular. Furthermore, 36% of respondents answered MoARD should the first to take initiative as animals are the origin of zoonotic diseases. The other 40% responded MoH has to take the initiative to maintain the health of the society. The rest 24% said there should not be a single initiator on such national problems; initiative should come from both ministries and regional bureaus.

Regarding the role and impact of the respondent institution/organization in particular collaborative works on zoonoses, each respondent responded based on their institutional structure and their current job position mainly. Accordingly, 44% of the respondent said that surveillance and control of the major zoonotic diseases like rabies and tuberculosis are done by different department of their institutions. The rest 56% responded attention on meat inspection works on abattoirs and quarantine works on border lines. Joint work was performed by the taskforce established for the prevention of emerging avian influenza to the country.

For the question forwarded finally to get their opinion on what measures should be take for effective prevention and control of epizootic joint works, 40% of the respondents agreed that establishment of common and sustainable national surveillance and prevention program and research center specifically for zoonotic diseases is must. The other 28% of the respondents stated that there should be list of zoonotic diseases with their actual epidemiological magnitude and prevalence in the country. 20% of respondents indicated that presence of strong network in exchange and updating of information between the responsible bodies is important. Providing clear cut responsibilities concerning zoonotic diseases and consequent problems on the policy to each organization is the other alternative idea raised by the last 6% of respondents.

DISCUSSION

Many of the emerging infectious diseases, including those caused by bioterrorist agents are zoonoses [5]. Addressing the challenges of zoonotic

require great communication and collaboration between multi-sector partnership in areas beyond public health including clinical practice and biochemical researches.

According to the result obtained from the study, it can be understand that, human and veterinary medicine appeared as well separated sector and entities in Ethiopia with respect to surveillance prevention and control of zoonotic diseases. The result that almost no attention is given in combating zoonotic diseases as a common responsibilities and consequent problems. Lack of epidemiological researches on the real magnitude and prevention of emerging and reemerging zoonotic diseases in the country, absence of specific responsible body and a gap on the structure of the two ministries on public health issues are some of the main constraints for the absence of proper attention on zoonotic diseases.

Veterinary public health aims to protect human health, animals and the environment from risks that are rapidly evolving as a result of dramatic effects of different diseases. The same is true for physicians; they primarily aimed to protect the human health [2]. In Ethiopia, although these two sectors work separately in order to fulfill their goals, the result of the study showed that no communication and exchange of information shared between veterinarians and physicians. But their integration has great advantage to early detection, timely and effective actions.

MoH in collaboration with WHO regional office has very organized passive surveillance and reporting system. This is a daily basis from the kebele health centers to woreda, zone and finally regional health bureaus. These daily reports have been compiled by Integrated Disease Surveillance and Response (IDSR) department on every Thursday and presented to the minister of MoH every Friday. Among the 23 priority epidemic prone and public health diseases selected by IDSR strategy, 10 (43.47%) are zoonotic diseases. Even though MoARD has monthly report of diseases occurrence and vaccination format, verbal communication with the ministry officials revealed that implementation rate of not more than 40%. In addition, the activities done by MoARD and regional agricultural bureaus are still not satisfactory, except some future planning to increase its implementation rate.

Although both organizations have a reporting system, 96% of the respondents said it can conclude that there is no communication and updating of information between the two ministries and their respective regional bureaus as well.

It has been observed in the study that almost 72% of the respondents have stated that they didn't take any training on zoonotic diseases ever since they started their job. This result shows that these organizations give less attention to combat zoonotic problems by strengthening the knowledge of their employees. Even the rest of respondents who said that they have training organized by their institution, the training titles have focused on a very narrow issue *i.e.* on avian flu pandemic surveillance and prevention systems

As it is observed from different responses in the result, the absence of specific responsible body specifically on zoonotic diseases and lack of provision of clear cut responsibilities on the policy and legislation led to a less and only emergency specific activities of the two ministries. As a result it was necessary to see the proclamation and regulation of FDRE, that PROCLAMATION NO. 471/2005 G.C.

The above proclamation, present a number of articles to provide the duties and power of MoH however, it was impossible, to find a single article which describes the sole responsibility of this ministry with respect to zoonotic disease and their combating programs. Instead, one can observe one article that give an authority to MoH on general communicable and non-communicable diseases prevention and control works. On the contrary, there is no any article that can provide a clear responsibility on zoonotic diseases to the MoARD.

According to literature, 75% of the human pathogens are of zoonotic origin that originates from animals and animal products [2]. The presence of such gaps on the policy has its own impact on addressing proper and strategic control and prevention program to the society. In addition to this, observation about the absence of clear cut responsibilities, officials from both ministries and their respective regional bureaus pointed their fingers to each other.

Based on the findings, one can conclude that the law indicated in proclamation no. 471/2005 has a big legal limitation that need revision and clarification on large scale emerging and re-emerging zoonotic diseases and the clear authorities and responsibilities of the two ministries in Ethiopia.

The other fact which has been observed on the study was that 62% of respondents replied that except the bird flu taskforce, they do not have linkage work. However, this is an indication that coordination between the two ministries is also possible at national level as a permanent strategy to plan and survey zoonotic diseases. This is also true with the swine flu which appeared recently.

From the above facts and the result obtained it can be conclude that there is no common regular national responsible body for combating zoonotic diseases and

related problem in the country. The result also revealed that there is no (except swine flu and bird flu) sustainable linkage work between MoH, MoARD and regional agricultural and health bureaus.

During the survey one can understand that, lack of common understanding between the two professionals, absence of research works which shows the degree prevalence and impact of zoonotic diseases in the country, absence of initiation and motivation to stand first from both ministries and regional bureaus, lack of communication and updating of information with each other and absence of clear cut responsibility of the organizations on the policy are the main problems to maintain regular collaboration and linkage work between MoH and MoARD and regional agricultural and health bureaus. The main result of this study is that there is no regular collaborative and integrated linkage between the MoH, MoARD and their regional bureaus in the country.

