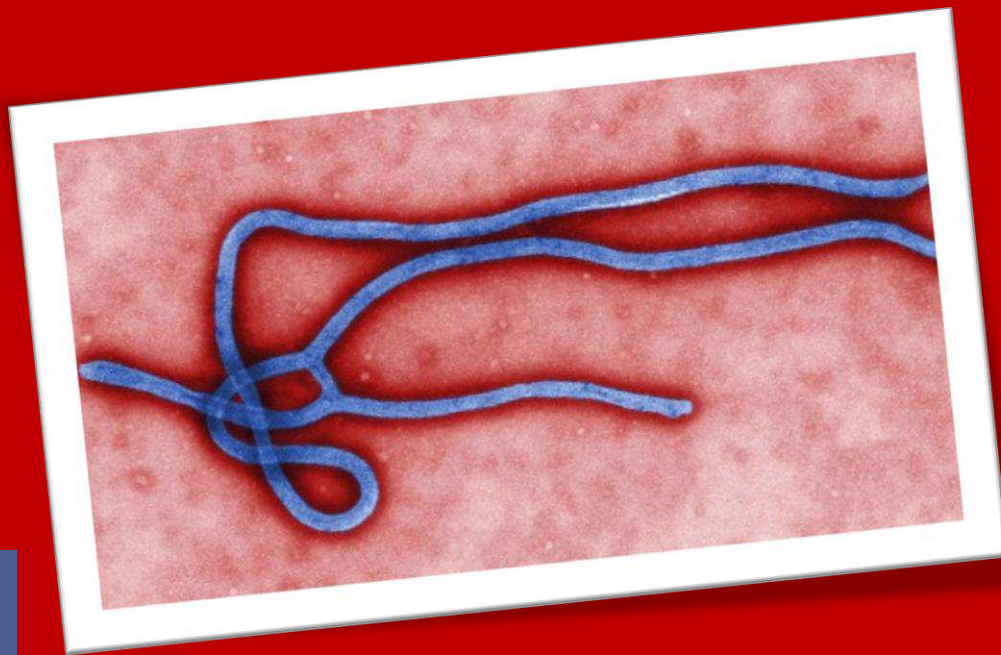


EBOLA VIRUS DISEASE

DOCUMENTATION ON GHANA ALERTNESS & PREPARATION

TOOLBOX FOR THE PUBLIC



EBOLA VIRUS, UNDATED FILE, IMAGE BY CDC

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Acknowledgement

GIZ Ghana on behalf of the German Ministry for Economic Cooperation and Development (BMZ) is collaborating with private companies in Ghana such as UT Holding, Accra Brewery and Japan Motors as well as the Ghanaian Government to enhance the health and social protection status of employees, their families and communities. In the framework of this Strategic Alliance the respective partners have decided to support the compilation of all important information on Ebola, especially relevant in the Ghanaian context, to be better prepared for a possible Ebola outbreak in Ghana.

Due to the emerging dynamics in the outbreak epidemiologic data is changing rapidly. Latest updates regarding this documentation can be downloaded at www.hespa.net/ebola-ghana.

I would like to express my very great appreciation to Dr. Gunnar Urban, Medical Doctor and Specialist for Infectious Diseases for putting together this important document.

I wish to acknowledge the valuable advice and support provided by Mr. Michael Adjabeng, Coordinator Diseases Surveillance Dept., Ghana Health Service and Dr. Habib Ahmed Sahnoon, Head of Ebola Committee, 37 Military Hospital.

Moreover, I extend my gratitude to my GIZ colleagues, especially to Dr. Holger Till, Deputy Country Director, as well as the project officers Mrs. Lisa Mildes, Mr. Maxwell Hammond and Mr. Isaac Mensah Kwawu, who all worked hard in preparing the documentation on Ebola, and thus contributing to Ghana's efforts in establishing an adequate and professional response system for an eventual epidemic outbreak hazard.

It is my sincere hope that the provided documentation on Ebola may help supporting efforts towards the fight of Ebola in Ghana and West Africa.

