

THE EBOLA PANDEMIC IN HISTORICAL  
PERSPECTIVE, 1976 - 2014

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**Abstract**

Diseases are not strange to humans and human beings are not strange to diseases. The latest challenge and threat of the Ebola pandemic is, however, alarming. This paper examined the Ebola pandemic in historical perspective since its first discovery in 1976. Primary and secondary sources were synthesized in writing this paper. Findings revealed that the Ebola pandemic is a serious danger to the continued existence of humanity; if not properly managed. It was recommended that proactive measures should be employed by government all over the world to check this new challenge.

**Key words:** Ebola, pandemic, historical perspective.

**Introduction**

That death is certain is an understatement. It is not only certain, but it is also inevitable. One of the major causes of death is diseases. In fact, diseases and humans are like day and night that are always together. It has been ascertained that over twenty thousand diseases afflict mankind (Right Diagnosis, 2014). It should be noted that of all the major causes of death, diseases are only a part of the natural causes. Natural causes of death have been described as those that

are primarily attributed to an illness or an internal malfunction of the body not directly influenced by external forces (Quan, 2014). A good illustration of other forms of death through natural causes is death from a glaring allergic reaction to bee sting (Palmer, 2009). Unnatural causes on the other hand have been described as those caused or occasioned by active intervention or external forces (Palmer, 2009). These are usually given as accident, misadventure, suicide or homicide and so on. Yet the third category of death is also generally called undetermined (Quan, 2014). It should be noted that old age is not scientifically accepted as a cause of death as it is believed that more direct causes of death always present themselves, and in which case could be held responsible for death rather than old age.

Tracing the origin of diseases on this planet earth is a rather herculean, if not an impossible endeavor. It is not clear when diseases first started among the human inhabitants of the world. However, it has been suggested that people have suffered from various types diseases for millions of years (Wolfe, 2014); implying that diseases are almost as old as mankind itself. A definite origin of diseases is that, though it did not start with the invention of agriculture, it escalated with its rise only about eleven thousand years ago. This is implied because these diseases were only sustained in large dense human populations that hitherto were not in existence before the growth of agriculture (Diamond, 1997). The foregoing therefore supports the assertion that diseases are timeless. Another explanation that is germane to the foregoing point is that given in the Holy Books of the Bible and Quran relating to the fall of man in the Garden of Eden. Man was not designed for death but when sin came in, the human body was destined to die and thus go back to the dust from where it came. Corruption and vulnerability to disease now set in.

It is also quite pertinent to examine the types of diseases that abound for a better understanding of the issue at hand namely. Various types of diseases have been identified by scholars, examples of such include infectious diseases, non-infectious diseases, airborne diseases, lifestyle diseases, food borne illnesses, mental illnesses, organic diseases, acute diseases, chronic diseases, refractory

diseases, progressive diseases, localized diseases, disseminated diseases, systemic diseases, sexually transmitted diseases, and gender based diseases, among many others. Other broad categories of diseases included but are not limited to known and un-known, curable and incurable, named and un-named diseases and so on. In the case of the Ebola virus, which is the main focus of this paper, it could be generally classified as a communicable, infectious, contagious, lifestyle, food borne, sexually transmitted diseases.

The Ebola Virus Diseases (EVD) otherwise known as the Ebola Hemorrhagic Fever (EHF) first reared its ugly head in 1976 in Sudan and Zaire, now the Democratic Republic of Congo, in Africa. It is a severe and usually fatal illness in human beings with a fatality rate of up to 90% upon infection (Makiko, 2014). Another clear fact about the Ebola virus is that it is highly contagious and that it is a disease that spreads faster than perhaps any other known diseases including of course the hitherto dreaded Human Immunodeficiency Virus Infection / Acquired Immunodeficiency Syndrome (HIV/AIDS) since the channels of contact and or infection are limited to unprotected sexual intercourse, contaminated blood transfusions, hypodermic needles and from mother to child during pregnancy. This rapid spread of the Ebola disease therefore makes it a potential danger to human populations especially in this age of globalization and urbanization where large populations of peoples always conglomerate.

