ZOONOSES AS POLITICAL AND ECONOMIC DISEASES

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Abstract
Zoonoses are disease of animal origin, in particular vertebrate animals wild or domestic, that can affect human beings. They are caused by many agents that include bacteria, viruses, fungi, helminthes parasites and some unconventional agents. Among these agents, zoonoses of viral origin appears to always bring about tremendous economic and political response. In recent time the avian influenza or bird flu and the swine influenza (pigs) attracted a lot of international politics and serious economic loss. Also the mad cow disease) Bovine Spongiform Encephalopathy (BSE resulted in serious economic loss in Europe including importation ban. This paper review zoonoses of viral and non viral origin including the current Ebola outbreak and its political and economic implications. Nigeria’s Ebola disease situation is also included, together with the panic it caused.

Keywords: Zoonoses, economic, political, diseases

Introduction
The word zoonosis, the plural being zoonoses in a layman term means a disease of an animal transmittable to man. The World Health Organization in Wikipedia 2014 define zoonosis as any disease or infection that is a naturally transmittable from vertebrate animals to humans (Wikipedia, 2014). In another definition, zoonosis is defined as any disease or infection that is naturally transmittable from vertebrate animals to human and vice versa (WHO, 2014). The use of the term vertebrate animals is to distinguish zoonoses from other diseases transmitted to man by other animals, like insects that are invertebrates. Among such insects transmitted diseases, malaria, reigns supreme (Sani, 2014).

Zoonoses have been recognized for many centuries, and over 200 have being described. They are caused by all types of pathogenic agents including bacteria, viruses, fungi and parasites (Wikipedia, 2014). Zoonoses infection whenever they occur prevents the efficient production of food of animal origin and creates obstacles to international trade in animal products (WHO/Wikipedia, 2014). In addition it cause travel ban from one country to another or from one region to another leading to sensational political and economic consequences. It’s the aim of this paper to review the political and economic implications of zoonoses in the current situation.

Zoonoses and the economy
In the years 2000 and 2001, a zoonosis called bovine spongiform encephalopathy (BSE) commonly known as mad cow disease occurred in some part of Europe led to slaughter and extermination of many cattle causing a lot of economic loss to cattle farmers and insurance companies (Wikipedia, 2014). This is a fatal neurodegenerative in cattle, that causes a spongy degeneration in the brain and spinal cord. It has a long incubation period of between 3 – 8 years and affects all breeds of cattle (Wikipedia, 2014). United Kingdom is the country worst affected, more than 180,000 cattle have been infected and 4.4 million slaughtered during the eradication programme (Wikipedia, 2014). The disease is transmitted to humans through eating food contaminated with the brain and spinal cord or digestive tract of infected carcasses, and by October 2009, the disease had killed 166 people in the United Kingdom (Wikipedia, 2014).

Another zoonosis of economic importance is the avian influenza, popularly known as “bird flu”. The first case was documented in Hong Kong in 1997 (Butel, 2010). It is caused by a virus H5N1. By 2006, the geographic presence of this highly pathogenic H5N1 avian influenza virus in both wild and domestic birds had expanded to include many countries in Asia, Europe, Middle East and
Africa (Butel, 2010). Outbreaks were the largest and most severe on record. Of about 425 laboratories confirmed human cases, by May 2009 more than half have been fatal (Butel, 2010). When the disease occurred in Nigeria, a popular poultry farm in Kaduna State called Sambawa farms destroyed a flock of chickens worth N15,000,000.00 (NTA News, 2007). In many cities in the Northern part of Nigeria like Katsina, where there were no confirmed case of the disease, chickens were sold at one third their cost price out of fear by chicken traders (MOA, 2014).

In 1918 – 1919, the Spanish flu caused by the virus H1N1 caused a disastrous pandemic in Europe with a fatality cases of more than 20 million people. This H1N1 reappeared in 1977, the Russian flu and in 2012 as swine flu but fortunately no reported case in Nigeria or other countries of Africa (Butel, 2010). Yellow fever is a “partial” zoonosis worth mentioning in this paper. Firstly it was one of the earliest disease to originate from monkeys and secondly it is the reason of yellow card. A certificate issued to international travelers certifying them free of this fatal illness (Butel, 2010). There are two forms of yellow fever, the urban type, transmitted from person to person by bites of Aedes mosquitoes. Then the jungle type transmitted from monkeys to man by arboreal mosquitoes Haemagogus Spp. and Aedes species. This disease has for quite a long time being enjoying international recognition and support. The yellow fever vaccine is available and is recommended after every 10 years (Butel, 2010).

