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The monetary impact of zoonotic diseases on society: The Turkish Case

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Abstract: In this study, the burden of disease, costs, and animal losses caused by the seven most common zoonoses in humans and the two most common zoonoses in animals are calculated between 2016-2018 in Turkey. It aims to contribute to the literature by providing a holistic framework on the costs and burden of diseases of zoonoses in Turkey. The methodology of the study was based on the formula of "Disease Burden of Zoonotic Diseases" developed by the FAO. It was calculated under "Burden of Early Mortality in Humans", "Burden of Morbidity in Humans", "Financial Value of Lost Animals" and "Reduction in Production Capacity of Infected Animals". All cases which were registered in 2016, 2017 and, 2018 from the Ministry of Health (MoH) and the Ministry of Agriculture and Forestry (MoAF) concerning the relevant diseases were included in the study. It is found that the DALYs of all related zoonotic diseases increased and the costs for diagnosis, treatment, and prevention also rose between 2016-2018. The share of total social cost in the GDP of Turkey was estimated to be 0.0090% in 2016, 0.0097% in 2017, and 0.0113% in 2018. It is argued that the seven zoonoses in the scope of this study have an increasing burden graph on Turkish society between 2016-2018. Moving from the fact that most infectious diseases that threaten human and community health are of zoonotic origin and difficulties in predicting when, where or how a zoonotic disease will occur, all sectors should continue to carefully monitor events related to zoonoses and carry out joint studies.

Keywords: Burden of diseases, cost of zoonotic diseases, Turkey, zoonotic diseases.

Zoonotik hastalıkların toplum üzerindeki parasal etkisi: Türkiye örneği

Özet: Bu çalışmada Türkiye'de insanlarda en sık görülen yedi ve hayvanlarda en sık görülen iki zoonotik hastalığın 2016-2018 yılları arasında neden olduğu hastalık yükü, hastalık maliyeti ve hayvansal kayıplar nedeniyle oluşan yük hesaplanmıştır. Türkiye'deki zoonotik hastalıklarının toplam maliyeti ve hastalık yükü üzerine bütünsel bir çerçeve sunarak literatüre katkıda bulunmayı amaçlanmaktadır. Çalışmanın metodolojisinde Birleşmiş Milletler Gıda ve Tarım Örgütü (Food and Agriculture Organization of the United Nations -FAO) tarafından geliştirilmiş olan ‘‘Zoonotik Hastalıkların Hastalık Yükü’’ formülü temel alınarak ‘‘İnsanlarda Erken Ölümlerin Topluma Oluşturduğu Yük’’, ‘‘İnsanlarda Morbiditenin Oluşturduğu Yük’’, ‘‘Kaybedilen Hayvanların Mali Değeri’’ ve ‘‘Enfekte Hayvanlarda Üretim Kapasitelerinde Meydana Gelen Azalma’’ olarak dört ayrı başlıkta hesaplanmıştır. Sağlık Bakanlığı ve Tarım ve Orman Bakanlığından ilgili hastalıklar özelinde 2016, 2017 ve 2018 yılında kayıtlı olan tüm olgular çalışmaya dahil edilmiştir. İlgili tüm zoonotik hastalıkların DALY'lerinin 2016-2018 yılları arasında arttığı ve tanı, tedavi ve önleme maliyetlerinin de yükseldiği tespit edilmiştir. Toplam sosyal maliyetinin GSYİH içindeki payı ise 2016 yılında %0,0090 2017 yılında %0,0097 ve 2018 yılında %0,0113 olarak tahmin edilmiştir. Bu çalışma kapsamında incelenen yedi zoonozun 2016-2018 yılları arasında Türk toplumu üzerinde artan bir yüke sahip olduğu görülmektedir. İnsan ve toplum sağlığını tehdit eden bulaşıcı hastalıkların çoğunun zoonotik kökenli olduğu ve bir zoonotik hastalığın ne zaman, nerede ve nasıl ortaya çıkacağını tahmin etmedeki zorluklardan hareketle, tüm sektörler zoonozlarla ilgili olayları dikkatle izlemeye ve ortak çalışmalar yapmaya devam etmelidir.

Anahtar sözcükler: Hastalık yükü, Türkiye, zoonotik hastalıklar, zoonotik hastalıkların maliyeti.