Another issue to factorize here is pandemic which is also pertinent to the subject at hand. Pandemic has been described variously as being widespread and general. In medicine, it is an epidemic over a wide geographical area and consequently, it affects a large proportion of the population. It is also a disease that affects a wide geographical area with its vast human population. WHO (2010) affirms that the word 'pandemic' was derived from Greek word 'pan' meaning and 'demos' meaning people. Pandemic in this context therefore means an infectious disease spreading through large human populations across a large region like in multiple continents and in some cases even worldwide. From the above, it could thus be argued that Ebola outbreak is a pandemic since it affects a large region. It is also a pandemic to the extent that a large

human population is already affected and is also potentially at risk of being affected. Since Ebola is a disease affecting a large population over a wide geographical spread, it is therefore a pandemic that deserves the attention of all and sundry who are interested in the continued existence of the human race. These interest groups are governments, medical practitioners, religious organizations, civil society groups, the media, historians (especially those interested in the history of medicine), teachers, students, social studies educators among several others.

### Historical Background of Ebola

As it has been pointed out earlier in this paper, 1976 was the year when the Ebola virus was first discovered in Africa particularly in Sudan and Zaire before it spread to other parts of the world (Smith, 2014). This singular fact explains why 1976 has been chosen as the base year of this paper. As a corollary to the foregoing, 2014 also marks the period when the pandemic assumed alarming proportions with its inadvertent spread to Nigeria, with her vast human populations and other densely populated African nations (Bennett, 2014). This sub-heading shall therefore examine events as they affect the history of the Ebola pandemic in thirty- eight years of African medical history.

Before then, however, it is incumbent on these authors to state that the Ebola pandemic is not altogether new to mankind. The filoviridae family which consists of the Ebola and Marburg viruses have been in existence for between sixteen and twenty-three million years (Soluade, 2014). The fossils of certain rodents, especially hamsters and voles indicate that filovirus genes were present which point out the fact that the Ebola virus, especially, had been in existence as the common ancestor of the rodents (Soluade, 2014). The above therefore is suggestive of the fact that the search for the origins of the Ebola virus should not necessarily be limited to recent times only with a view to finding broad based long lasting solutions to the pandemic. However, it should be noted that the first officially reported case of the pandemic in humans was in 1976 as previously stated and this paper shall therefore use that year as the base year for the study. The point must, however, be made that the officially reported

cases might not necessarily be the first, there could have been several un-reported and thus un-official cases. This could be more accurate when one considers the fact that in most African countries where the pandemic is rather more prevalent, medical records, inter alia, are not readily available in most cases and where available, are often distorted and thus mis-leading and mostly un-reliable (Soluade, 2014).

Be that as it may, it is quite pertinent to discuss the origins of the Ebola pandemic in humans. The first noticeable cases were reported in Yambuku, in the then Zaire and Maridi, in the defunct Sudan in that year 1976 when a strange disease accompanied by headaches and bloody diarrhea attacked humans (Smith, 2014). Almost in quick succession, other cases soon reared their ugly heads where workers of a certain cotton factory were infected with the Ebola virus. Albeit, it is not quite certain if the cases in Yambuku and Maridi were connected but before long, six hundred and two people had been infected with four hundred and thirty one reported deaths (Smith, 2014).

The severity of the outbreak in Zaire led to the immediate closure of the hospital where the first cases were treated as 65% of the staff, eleven out of seventeen members of staff, died of the virus. In the Sudan hospital, the doctor – in – charge together with sixty-one other staff became infected and forty-one of this number eventually paid the ultimate sacrifice (Smith, 2014). From the foregoing facts, it could easily be deduced that there were secondary and tertiary infected individuals who apparently contacted the diseases through the first victims, hospital staff and of course members of their families who came in contact with them. However, it is incumbent on these authors to stress the fact that the Ebola virus is not an airborne disease otherwise the human casualty would have assumed geometric dimensions which, in turn, would have hastened the demise of the human race.

Proactive measures were immediately put in place by the governments of these countries to checkmate the rapid spread of the disease and the imminent annihilation of humanity. These measures included the immediate closure of the hospitals in the two countries, medical personnel were sent from house – to – house

to identify and isolate new cases in five hundred and fifty villages in the Yambuku area (Smith, 2014). Roadblocks were also set up to restrict peoples' movement toward the areas of infection. All these eventually culminated in nipping the bud of the spread of the disease in the head and not only was the spread of the disease stopped within the affected countries, its spread to other countries was also not allowed. Little wonder then that the spread of the disease was quickly stopped and at last people could heave a sigh of relief.