Accra, 15 October 2014

Siegfried Leffler

Country Director, GIZ Ghana

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1. Information for the Public

1.1. General Information

1.1.1. Key Facts

Source: WHO, CDC, Wikipedia

- Ebola virus disease (EVD), formerly known as Ebola Haemorrhagic Fever, is a severe, often fatal illness in humans
- EVD outbreaks have a case fatality rate of up to 90%
- EVD outbreaks occur primarily in remote villages in Central and West Africa, near tropical rainforests
- The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission
- Fruit bats of the *Pteropodidae* family are considered to be the natural host of the Ebola virus
- Severely ill patients require intensive supportive care. No licensed specific treatment or vaccine is available for use in people or animals

Ebola first appeared in 1976 in two simultaneous outbreaks, in Nzara, Sudan, and in Yambuku, Democratic Republic of Congo. The latter was in a village situated near the Ebola River, from which the disease takes its name.

Genus Ebola virus is one of three members of the *Filoviridae* family (filovirus), along with genus Marburg virus and genus Cueva virus.

The five characterized members of the Ebola virus are: Ebola virus (formerly Zaire ebolavirus), Sudan ebolavirus, Reston ebolavirus, Thai Forest ebolavirus and Bundibugyo ebolavirus.

Up to date (3 Oct 2014) the current Ebola outbreak continues to escalate. Most cases are concentrated in only a few places: more than 80% of cases have occurred in 9 out of the 42 districts in Guinea, Liberia, and Sierra Leone that have reported cases (Lofa, Kailahun, Kenema, Gueckedou, Montserrado, Macenta, Conakry, Margibi, and Nimba). The overall case fatality rate (ratio of deaths to cases) is 53%. It ranges from 39% in Sierra Leone to 64% in Guinea.

The total number of probable, confirmed, and suspect cases is 8,997 with 4,493 deaths (updated: 15 Oct 2014).

Transmission

Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. In Africa, infection has been documented through the handling of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest.

Ebola then spreads in the community through human-to-human transmission, with infection resulting from direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and indirect contact with environments contaminated with such fluids. Burial ceremonies in which mourners have direct contact with the body of the deceased person can also play a role in the transmission of Ebola. Men who have recovered from the disease can still transmit the virus through their semen for up to seven weeks after recovery from illness. Health Care Workers have frequently been infected while treating patients with suspected or confirmed EVD. This has occurred through close contact with patients when infection control precautions are not strictly practiced.

Among workers in contact with monkeys or pigs infected with Reston Ebola virus (RESTV - a new strain of Ebola virus detected in 1989) several infections have been documented in people who were clinically asymptomatic. This species of Ebola virus is lethal to monkeys but does not lead to disease in humans. It has also been isolated from bats and swine.

However, the only available evidence available in humans comes from healthy adults. It would be premature to extrapolate the health effects of the virus to all population groups, such as immuno-compromised persons, persons with underlying medical conditions, pregnant women and children. More studies of RESTV are needed before definitive conclusions can be drawn about the pathogenicity and virulence of this virus in humans.

Signs and symptoms

EVD is a severe acute viral illness often characterized by the sudden onset of fever, intense weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhea, rash, impaired kidney and liver function, and in some cases, both internal and external bleeding. Laboratory findings include low white blood cell and platelet counts and elevated liver enzymes.

People are infectious as long as their blood and secretions contain the virus. Ebola virus was isolated from semen 61 days after onset of illness in a man who was infected in a laboratory. The incubation period, that is, the time interval from infection with the virus to onset of symptoms, is 2 to 21 days.

Diagnosis

Other diseases that should be ruled out before a diagnosis of EVD can be made include: malaria, typhoid fever, shigellosis, cholera, leptospirosis, plague, rickettsiosis, relapsing fever, meningitis, hepatitis and other viral haemorrhagic fevers.

Ebola virus infections can be diagnosed definitively in a laboratory through several types of tests, e.g. antibody-capture enzyme-linked immunosorbent assay (ELISA), antigen detection test and reverse transcriptase polymerase chain reaction (RT-PCR) assay.