Introduction

Zoonotic diseases (also known as zoonoses) are infectious diseases that can be transmitted from animals to humans. Approximately 60% of all human diseases and 75% of the infectious diseases that occur are derived from zoonotic origin (9). Since zoonoses can cause disease both in humans and animals, their effects and management policies of these diseases concern both areas (8).

Many endemic zoonoses have a double effect on the human health and livestock industry. Human populations that are dependent on animal husbandry are not only at risk of health caused by zoonotic diseases, but they are also vulnerable to indirect effects such as dangers on food safety and low levels of animal production and other risks related to the vicious circle of poverty (18). Zoonotic parasitic infections have become principally an increasing concern with the rise of the concept of "One Health" which has emerged as a public health discipline over the past decade, given the changing interactions between people and animals, and global trade and agriculture (23). Thus, the calculation of the economic and social burden of zoonoses on society has started to appear as a significant issue on the agenda of the countries (18). The approach to zoonoses necessitates the prevention and alleviation of diseases from occurring in humans as well as the control and elimination of diseases in animal reserves where appropriate (28). According to Can's study (2), the annual total financial loss of infected cattle, ovine animals, and humans was calculated as 62,006,200 TL (~ 41.3 million $) in the expected scenario. While It was found as 30,100,314 TL (~ 20 million $) in the optimistic scenario; and it was calculated as 92.567.357 TL (~ 61.7 million $) in the pessimistic scenario in the same study (2).

In this study, the burden of diseases; costs and animal losses of the seven most common zoonoses in humans (brucellosis, anthrax, tularaemia, Crimean-Congo hemorrhagic fever [CCHF], rabies, cystic echinococcosis, toxoplasmosis) and the two most common zoonoses in animals (brucellosis and anthrax) were aimed to estimate in between the years 2016 to 2018 in Turkey. The main purpose of this study is to provide a general framework for policymakers by calculating the burden of zoonoses in Turkey for both humans and animals.

Materials and Methods

Turkey has the presence of certain zoonotic diseases like anthrax, brucellosis, tularemia, and rabies. Until today, there have been reported 107 zoonotic diseases that have different factors from each other. In this respect, Turkey Zoonotic Diseases Action Plan (2019 - 2023) was prepared by the MoH in order to determine strategies and objectives for the elimination of the most common seven zoonotic diseases in Turkey. In this article, the priorities determined in the action plan have been taken into consideration and these seven zoonotic diseases (brucellosis, anthrax, tularaemia, Crimean-Congo hemorrhagic fever [CCHF], rabies, cystic echinococcosis, toxoplasmosis) were addressed (17).

The data required for this study were obtained from both the databases of the MoH and the MoFA. The data of 2016, 2017 and 2018 were included in the study because the detailed data needed to calculate the disease burden and cost are available in the databases of the relevant Ministries in a regular and comparable manner since 2016.

Since zoonoses infect both animals and humans, it creates a great burden both on human and animal health (26). The burden of brucellosis and HPAI (Avian Influenza) in Egypt and the burden of brucellosis, bovine tuberculosis and salmonellosis in Kenya were analyzed by FAO to estimate the economic losses of zoonoses. The following formula has been used to calculate the burden of zoonoses in related studies; because a more comprehensive approach is needed that considers the effects it will have on both humans and animals (5, 6):

Disease Burden of Zoonotic Diseases = Burden of Early Deaths in Society + Burden of Morbidity in Humans + Financial Value of Lost Animals + Decrease in Production Capacity in Infected Animals.

The Burden of Disease Calculation: In the study, the burden of disease methodology developed by WHO was used to calculate the burden of zoonoses on humans. According to the WHO methodology; DALY is a health gap measure, that extends the concept of potential years of life lost due to early death to include equivalent years of healthy life lost under individuals being in states of poor health or disability (27). In this framework, the method of attributing a monetary value to a DALY was used in countries where there is no data on the willingness to pay (WTP) a DALY to get its value in monetary terms. Therefore, the Value of a Statistical Life (VSL) estimated in the US was used with a benefit transfer methodology to estimate the willingness to pay for a DALY averted in Turkey. The VSL expresses the numerical value of individuals giving up their income to reduce the risk of death. If the willingness to pay for DALY is to be calculated, it can be represented by the value per Statistical Life Year (VSLY) obtained by dividing the VSL by the discounted expected number of remaining life years (10).