The first outbreak of the disease was known as Ebola – Sudan or EBOS while the second outbreak became known as Ebola – Zaire otherwise called EBOZ, the word Ebola itself deriving from the name of River Ebola in Zaire (Waterman, 1999). Having said that and not forgetting the fact that the first and second outbreaks of the pandemic had been fought to a standstill, yet there was a third strain in 1989 with the importation of infected monkeys into Reston, Virginia from their original habitation in Mindanao, Philippine (Waterman, 2014). The third strain was nicknamed EBOR or seroconvert. One interesting thing about EBOR is that all the people that were infected with the virus did not develop the Ebola Hemorrhagic Fever (EHF) it was only the nonhuman primates that developed the disease (Waterman, 2014).

The latest strain of the Ebola came about as a consequence of an accident in history when a female ethnologist inadvertently infected herself when she was in the process of performing a necropsy on a dead chimpanzee at the Tai forest in Cote d'ivoire. This incident, which happened in 1994, incidentally gave a new name to the virus namely EBO – CI (Waterman, 2014).

The outbreak of the Ebola pandemic in West Africa  
Since the 1994 accident at the Tai forest, it would appear as if the world had finally seen the end of the Ebola pandemic as no known new cases of infection were seen for twenty years that is 1994 – 2014. The pandemic, so to say, was on a long period of leave of absence only till February 9, 2014 in the prefecture of Macenta, some eight hundred kilometer away from Conakry, Guinea, when some people were presented with symptoms manifested by anal and nasal bleeding (Gatherer, 2014). Medical authorities initially thought

that the infected people had Lassa fever since the symptoms are similar but before long they soon changed their minds. The change of mind happened so quickly because by March 19, there were twenty-three suspected cases already dead (Fink, 2014). This prompted the Guinean government to send samples to Senegal and France for further tests.

By the 22<sup>nd</sup> March, a 14-year old boy had also died of the disease in Buedu, eastern Kailahun District of Sierra Leone. Now, the boy had gone to Guinea to attend the funeral of one of the earlier victims. It was at this point that scientists in Lyon, France confirmed that the outbreak was indeed Ebola by which time there were forty-nine suspected cases in Guinea with thirty-four deaths (Fink, 2014).

By the end of March, 2014, not only had the pandemic assumed alarming proportions with one hundred and twelve cases and seventy deaths in Guinea, indicating a fatality rate of 62.5%; it had also claimed its first victims in Liberia with two cases reported and two deaths (WHO, 2014). That the spread of the disease was unprecedented is no longer in doubt as events between March and June ending indicated. As at this period, there had been five hundred and ninety-nine cases in the West African countries of Guinea, Liberia and Sierra Leone with three hundred and thirty eight deaths. The breakdown of the figures of cases shows Guinea leading with three hundred and ninety cases and two hundred and seventy deaths, Sierra Leone with one hundred and fifty eight cases and thirty – four deaths and Liberia fifty one cases and thirty-four deaths (WHO, 2014).

From the foregoing, it could easily be deduced that the spread had expanded as Sierra, Leone, a previously free country, had now been brought into the 'catchment area' of the pandemic. It must also be emphasized here again that the cases were only the clinical ones that is the cases reported in hospitals meaning that there could have been several non-clinical ones. A corollary to the foregoing is that, not all the deaths could have occurred as a consequence of the infection with the Ebola virus as there were probable and suspected cases as distinguished by medical authorities in the affected countries.

That the pandemic had become so ravaging and rampant is no longer debatable. Such was the enormity of the rampage that burial teams had been set up to bury the ever piling up of dead bodies. Taking care of dead bodies had concomitant social problems and the burial team managers had to cope with choosing between the proverbial devil and the deep blue sea. The dilemma here had to do with disposing the dead bodies quickly, to forestall the risk of infecting people, and managing communities who do not want burial sites in their areas for obvious reasons.

A new dimension had also been added to peoples' responses to the deadly virus. Victims, who had been hospitalized in designated treatment centers, started fleeing, seeking medical help from other orthodox and un-orthodox personnel. Furthermore, people suffering from other illnesses were refusing to report themselves in hospitals for fear of contacting the Ebola virus (BBC, 2014). The resultant effect of the foregoing is that deaths were on the increase in the affected places.