Samples from patients are an extreme biohazard risk; testing should be conducted under maximum biological containment conditions.

Vaccine and Treatment

No licensed vaccine for EVD is available to date (as of 8 Oct). A new vaccine (ZMapp) is currently under investigation. ZMapp is an experimental biopharmaceutical drug comprising three humanized monoclonal antibodies under development as a treatment for Ebola virus disease. It was used to save eighteen monkeys who were given lethal doses of the Ebola virus. The drug was first tested in humans during the 2014 West Africa Ebola virus outbreak and was credited as helping save lives, but it has not been subjected to a randomized clinical trial to prove its safety or its efficacy.

Severely ill patients require intensive supportive care. Patients are frequently dehydrated and require oral rehydration with solutions containing electrolytes or intravenous fluids.

New drug therapies are being evaluated.

Natural host of Ebola virus

In Africa, fruit bats, particularly species of the genera *Hypsignathus monstrosus*, *Epomops franqueti* and *Myonycteris torquata*, are considered possible natural hosts for Ebola virus. As a result, the geographic distribution of Ebolaviruses may overlap with the range of the fruit bats.

Prevention and Control

Reducing the risk of Ebola infection in people

In the absence of effective treatment and a human vaccine, raising awareness of the risk factors for Ebola infection and the protective measures individuals can take is the only way to reduce human infection and death.

In Africa, during EVD outbreaks, educational public health messages for risk reduction should focus on several factors:

- Reducing the risk of wildlife-to-human transmission from contact with infected fruit bats or monkeys/apes and the consumption of their raw meat. Animals should be handled with gloves and other appropriate protective clothing. Animal products (blood and meat) should be thoroughly cooked before consumption.
- Reducing the risk of human-to-human transmission in the community arising from direct or close contact with infected patients, particularly with their bodily fluids. Close physical contact with Ebola patients should be avoided. Gloves and appropriate personal protective equipment should be worn when taking care of ill patients at home. Regular hand washing is required after visiting patients in hospital, as well as after taking care of patients at home.
- Communities affected by Ebola should inform the population about the nature of the disease and about outbreak containment measures, including burial of the dead. People who have died from Ebola should be promptly and safely buried. Pig farms in Africa can play a role in the amplification of infection because of the presence of fruit bats on these farms. Appropriate biosecurity measures should be in place to limit transmission. For RESTV, educational public health messages should focus on reducing the risk of pig-to-human transmission as a result of unsafe animal husbandry and slaughtering practices, and unsafe consumption of fresh blood, raw milk or animal tissue. Gloves and other appropriate protective clothing should be worn when handling sick animals or their tissues and when slaughtering animals. In regions where RESTV has been reported in pigs, all animal products (blood, meat and milk) should be thoroughly cooked before eating.

Controlling Infection in Health Care Settings

Human-to-human transmission of the Ebola virus is primarily associated with direct or indirect contact with blood and body fluids. Transmission to Health Care Workers has been reported when appropriate infection control measures have not been applied. It is not always possible to identify patients with EBV early because initial symptoms may be non-specific.

For this reason, it is important that health-care workers apply standard precautions consistently with all patients – regardless of their diagnosis – in all work practices at all times.

These include basic hand hygiene, respiratory hygiene, the use of personal protective equipment (according to the risk of splashes or other contact with infected materials), safe injection practices and safe burial practices.

Health-care workers caring for patients with suspected or confirmed Ebola virus should apply, in addition to standard precautions, other infection control measures to avoid any exposure to the patient's blood and body fluids and direct unprotected contact with the possibly contaminated environment. When in close contact (within one meter) of patients with EBV, health-care workers should wear face protection (a face shield or a medical mask and goggles), a clean, non-sterile long-sleeved gown, and gloves (sterile gloves for some procedures).

Laboratory workers are also at risk. Samples taken from suspected human and animal Ebola cases for diagnosis should be handled by trained staff and processed in suitably equipped laboratories.