The three following steps were applied in order within the framework of this study. Firstly, the monetary equivalent of the request to pay to avoid DALY was calculated using the VSL value predicted by the US Department of Health and Social Services. Secondly, the benefits transfer method was applied to consider differences in income levels among the US and other countries. This methodology assumes that there is income elasticity of VSL of 1, 1.5, and 2. At this point, the formula that considers the income gap between the US and Turkey

was used to calculate the value of VSLY. The value stated as income refers to the purchasing power parity (PPP) value of the per capita income of the countries in the relevant years (10).

*VSLY T = VSLY the US * (Income T / Income the US)* [1,5]

Finally, the monetary value of these diseases on human health was calculated by multiplying the DALY values of zoonoses in 2016, 2017, and 2018 and the VSL values in 2016, 2017, and 2018. All results are calculated in international dollars using primarily the purchasing power parity exchange rates. The value obtained was calculated separately in TRY and USD using the foreign exchange and purchasing power parity values of the relevant years.

Costs of Disease Analysis: In costs of disease analysis, expenses are generally classified as direct, indirect, and external costs, depending on how the expenses are attributed to the disease. While direct costs are the costs associated with the treatment or prevention of disease; indirect costs are social costs caused by disease, disability, or early deaths. External costs are defined as the effect of economic activity on another economic activity or individuals (12, 16, 21). In this study, direct costs were considered in calculating the human costs of the disease. For this, the following data and their costs are used, which directly form the cost items.

- Prevention costs (vaccination for the emergence of zoonoses and prevention of transmission).
- Diagnosis costs (medical examination, consultation, laboratory and radiological procedures).
- Treatment costs (outpatient and inpatient treatment, medicines and medical devices, supplies, emergency services, surgical procedures, rehabilitation, home care, etc. with other expenses related to the treatment processes).
- Monitoring costs (outpatients examination and other expenses related to laboratory procedures).

Animal Losses: To calculate animal losses; ‘‘Losses Caused by Animal Deaths’’, ‘‘Losses Caused by the Disease (Carcass)’’, ‘‘Compensations Paid Due to Animal Death’’, ‘‘Losses Caused by Unborn Calves/Lambs Lost Due to Animal Deaths’’ and ‘‘Losses Caused by Conditional Slaughter’’ are estimated. Animals that are infected but undead suffer from reduced productivity, especially weight loss, decreased milk production, and loss of fertility. To estimate the value of the total decrease in production to evaluate the economic impact of a disease, ‘‘Meat Losses Caused by the Disease’’, ‘‘Milk Losses Caused by Decreased Lactation Time’’, and ‘‘Milk Losses Caused by Decreased Milk Yield’’ are calculated.

Results

Results Related to Burden of Diseases: As in the Global Burden of Disease 2016 study, while YLDs were analyzed, age weighting and time discounts were not included in the calculations and prevalence data were used in the calculations instead of incidence. Estimates of YLL and YLD values and total DALY values caused by zoonoses are given in Table 1. As of 2016, the disease that created the highest DALY was brucella (860); CCHF was 446; rabies risk contact was 171, anthrax was 30, cystic echinococcosis was 10, and tularemia and toxoplasmosis were found to have 1 DALY. The highest DALY in 2017 belonged to the brucella with 1,083. CCHF was 429, rabies risk contact was 72, toxoplasmosis was 61, cystic echinococcosis was 40, tularemia was 1 caused DALY. In 2018, brucella continued to cause the highest DALY with 1,262. CCHF was 639, anthrax was 119, rabies risk contact was 95, cystic echinococcosis was 22, toxoplasmosis was 2, and tularemia was 1 DALY. Monetary value estimates of the burden of disease of these zoonoses for 2016, 2017 and, 2018 are presented in Table 2. In 2016, DALY which consisted of the seven zoonoses corresponded to a monetary equivalent of $ 188.7 million PPP and 0.0090% of GDP; in 2017, a monetary provision of $ 219.3 million PPP and 0.0097% of GDP. In 2018, it was estimated to be a monetary equivalent of $ 261.6 million PPP and 0.0113% of GDP.

Table 1. YLL, YLD and DALY Values of Zoonoses by Years.