Nigeria, which hitherto had been free of any infection from the Ebola virus, had her first baptism of the virus when on July 20, 2014 one Mr. Patrick Sawyer, a Liberian was first diagnosed and treated for malaria. Before the morning of the next day, it had become apparent that there was a big crisis at hand as the patient had begun to show symptoms of haemorrhagic fever. All these happened at the First Consultants Medical Centre, Ikoyi, Lagos. These symptoms were later to be confirmed as symptoms of the Ebola disease but it was too late for Sawyer as he eventually died of the disease on 25<sup>th</sup> July, 2014 (Adadevoh and Ohiaeri, 2014).

But that was not before Dr. Ameyo Stella Adadevoh tragically had been mistakenly exposed to the virus. All these happened in spite of several proactive measures courageously put in place by the authorities at the First Consultants Medical Centre including the closure of the hospital and the removal of the body and its attendant professional incineration under the watchful eyes of international bodies like the World Health Organization. There was also synergy with relevant States, Federal and International Agencies to prevent a full blown outbreak and to eradicate the diseases altogether (Adadevoh, and Ohiaeri 2014). At the end of September, 2014, the



number of probable and suspected cases had risen to twenty with eight deaths from one probable and two suspected cases with one death as at August ending.

Table 1: Statistics of Ebola cases in West Africa as September, 2014

S/N.	COUNTRY	EBOLA CASES	RECORDED DEATHS
1.	Guinea	1,022	635
2.	Sierra Leone	1,940	597
3.	Liberia	3,280	1,677
4.	Senegal	01	

Source: WHO (2014)

However, as at this period, the spread of the disease had already abated as government had deployed all the resources at her disposal to curtail its spread. Part of the measures put in place by Nigeria, and which had yielded results included the quarantine and continued surveillance of patients, family members and all the persons with which they had contacts. As at 24<sup>th</sup> September, all those under close watch had been released following the completion of their twenty one day mandatory period such that as at this date, there were either no old cases or new ones.

Ogundipe, S. (2014) opines confidently that Nigeria was free of the virus at last at least as at 5<sup>th</sup> November, 2014, forty two days, twice the maximum incubation period for Ebola, after the last contact with a probable or confirmed case had taken place. This means that the chain of transmission had been severed and eventually broken. All these came on the heels of a clean bill of health previously given to the country on the Ebola pandemic by the World Health Organization on the 27<sup>th</sup> October declaring Nigeria an Ebola free country (Ogundipe, 2014).

The foregoing is not suggestive of the fact that the Ebola pandemic was limited to West Africa alone. Far be from it, as events have it that there was a fresh outbreak in the Democratic Republic of Congo (former Zaire) which had been one of the original places

where the virus originated. There were also reported cases in Uganda (GOV. UK, 2014). Indeed as at 30<sup>th</sup> September, 2014 there was a high case of sixty eight probable and suspected cases with forty-one deaths showing a whopping 60.29%.

Elsewhere in the world, the Ebola virus was far from being contained as Durden (2014) reported. There was the case of a nurse who had returned to Australia after offering a volunteering job treating Ebola patients in Africa. She was infected with the virus while in Africa. Istanbul, Turkey had her own dose of the virus where another health worker from Africa also got infected before traveling back home (Durden, 2014). In fact, Germany had announced the third Ebola case with similar antecedents. The United States of America, Canada, Spain and Saudi Arabia were not equally spared (Garland, 2014). As worrisome as the foregoing appears, the light at the end of the tunnel appears to be bright as concerted efforts are being put in place by the authorities of these countries to contain the dreaded virus.

Having examined the historical background of the pandemic generally and in West Africa in particular, it is quite pertinent to examine the causes and transmission of the disease.

### Causes and transmission of Ebola virus

The main cause of the disease is through infection with the Ebola virus. Since the disease also affects non-human primates like monkeys, gorillas and chimpanzees, it is logical to conclude that human contact with any of the infected nonhuman primates would lead to infection. The virus has an incubation period between two to twenty one days upon infection but with no risk of transmission because the patient is not contagious until they start to manifest symptoms (Bradford, 2014). The Ebola virus is highly contagious and usually makes infected persons very sick with up to 90% probability of death caused by the disease. Up till date, 7<sup>th</sup> November, 2014 there are currently no vaccines or definitive forms of treatment (Bradford, 2014).