The Ebola disease
The Ebola disease is caused by a virus called the Ebola virus which belongs to a group of viruses called filoviruses (Butel, 2010). The two known filoviruses are Marburg virus and Ebola virus. Ebola virus was discovered in 1976 when two severe epidemics of haemorrhagic fever occurred in Sudan and Zaire (now Democratic Republic of Congo). The virus is named after the Ebola river in Zaire (DRC). The outbreaks involved more than 500 case and at least 400 deaths due to clinical haemorrhagic fever (Butel, 2010). In each outbreak, hospital staff become infected through close and prolonged contacts with patient, their blood or their excreta (Butel, 2010).

Subsequent outbreaks of Ebola disease occurred in Uganda (2000), the Republic of Congo (1995, 2001, 2002, 2003), Gabon (1994, 1996, 1997, 2002), South Africa (1996) and Sudan (2004). Epidemics are often stopped by the institution of barrier nursing methods and training of hospital personnel (Butel, 2010). The incubation period of Ebola disease is 2 – 21 day, and it is characterized by fever, headache, sore throat, and muscle pain, followed by abdominal pain, vomiting, diarrhea and rash, with both internal and external bleeding often leading to shock and death (Butel, 2010). Primates especially monkeys are the source of infection. Since Ebola virus was discovered, approximately 1850 cases had been recognized by 2004, with more than 1200 deaths. The outbreaks in 2003 was first recognized by a large number of dead gorillas and chimpanzees (Butel, 2010).

It is probable that Ebola virus has a reservoir host, perhaps a rodent or a bat, and become transmittable to man accidently. Monkeys are not considered to be reservoir hosts as most infected animals die too rapidly to sustain virus survival (Butel, 2010). Human infections are highly communicable to human contacts, generally by direct contact with blood or body fluids. Typically, outbreaks of Ebola virus infection are associated with the introduction of virus into the community by one infected person, followed by dissemination, by person-to-person spread, often within medical facilities (Butel, 2010).
Due to the fact that the reservoir host of Ebola virus is still uncertain, no control measure can be mounted. The use of isolation facilities in hospitals setting remains the most effective means of controlling Ebola disease outbreaks. Strict barrier nursing techniques should be implemented. Extreme care must be taken with infected blood, secretions, tissues and wastes. Personnel involved in the transportation and care of nonhuman primates should be instructed about the potential hazards of handling such animals (Butel, 2010).

There are no specific antiviral therapies available. Treatment is directed at maintaining renal function and electrolyte balance and combating haemorrhage ad shock. There is no vaccine, but candidate vaccines are under development (Butel, 2010).

**Ebola disease in Nigeria**

The coming of an American-Liberian Mr. Patrick Sawyer on July 20th 2014 brought the first case of Ebola disease into Nigeria. The infected Mr. Sawyer was said to be a consultant of the Ministry of Finance (Vanguard Newspaper, 2014). Mr. Sawyer was found to be infected on his arrival at Lagos airport. He became the first victim in Nigeria as he died in quarantine on July 25th, 2014 and his body was cremated later (Vanguard Newspaper, 2014). The female doctor who treated Mr. Sawyer in a private hospital became the second case of Ebola disease, and of course the second victim. A nurse working with the doctor was confirmed positive of the disease. This nurse was said to have left the hospital against medical advice and travelled to Enugu thereby introducing the disease to South East region of Nigeria (TVC News, 2014). The appearance of the infection in the South-South town of Port Harcourt is becloud by uncertainty as the suspected patient is under observation.

The Ebola disease brought a lot of panic and fear among Nigerians. About 370 people who have had close contact with infected Liberian Mr. Sawyer, were put under quarantine, schools resumption date was extended to 13th October 2014 and later reduced to 22nd September, 2014 (NTA News, 2014). The Ebola scare even masked issues at stake in Nigeria, like the Boko Haram insurgency and the kidnapped Chibok girls. Every news medium, every communication network air the Ebola news and text messages were se Nigerian public on preventive measures. In fact disease had ever attracted such a tremendous political patronage and public scare than Ebola disease. In such panic which I am not sure whether it was a mistake or deliberate, the Minister of Health in trying to explain symptoms of Ebola disease, describe world’s number one killer disease, malaria as ‘harmless’. He said: “its symptoms resemble the symptoms of the ‘harmless malaria’ (TVC News, 2014). May be because malaria has frustrated all human efforts in term of eradication but has a cure could be the reason for the Minister’s statement. The worst part of the Ebola scare was that it occurred when members of Nigerian Medical Association were on strike.