Year	2016			2017			2018		
Zoonoses	**YLL**	**YLD**	**DALY**	**YLL**	**YLD**	**DALY**	**YLL**	**YLD**	**DALY**
Brucella	0	860	860	0	1,083	1,083	50	1,213	1,262
Anthrax	30	0	30	0	0	0	119	0	119
Tularemia	0	1	1	0	1	1	0	1	1
CCHF	428	18	446	415	14	429	619	20	639
Rabies	148	23	171	45	27	72	64	31	95
Cystic Echinococcosis	0	10	10	17	23	40	0	22	22
Toxoplasmosis	0	1	1	59	2	61	0	2	2

Data on the disability weight was taken from the Global Burden of Disease Study 2017 (7), the European Center for Disease Prevention and Control's toolkit, and the studies of Piroozi et al. (15) and Moradi et. al. (13).

Table 2. Monetary Value of Burden of Disease of Zoonoses in 2016-2018.

	2016		2017		2018	
Zoonozes	**Total Value (PPP $)**	**GDP Rate (%)**	**Total Value (PPP $)**	**GDP Rate (%)**	**Total Value (PPP $)**	**GDP Rate (%)**
Brucella	106,738,164	0.0051	140,824,768	0.0062	154,291,324	0.0067
Anthrax	3,766,284	0.0002	1,038	0.0000	14,547,450	0.0006
Tularemia	166,429	0.0000	169,755	0.0000	75,664	0.0000
CCHF	55,367,456	0.0027	55,799,342	0.0025	78,108,402	0.0034
Rabies	21,228,194	0.0010	9,317,312	0.0004	11,557,547	0.0005
Cystic Echinococcosis	1,289,170	0.0001	5,150,407	0.0002	2,726,907	0.0001
Toxoplasmosis	123,774	0.0000	7,969,401	0.0004	269,170	0.0000
TOTAL	188,679,471	0.0090	219,232,023	0.0097	261,576,465	0.0113

Table 3. Diagnosis, Treatment and Control Costs for Selected Zoonoses in 2016-2018 (PPP $).

Zoonozes	**2016**	**2017**	**2018**	**TOTAL**
Brucella	3,695,409	8,508,086	5,900,376	18,103,872
Anthrax	54,731	56,032	84,050	194,813
Tularemia	67,313	175,267	109,099	351,679
CCHF	204,748	186,337	350,971	742,056
Rabies	6,455,025	8,522,646	17,235,674	32,213,344
Cystic Echinococcosis	2,082,846	5,016,932	2,043,361	9,143,139
Toxoplasmosis	196,159	665,668	306,561	1,168,388
TOTAL	12,585,183	23,397,012	25,894,631	61,876,826

Table 4. Total Economic Loss Caused by Brucella and Anthrax in Animals by years (PPP $).

Zoonoses		**2016**	**2017**	**2018**	**TOTAL**
Brucella	Large Ruminant	9,170,180	15,388,268	36,264,523	60,822,971
	Small Ruminant	1,302,000	2,889,920	9,064,147	13,256,067
	Total	10,472,179	18,278,188	45,328,670	74,079,037
Anthrax	Large Ruminant	1,063,393	1,271,022	2,621,348	4,955,763
	Small Ruminant	501,068	609,817	1,211,237	2,322,121
	Total	1,564,461	1,880,839	3,832,585	7,277,885
Total		12,036,640	20,159,027	49,161,255	81,356,922

Table 5. Total Economic Loss Caused by Zoonoses by Years (PPP $).

	2016			**2017**			**2018**			**TOTAL**
Zoonozes	**Value of DALY**	**Treatment and Medicine Costs**	**Animal Losses**	**Value of DALY**	**Treatment and Medicine Costs**	**Animal Losses**	**Value of DALY**	**Treatment and Medicine Costs**	**Animal Losses**	
Brucella	106,839,479	3,698,917	10,482,119	141,137.666	8,526.991	18,318,800	154,083,366	5,892.424	45,267,575	494,247,337
Anthrax	3,769,859	54,783	1,565,946	1,041	56,157	1,885,018	14,527,843	83,937	3,827,419	25,772,003
Tularemia	166,587	67,377		170,132	175,656		75,562	108,952		764.266
CCHF	55,420,010	204,942		55,923,323	186,751		78,003,125	350,498		190,088,650
Rabies	21,248,344	6,461,152		9,338,014	8,541,582		11,541.970	17,212,443		74,343,505
Cystic Echinococcosis	1,290,394	2,084,823		5,161,851	5,028,080		2,723.232	2,040,607		18,328,985
Toxoplasmosis	123,891	196,345		7,987,108	667,147		268,807	306,148		9,549,447
TOTAL	188,858,565	12,768,337	12,048,065	219,719,134	23,182,364	20,203,818	261,223,906	25.995.008	49,094,994	813,094,191
	Total of 2016		213,674,967	Total of 2017		263,105,316	Total of 2018		336,313,908	