The virus can be transmitted through direct contact with body fluids and secretions from infected persons like:

- Blood
- Saliva
- Urine
- Mucus
- Semen
- Vomit
- Faeces
- Breast milk
- Sweat

and other body fluids and secretions.

The infection can come about if the fluids and secretions enter the eyes, nose, mouth and through open injury on the skin. The Ebola virus could also be contacted if objects like needles and razors used by an infected person is contaminated and is shared by persons that have not been infected. Moreover, mere touching the body, clothing or bedding of a person infected with the Ebola virus could lead to infection (Bradford, 2014).

Furthermore, having sex with a person sick with Ebola virus also puts people at high risk as semen also contains the virus. Indeed, having sex with male survivors is still a high risk until two months after recovery from the illness (Bradford, 2014). In addition to the foregoing, an infected mother could infect her child through breast feeding. Direct contact with dead bodies of people who died of the virus could also lead to infection and thus continue the chain of transmission.

Inadvertent exposure to people with the virus is also another versatile way of contacting the disease especially of medical personnel and health workers who have to deal with all categories of sick people. Since the symptoms of the disease are similar to those of malaria, Lassa and dengue fevers, suspecting Ebola infection is always the last option thereby increasing the risk of exposure

### Symptoms of the Ebola virus

The symptoms of the Ebola virus include but are not limited to:

- prolonged high fever
- abdominal pain

- joint pain
- chest pain
- muscle pain
- difficulty in swallowing
- headache
- bloody vomiting
- dehydration with no tears leading to sunken eyes and dry tongue
- spontaneous abortions
- shortness of breath
- sore throat
- cough which may contain blood
- weakness
- Bleeding from the mouth, eyes, nose, ears and anus.
- Maculopapular rash
- Hiccups and or
- Loss of appetite

One important thing to emphasize about the foregoing is that not all the symptoms of the disease do present themselves at a given time.

### Cure and control of Ebola

The diagnosis of the Ebola virus includes virologic investigation, full length genome sequencing, phylogenetic analysis and epidemiological investigation (Bradford, 2014). Since there is no known cure or treatment for the disease, supportive care is usually given at the designated medical centers which include oral rehydration therapy by administering slightly sweet and salty water to drink. It also includes the administration of intravenous fluids (Bradford, 2014).

Other forms of control of the Ebola disease include:

- avoid touching body fluids of an infected persons;
- avoid touching or using the clothes, towels, beddings, sheets and blankets used by infected persons;

- avoid sharing objects like syringes, razor blades and needles with patients;
- always cook bush meat very well before consumption;
- do not share or use the same utensils with Ebola virus patients;
- avoid any form of contact with the dead bodies of Ebola victims;
- Washing of hands with soap and running water frequently;
- wearing of protective gears by health workers especially when attending to patients down with Ebola or suspected to have Ebola; and
- avoid eating altogether bush meat like fruit bats, monkeys, pigs, chimpanzees and gorillas.

### Conclusion and recommendations

It has been aptly demonstrated in this paper that the Ebola virus is both a rare and deadly disease which affects both human and non-human primates. The point was made that when the virus first attacked humans in 1976, it was successfully contained during a twenty year moratorium which shows that the feat could be achieved again. Indeed Nigeria and Senegal have blazed the trail as exemplified by their successful containment of the virus as attested to by the World Health Organization.

Furthermore, the disease neither had its origins in West Africa nor was restricted geographically to West Africa. As a matter of fact, other continents of the world have had their own fair share of the Ebola dose. Though, there is this argument that wherever the virus was found, its origins could still be traced to Africa but the fact remains that the virus found its way out of the shores of the continent of Africa. Again countries of Africa had successfully curtailed the disease and thus assisting the world at large in checkmating its spread.

All the recommendations under control of the Ebola disease in this paper are quite pertinent. In addition, other proactive measures should still be taken to totally eradicate the Ebola pandemic as Nigeria had done with Ebola, guinea worm and is still doing about

polio. All the people with symptoms relating to malaria, Lassa and dengue fevers and Ebola disease should be encouraged to seek medical help immediately. Other than health workers who are already equipped with personal protective gears, all other individuals should avoid contact with infected persons.