1.1.2. Training & Information Material

See annex on CD or www.hespa.net/ebola-ghana

What is Ebola and how does it spread - Questions and Answers

Questions and Answers on Ebola

Updated: August 26, 2014

The 2014 Ebola outbreak is the largest Ebola outbreak in history and the first in West Africa. The current outbreak is affecting four countries in West Africa: Guinea, Liberia, Nigeria, and Sierra Leone but does not pose a significant risk to the United States.

CDC is working with other U.S. government agencies, the World Health Organization, and other domestic and international partners and has activated its Emergency Operations Center to help coordinate technical assistance and control activities with partners. CDC has also deployed teams of public health experts to West Africa and continues to send public health experts to the affected countries.

General

What is Ebola?

Ebola, also known as Ebola virus disease, is a rare and deadly disease caused by infection with one of the Ebola virus strains (Zaire, Sudan, Bundibugyo, or Tai Forest virus). Ebola viruses are found in several African countries. Ebola was discovered in 1976 near the Ebola River in what is now the Democratic Republic of the Congo. Since then, outbreaks have appeared sporadically in several African countries.

Signs and Symptoms

What are the signs and symptoms of Ebola?

Signs and symptoms of Ebola include fever (greater than 38.0°C or 101.5°F) and severe headache, muscle pain, vomiting, diarrhea, stomach pain, or unexplained bleeding or bruising. Signs and symptoms may appear anywhere from 2 to 21 days after exposure to Ebola, although 8 to 10 days is most common.

How Ebola Spreads

How is Ebola spread?

The virus is spread through direct contact (through broken skin or mucous membranes) with blood and body fluids (urine, feces, saliva, vomit, and semen) of a person who is sick with Ebola, or with objects (like needles) that have been contaminated with the virus. Ebola is not spread through the air or by water or, in general, by food; however, in Africa, Ebola may be spread as a result of handling bushmeat (wild animals hunted for food) and contact with infected bats.

Who is most at risk of getting Ebola?

Healthcare providers caring for Ebola patients and family and friends in close contact with the blood or body fluids of sick patients.

In some places affected by the current outbreak, care may be provided in clinics with limited resources (for example, no running water, no climate control, no floors, inadequate medical supplies), and workers could be in these areas for several hours with a number of Ebola-infected patients. Additionally, certain job responsibilities and tasks, such as attending to dead bodies, may also require different PPE than what is used when providing care for infected patients in a hospital.



Ebola Hemorrhagic Fever

Ebola hemorrhagic fever (Ebola HF) is one of numerous Viral Hemorrhagic Fevers. It is a severe, often fatal disease in humans and nonhuman primates (such as monkeys, gorillas, and chimpanzees).

Ebola HF is caused by infection with a virus of the family Filoviridae, genus Ebolavirus. When infection occurs, symptoms usually begin abruptly. The first Ebolavirus species was discovered in 1976 in what is now the Democratic Republic of the Congo near the Ebola River. Since then, outbreaks have appeared sporadically.

There are five identified subspecies of Ebolavirus. Four of the five have caused disease in humans: Ebola virus (Zaire ebolavirus); Sudan virus (Sudan ebolavirus); Tai Forest virus (Tai Forest ebolavirus, formerly Côte d'Ivoire ebolavirus); and Bundibugyo virus (Bundibugyo ebolavirus). The fifth, Reston virus (Reston ebolavirus), has caused disease in nonhuman primates, but not in humans.

The natural reservoir host of ebolaviruses remains unknown. However, on the basis of available evidence and the nature of similar viruses, researchers believe that the virus is zoonotic (animal-borne) with bats being the most likely reservoir. Four of the five subspecies occur in an animal host native to Africa.

A host of similar species is probably associated with Reston virus, which was isolated from infected cynomolgus monkeys imported to the United States and Italy from the Philippines. Several workers in the Philippines and in US housing facility outbreaks became infected with the virus, but did not become ill.

Transmission

Because the natural reservoir of ebolaviruses has not yet been proven, the manner in which the virus first appears in a human at the start of an outbreak is unknown. However, researchers have hypothesized that the first patient becomes infected through contact with an infected animal.