Cost of Disease Analysis: The cost of disease analysis of these seven zoonoses selected within the scope of the study was conducted in 2016, 2017, and 2018. Outpatient and inpatient treatment, medical procedures, drugs, and vaccines were taken into consideration. In these seven zoonoses, rabies risk contact ($ 32,213,344 PPP) ranks first, brucella ($ 18,103,872 PPP), and cystic echinococcosis ($ 9,143,139 PPP) in the third place in terms of cost analysis. However, increases in costs varied in line with 2016-2018 years (Table 3).

Animal Losses: Estimates of the economic burden of brucella and anthrax in bovine and ovine are given in Table 4. In 2016, there was a total economic loss of $ 12 million PPP, including approximately $ 10.5 million PPP derived from brucella and $ 1.6 million PPP caused by anthrax. In 2017, an economic loss of $ 18.3 million PPP from brucella and $ 1.8 million PPP from anthrax was found. In 2018, it was estimated that an economic loss of a total of $ 49.2 million PPP including approximately $ 45.3 million PPP from brucellosis and $ 3.8 million PPP from anthrax. In a total of 3 years examined within the scope of the study, it was determined that a total of $ 81.4 million PPP economic losses occurred due to brucellosis and anthrax. The total economic loss due to zoonoses is presented in Table 5 which also summarizes the findings of the study. Accordingly, the zoonoses caused an economic loss of $ 213.7 million PPP in 2016, $ 263.1 million PPP in 2017 and it increased to $ 336.3 million PPP in 2018. The sum of the three years covered by the study; the economic loss of zoonoses reached up to $ 813 million PPP. When this economic loss is evaluated in terms of human and animal origin, the total economic loss ($ 813 million PPP) consisted of $ 731.7 million PPP from human-related losses (90%) and $ 81.3 million PPP animal-related losses (10%).

Discussion and Conclusion

Zoonotic infections have global importance and they have caused great economic losses not only in low and middle-income countries but also high-income countries. The impact of these diseases on public health and the economy can affect even more negatively in developing countries and Turkey which are already under pressure in economic terms. For example, it is known that brucella, which is considered as one of the most common zoonoses in the world by WHO, OIE and FAO, creates an important public health problem by affecting people who are in direct contact with these animals or consume contaminated milk and dairy products in addition to the economic losses in animals (2).

It was found from the data of 2016 that brucella in Egypt constituted 29 DALY and avian flu constituted 214 DALY, and the total social cost of this was 164.458 and 1.209.976 USD (according to Purchasing Power Parity), respectively (5). Similarly, according to a study conducted in Kenya with the data of 2016, brucella caused 502.801; bovine tuberculosis caused 41.590 and salmonella caused 131.160 DALY burden. The social costs of these diseases to Kenya were 4.06 million; 336.5 million; and 1.06 billion USD (based on Purchasing Power Parity), respectively (6). Singh et al. (24) stated that the current economic burden of human brucellosis in India is 627.5 million Indian Rupees per year and it creates a loss of 0.15 DALY per thousand people per year. Piroozi et al.'s study on examining the disease burden of brucella in Iranian society was found that the DALY burden, which was 34.6 per hundred thousand in 2009, increased to 71.4 in 2015 (22).

Although it varies from country to country and the structure of health systems, the estimated cost for each brucellosis case in Spain has been defined as approximately $ 8,000. It was found that the disease caused an average of 13 days of hospitalization and 102 days of job loss (3, 29). A study conducted in Southern Israel was revealed that the costs for patients with brucellosis were $ 57 higher before diagnosis and $ 947 one year after diagnosis compared to non-brucella cases (7).