Furthermore, the fact that there are no infected persons in Nigeria, Senegal and such other countries that have not been affected does not eradicate the potential threat that the virus poses to the continued existence of mankind. There should therefore be deliberate and concerted efforts by governments especially at the national levels to curb the outbreak and spread of the virus. There should be active synergy among relevant agencies in this regard.

The training and re-training of health workers as well as volunteers on the field should be a matter of urgency by governments. Sequel to this, the remuneration of the personnel laying down their lives to safeguard those of others should be improved to serve as sources of encouragement and incentives.

Because Dr. Ameyo Stella Adadevoh paid the supreme price in the course of duty; and used her own life, as it were, as a cannon fodder to keep those of others, she died an honorable and heroic death in the service of her fatherland. Federal and State governments in Nigeria should take urgent steps to immortalize this heroine of our time. Finally, members of the public, especially in Nigeria, are advised to call these toll free numbers if they suspect any person with symptoms relating to malaria, Lassa and dengue fevers and Ebola disease and or if any person is refusing to seek medical help: 0800326524357, 0800-EBOLAHHELP

## References

- Adadevoh, A. S. and Ohiaeri, B. N. (2104). How Ebola virus Disease came to our door, by First Consultants Hospital. In Sahara Reporters retrieved on 22 August, 2014 from [saharareporters.com/2014/08/22/how-ebola-virus-disease-came-our-door-first-consultant-hospital](http://saharareporters.com/2014/08/22/how-ebola-virus-disease-came-our-door-first-consultant-hospital).
- BBC (2014). Ebola crisis: Confusion as patients vanish in Liberia retrieved on 20 June, 2015 from <http://www.bbc.com/news/world-africa-28827091>.
- Bennett, C. (2014). Ebola: Timeline of a ruthless killer. In the Times of India of 7 October, 2014 retrieved on 1 November, 2014 from [m.timesofindia.com/world/rest-of-world/Ebola-Timeline-of-a-ruthless-killer/articleShow/44631033.cms](http://m.timesofindia.com/world/rest-of-world/Ebola-Timeline-of-a-ruthless-killer/articleShow/44631033.cms).
- Bradford, A. (2014). Ebola: Causes and treatment. In Livescience retrieved on 16 October, 2014 from [m.livescience.com/48311-ebola-causes-symptoms-treatment.html](http://m.livescience.com/48311-ebola-causes-symptoms-treatment.html).
- Diamond, J. (1997). Guns, germs and steel. New York: Norton.
- Durden, T. (2014). Ebola pandemic hits Germany, Turkey, and Australia as infected Spanish nurse went un-quarantined for a week. In Zero Hedge retrieved online on 9 October, 2014 from [www.zerohedge.com/news/2014-10-09/ebola-pandemic-hits-germany-turkey-and-australia-infected-spanish-nurse-went-un-quar](http://www.zerohedge.com/news/2014-10-09/ebola-pandemic-hits-germany-turkey-and-australia-infected-spanish-nurse-went-un-quar).
- Fink, S. (2014). How Ebola spread initially. In New York Times retrieved on 20 June, 2015 from [mobile.nytimes.com/2015/06/20/world/Africa/genome-studies-show-how-ebola-spread-initially.html?\\_r=O&referrer=](http://mobile.nytimes.com/2015/06/20/world/Africa/genome-studies-show-how-ebola-spread-initially.html?_r=O&referrer=)
- Garland, R. (2014). Is Ebola a real problem now or still just a hype? retrieved on 3 November, 2014 from [www.wl.com/pages/11970966.php.contentType=31&contentId=4604&pid=431979](http://www.wl.com/pages/11970966.php.contentType=31&contentId=4604&pid=431979).
- Gatherer, D. (2014). The 2014 Ebola virus disease outbreak in West Africa. In Journal of General Virology retrieved on 20 June, 2014 from [www.apinfectologia.com](http://www.apinfectologia.com).