In containing the Ebola disease, the efforts of both the Federal and Lagos State governments is really commendable. As at 27th August, 2014, Mr. Jide Idris, the Lagos State Commissioner of Health was quoted saying: there were only 13 confirmed cases of Ebola disease in Nigeria, 5 of them died including the Liberian Mr. Sawyer, 7 were discharged from the hospital giving clean bill of health and only 1 patient remain in the hospital and is almost recovering. The Governments efforts have paid positively as the disease is brought under control within three months. This effort saved the Nigerian pilgrims to Saudi Arabia from travel ban. In comparison, the World Health Organization, put the annual deaths due to malaria at between 1 – 1.5 million with almost 90% of this figure occurring in tropical Africa (WHO, 2007, 2008, 2009). But in recent years, between 2010 – 2014, the mortality figure globally is reduced by 49%. This is credited to the current intervention in malaria control, the rollback malaria programme. In particular the use of long-lasting insecticide treated nets (LLINs)(WHO, 2014). The mortality figure of malaria is still high, but had never attracted such a huge political support globally. The United Nations Secretary Banki-Moon said about 600 million US dollars will be required to control Ebola disease (Aljazeera News, 2014). President Obama of United States had pledged a 150 million US dollars in aid to the four countries affected by Ebola in Africa, Guinea, Sierra-Leone, Liberia and
to a lesser degree Nigeria, to strengthened health facilities and train medical personnel (Aljazeera News, 2014). President Jonathan also announced the release of N1.9bn to construct isolation centres (Vanguard, 2014). As a student of Parasitology with research interest in malaria, I wish malaria could one day enjoy such a political and economic support.

Other zoonoses

Other zoonoses of medical importance include taeniasis or tapeworm infection cause by two species of tapeworms. *Taenia saginata* the beef tapeworm, caused infection in people who eat poorly cooked beef. The disease is very rare among vegetarians and people who do not eat beef (Paniker, 2007). The other species is *Taenia solium*, the pig tapeworm, cause infection in people who eat pork (pig meat). This infection is rare or absent among Muslims (Paniker, 2007). In both the two species, cattle and pigs serves as reservoir hosts. Rabies is another viral zoonosis in which dogs are the source of infection (Butel, 2010). *Trichinella spiralis* is a zoonosis associated with cattle herdsmen (Paniker, 2007).

Salmonellosis, which cause fever, diarrhea, abdominal pain, malaise and nausea is a zoonosis in which the causative agent is a bacteria, so is brucellosis, plague, Q fever, shigellosis and tularaemia (Brooks and Carroll, 2010).

Dermatophytoses are zoonoses in which fungi are the causative agent. They are transmitted from infected animals to man (Mitchell, 2010).

Conclusion

In conclusion, it can be said that of the 200 zoonoses described, the ones caused by viruses usually generated a lot of political and economic response. For example, yellow fever generated a lot of international politics in the 20th century. Bird flu or avian influenza, swine flu and mad cow disease elicited a lot of political response in the 21st century. Perhaps the greatest and most sensational zoonosis is the Ebola disease. Zoonosis originate from animal and infect humans then transmission becomes person-to-person affair.

Recommendation

The following are the recommendations of this paper:

1. Proper handling of domestic pets like dogs and cats. Even exotic pets like monkeys, hyenas, reptiles and lions. Most of animals serves as reservoir host to many of these zoonoses infections.
2. Proper cooking of meat and the avoidance of eating raw or poorly cooked meat.
3. Proper handling of animals most especially by hunters and herdsmen. The way hunters handle their kills predisposes to zoonoses.
4. Children should be discouraged from playing with domestic pets especially dogs.
5. Environmental and personal hygiene must be encouraged. For disease like Ebola, personal hygiene is the best preventive measure. Simple washing of hands with soap or sanitizers are common examples.
6. Port health and other quarantine procedures must be vigorously pursued. More environmental health officials need to be employed by the government.
7. Government should discourage the importation of wild and domestic animals into the country.
8. Health care delivery system of the country should be strengthened and health care workers should be adequately trained and equipped.
9. Health facilities for isolation and barrier nursing especially at places near the Country’s border with other countries should be constructed.
10. There should be adequate funding for research in health care especially vaccine development for zoonoses and other infections.
11. Protective clothing should be worn by both health workers and veterinary workers when practicing their profession.
12. Health talks and campaigns using both the print and electronic media is very essential and should therefore be encouraged by all levels of government.
13. People afflicted by any zoonoses or other infections should make their situation
known, not to hide for fear of publicity or quarantine.

References


Minister of Education Mal. Ibrahim Shekarau quoted on 20th August 2014 announcing the extended school, resumption date on NTA News at 9.00.