According to a study conducted in the USA, while the outpatient cost per patient with anthrax is between 422-810 dollars and the inpatient costs are between 4,541-5,380 dollars per person (13). According to the study conducted by Zacchia and Schmitt, it was reported that the total health expenditures due to only anthrax cases reached 177 million dollars in 2001 (30), Similarly, according to a study conducted in the USA, the outpatient cost per patient with tularemia is 722-1.120 dollars and the inpatient costs are between 6.338-7.582 dollars per person (13).

In a study conducted in Italy between 2008 and 2014, it was reported that the cost per patient with cystic echinococcosis cases treated surgically was between 5.874 and 23.077 (median 11.033) dollars (20). In the study conducted by Kreindel et al., the total cost of the treatment applied for prophylactic purposes against rabies risky contact in the state of Massachusetts, the USA for the year was between 2.4 million to 6.4 million dollars, and the cost per patient with rabies risky contact was determined between 632 and 3.435 dollars (14). It is seen that vaccines and immunoglobulin treatments applied for prophylactic purposes in contacts with rabies can be costly. The annual average hospital costs of toxoplasma cases due to different reasons was calculated in a study conducted in Canada. Accordingly, it was calculated as $ 1,971 per person in cases of congenital origin, $ 763 in cases seen in adults,

and $ 5,744 in cases associated with HIV infection and the annual total hospital costs of toxoplasma cases was found to be 1,686,860 Canadian dollars for 2015 (25).

Moradi et al.'s study on the DALY burden of Crimean-Congo Hemorrhagic fever in Iran revealed that CCHF in Iran created a DALY burden ranging from 483 to 1156 between 2009 and 2015 (19). According to WHO's report from 2017, Iran, Turkey, Uzbekistan and Russia reported more than 50 CCHF cases annually and these countries are among the countries with the highest rate of CCHF cases in the world (1).As a result, it can be asserted that the seven zoonoses included in this research have an increasing financial burden on Turkish society between 2016-2018. It is required interdisciplinary cooperation to prevent zoonoses and their related losses as well as a collection of more detailed epidemiological evidence in both humans and animals; reporting of diseases; economic impact studies, including the cost-effectiveness of control programs; conducting protective and preventive vaccination programs; management of infected animals; increasing laboratory capacities and ensuring quality standards. Awareness-raising activities aimed at farmers, healthcare professionals and the general public about zoonoses and risks are also recommended. It was emphasized that the success in the control of zoonoses depends on the harmony between the institutions and related units within the country, the connection with local stakeholders and cooperation with the neighbour countries and international organizations (4, 15). Therefore, it has been suggested that zoonotic control should be handled from a global perspective; it should be carried out with global institutions such as World Organisation for Animal Health (OIE), FAO and WHO by considering global control standards (31).

It is very important to raise awareness of people who provide for livestock farming in terms of prevention on zoonotic diseases and it should be ensured that stakeholders who play a role in human and animal healthcare in a timely and effective way of communication and cooperation. In anti-zoonoses programs; to protect the society and risk groups from zoonoses-related conditions, it is important to spread awareness studies, to ensure the continuity of informative training programs about the zoonoses which are common in Turkey, and to keep them informed about new threats that may develop. To prevent and reduce social costs caused by zoonoses to society, determining the duties and responsibilities among the sectors and realizing actions within these rules are among the basic rules for achieving success in the implemented policies. For this purpose, carrying out joint scientific studies on zoonoses by the relevant stakeholders under the "One Health" concept will not only contribute to both human and animal health but will also reduce the negative socio-economic effects (17).

Burden of disease and cost analysis studies on disease are of great importance because they allow comparison, support the efficient and productive use of limited resources, and contribute to financial sustainability. Cost-oriented studies for policymakers in the field of health are important in determining priorities, distribution of resources, budget management, and agendas. Animal protection and control measures should be given higher priority across the country, as zoonotic diseases such as brucellosis incur heavy financial losses on the animal stock throughout the country (2). It should be taken into consideration that the total cost may actually reach a much higher level by adding the resources to be allocated for the activities to be carried out for this purpose and other indirect costs such as waste and by-product losses that may occur in other industries based on animal husbandry. Most infectious diseases that threaten human and community health are of zoonotic origin and difficulties in predicting when, where or how the zoonotic disease will occur, all sectors should continue to carefully monitor events related to zoonoses and work together to develop defense strategies.

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Ethical Statement

This study does not present any ethical concerns.

Conflict of Interest

The authors declared that there is no conflict of interest.

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