- GOV.UK (2014). Ebola: Overview, history, origins and transmission retrieved on 3 November, 2014 from <https://www.gov.uk/government/publications/ebola-origins-reservoirs-transmission-and-guidelines/ebola-origins-reservoirs-transmission-guidelines>.
- Makiko, K. (2014). Ebola. In Bloomberg QuicTake retrieved on 3 November, 2014 from [www.bloombergtake.com/quicktake/ebola](http://www.bloombergtake.com/quicktake/ebola)
- Nesse, R. M. and Williams, G. C. (2014). Evolution and the origins of diseases. In *why We Get Sick: The New Science of Darwinian Medicine* retrieved on 10 September, 2014 from [web.sbu.edu/physics/faculty/dimattio/claire102/readings/evolution/evil-readings-html](http://web.sbu.edu/physics/faculty/dimattio/claire102/readings/evolution/evil-readings-html).
- Ogundipe, S. (2014). Free at last: The Nigeria Ebola story. In *Vanguard* of November 6, 2014 retrieved on 6 November, 2014 from [www.vanguardngr.com/2014/free-last Nigeria-ebola-story/](http://www.vanguardngr.com/2014/free-last-Nigeria-ebola-story/)
- Palmer, B. (2009). What Exactly are “Natural Causes”.? In *Slate Plus* retrieved on 10 September, 2014 from [www.slate.com/articles/news-and-politics/explainer/2009/12/what-exactly-are-natural-causes.html](http://www.slate.com/articles/news-and-politics/explainer/2009/12/what-exactly-are-natural-causes.html).
- Quan, K. (2014). Death by natural causes explained. In *Nursing Link* retrieved on 3 November, 2014 from [nursinglink.monster.com/benefits/articles/117-death-by-natural-causes-explained](http://nursinglink.monster.com/benefits/articles/117-death-by-natural-causes-explained).
- Right Diagnosis (2014). Diseases of mankind. In *Right Diagnosis* retrieved on 7 November, 2014 from [www.rightdiagnosis.com/disease/](http://www.rightdiagnosis.com/disease/) on 7<sup>th</sup> November, 2014.
- Smith, T. C. (2014). A historical perspective on ebola response and prevention. In *Science Blogs* retrieved on 30 September, 2014 from [scienceblogs.com/aetiology/2014/08/07/a-historical-perspective-on-ebola-response-and-prevention/](http://scienceblogs.com/aetiology/2014/08/07/a-historical-perspective-on-ebola-response-and-prevention/).
- Waterman, T. (2014). Brief General History of Ebola. In *Tara's Ebola site* retrieved on 1 November, 2014 from [web.stanford-edu/group/virus/filo/history.html](http://web.stanford-edu/group/virus/filo/history.html).



WHO (2014). What is a pandemic? retrieved on 3 November, 2014 from [www.who.int/csr/disease/Swineflu/frequently\\_asked\\_questions/Pandemic/en/](http://www.who.int/csr/disease/Swineflu/frequently_asked_questions/Pandemic/en/).

WHO (2014). Ebola virus disease, Guinea (Situation as of 30 March, 2014) retrieved on 20 June, 2015 from [www.afro.who.int/en/clusters-a-programme/dpc/epidemic-a-pandemic-alert-and-response/outbreak-news/4071-ebola-virus-disease-guinea-30-march-2014.html](http://www.afro.who.int/en/clusters-a-programme/dpc/epidemic-a-pandemic-alert-and-response/outbreak-news/4071-ebola-virus-disease-guinea-30-march-2014.html).

WHO (2014). Ebola virus disease, West Africa-update 23 June, 2014 retrieved on 20 June, 2014 from [www.afro.who.int/en/clusters-a-programmes/dpc/epidemic-a-pandemic-alert-and-response/outbreak-news/4172-ebola-virus-disease-west-africa-23-june-2014.html](http://www.afro.who.int/en/clusters-a-programmes/dpc/epidemic-a-pandemic-alert-and-response/outbreak-news/4172-ebola-virus-disease-west-africa-23-june-2014.html).

Wolfe, N. D., Dunavan, C. P. & Diamond, J. (2014). A 16 origins of Major Human Infectious Diseases. In National Centre for Biotechnology Information retrieved on 10 September, 2014 from [www.ncbi.nlm.nih.gov/books/NBIC114494](http://www.ncbi.nlm.nih.gov/books/NBIC114494).