CONCLUSION AND RECOMMENDATIONS

Existing, emerging and re-emerging zoonotic diseases are becoming more important and posing ever growing problem in public health, socio-economic and political life of the population in both developed and developing countries. The current situation international attention to this problem has reached its climax.

This study clearly reveals that although the lives of both sedentary farmers and mobile pastoralists in Ethiopia are highly associated with animals and the interaction is high, the lack of scientific and systemic research works on the important zoonotic diseases on human population and animal reservoirs in the country. Additionally, absence of organized institutional based activity to control and prevent zoonotic diseases, lack of trainings and short term courses on zoonotic diseases by the respective organizations to upgrade the skill of their employees are major constraints. Further this study showed absence of motivation, initiation, lack of communication and exchange of updated information and integrated approach to problem solving is not taken by the concerned. The study also showed that there is no clear and specified articles and guidelines on the proclamations which can indicate legally responsibility for implementing immediate and appropriate actions regarding zoonotic diseases. Even though some promising actions are seen, they are only activated while there an emergency. Beside this, these activities are highly limited for short duration and their focus on a single problem which makes them unable to withstand as stabilized national system for zoonoses and associated problems at any time in the future.

Based on the above conclusion the following recommendations are drawn:

- Nationwide surveillance and epidemiological researches have to be conducted to determine the real magnitude of zoonotic diseases in the country.
- Separate national institutions should established with special unit for surveillance and research of zoonotic diseases.
- There should be common motivation and initiation from both ministries and regional bureaus concerning zoonotic diseases.
- Both ministries should have a strong network of communication and information exchange system based on their surveillance and reporting system.
- The government has to be involved on this issue of revising laws. The laws should clearly state the responsible body that can control and take action primarily on zoonoses.
- Institutions should organize training opportunities to their employees in order to upgrade their knowledge and skill on zoonotic diseases and their consequence on the society in general.
- Collaboration work between MoH, MoARD and Regional Agricultural and Health Bureaus is important and be established in order to have the synergistic effect of their solitary power in preventing controlling and eradicating of major zoonotic diseases.

ACKNOWLEDGMENTS

First of all, praise be to almighty God. I am extremely grateful to Dr. Zerihun Tadesse for his unreserved help and rounded help during the study.

Fatherly, I would like to extend my appreciation to W/ro Etenesh Adnew, Ato Nega and all MoH record office staff members for their invaluable contribution in material and moral support.

I like to express my thanks and appreciation to Ashenafi Assefa, for his provision of computer and all my friends who shared me love and experience.

Finally, the whole years would not be a success if for my family support throughout these ups and downs.

ABBREVIATIONS

AHP Animal Health Program (DFID)
BSE Bovine Spongiform Encephalopathy

CDC Centers for Disease Control and Prevention (USA)
DFID Department for International Development (UK)
DVM Doctor of Veterinary Medicine
FDRE Federeal democratic Republic of Ethiopia
HIV Human Immune Deficiency Syndrome
HPAI Highly pathogenic avian influenza
IDSR Integrated Diseases Surveillance and Res367ponse
MD Medical Doctor
MoARD Ministry of Agriculture and Rural Development
MoH Ministry of Health
OIE Office International Des Epizootics
RVF Rift Valley Fever
SARS Sever Acute Respiratory Syndrome
SNNP Southern state Nation and Nationalities of Peopl
WHO World Health Organization

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Annexe

Annex I. Format of Questionnaire survey:

Dear respondents, this questionnaire is prepared to collect information about the presence of linkage between Ministry of Health (MoH) and Ministry of Agricultural and Rural Development (MoARD) in effective prevention and control of epizootics. Your responses are valuable for the improvement if there is linkage or to promote further researches, if there is no collaboration, to have well and secure public health service regarding on the zoonoses prevention and control. Please feel free to provide your genuine responses and all your responses will be confidential. Thank you, for your cooperation!

Instruction: Please fill your answer in the space provided or circle your choice where appropriate.

- Educational status:

Bsc ☐ Msc ☐ MD ☐ PHD ☐ DVM ☐ Others ☐

- Name of your institution/organization
- Current position

1. What do you know about zoonotic diseases?

2. Which zoonotic diseases do you deal with ever since you start your job?

3. Do you think that a proper attention was given in combating zoonoses problems?

   A) YES B) NO

4. If your response is "NO", in the above question, please explain?

5. In your opinion, who is a responsible Ministry to combat such national important problem and why?

6. Do you recall task forces, meetings, seminar, workshops, panel discussion, held between MoH and MoARD regarding zoonotic diseases? (Please specify how many times, months, years)?

7. Ever since after you start your job, do you taken any training for upgrading your knowledge specifically on epizootics?

   A) YES B) NO

8. If your answer is "YES" for question number '7', please indicate the type and duration of the training?

9. In your opinion, what could be the role of a veterinarian and a physician in prevention and control of epizootics?

10. What do you think will be the advantage of working together?

11. What do you think a role of MoH and MoARD role in prevention and control of epizootics?

12. Do you think there is collaboration between these two Ministry offices?

    A) YES B) NO

13. If you reply "NO", where do you think is the problem?

14. Is there any regular updating of information between the two? Why not?

15. Who should take the initiative? MoH or MoARD?

16. What role did your organization/ institution play particularly in collaboration with other similar organization in prevention and control of epizootics?

17. In order to have nationwide effective prevention and control of epizootics, what measures do you think should be taken?

18. Finally if you have any other additional comments please verify it?