When an infection does occur in humans, there are several ways in which the virus can be transmitted to others. These include:

- direct contact with the blood or secretions of an infected person
- exposure to objects (such as needles) that have been contaminated with infected secretions

The viruses that cause Ebola HF are often spread through families and friends because they come in close contact with infectious secretions when caring for ill persons.

During outbreaks of Ebola HF, the disease can spread quickly within health care settings (such as a clinic or hospital). Exposure to ebolaviruses can occur in health care settings where hospital staff are not wearing appropriate protective equipment, such as masks, gowns, and gloves.

Proper cleaning and disposal of instruments, such as needles and syringes, is also important. If instruments are not disposable, they must be sterilized before being used again. Without adequate sterilization of the instruments, virus transmission can continue and amplify an outbreak.

Signs and Symptoms

Symptoms of Ebola HF typically include:

- Fever
- Headache
- Joint and muscle aches
- Weakness
- Diarrhea
- Vomiting
- Stomach pain
- Lack of appetite

Some patients may experience:

- A Rash
- Red Eyes
- Hiccups
- Cough
- Sore Throat
- Chest pain
- Difficulty breathing
- Bleeding inside and outside of the body

Symptoms may appear anywhere from 2 to 21 days after exposure to ebolaviruses though 8-10 days is most common. Some who become sick with Ebola HF are able to recover, while others do not. The reasons behind this are not yet fully understood. However, it is known that patients who die usually have not developed a significant immune response to the virus at the time of death.

National Center for Emerging and Zoonotic Infectious Diseases

Division of High-Consequence Pathogens and Pathology (DHCCPP)



See Annex: 1.1.2.1

Questions and Answers on Ebola CDC

See Annex: 1.1.2.2

Ebola Factsheet CDC



Frequently asked questions on Ebola virus disease

Updated 7 August 2014

1. What is Ebola virus disease?

Ebola virus disease (formerly known as Ebola haemorrhagic fever) is a severe, often fatal illness, with a death rate of up to 90%. The illness affects humans and nonhuman primates (monkeys, gorillas, and chimpanzees).

Ebola first appeared in 1976 in two simultaneous outbreaks, one in a village near the Ebola River in the Democratic Republic of Congo, and the other in a remote area of Sudan.

The origin of the virus is unknown but fruit bats (Pteropodidae) are considered the likely host of the Ebola virus, based on available evidence.

2. How do people become infected with the virus?

In the current outbreak in West Africa, the majority of cases in humans have occurred as a result of human-to-human transmission.

Infection occurs from direct contact through broken skin or mucous membranes with the blood, or other bodily fluids or secretions (sweat, urine, saliva, semen) of infected people. Infection can also occur if broken skin or mucous membranes of a healthy person come into contact with environments that have become contaminated with an Ebola patient's infectious fluids such as soiled clothing, bed linen, or soap residues.

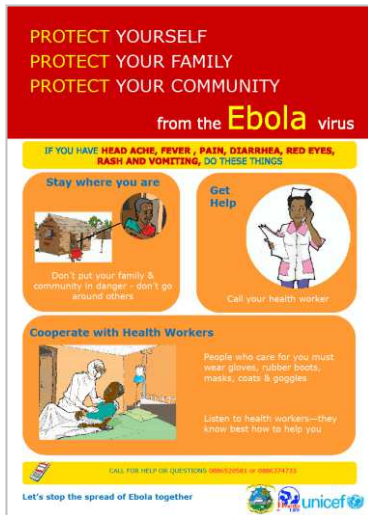
More than 100 health-care workers have been exposed to the virus while caring for Ebola patients. This happens because they may not have been wearing personal protection equipment or were not properly applying infection prevention and control measures when caring for the patients. Health-care providers at all levels of the health system – hospitals, clinics, and health posts – should be briefed on the nature of the disease and how it is transmitted, and strictly follow recommended infection control precautions.

WHO does not advise families or communities to care for individuals who may present with symptoms of Ebola virus disease in their homes. Rather, seek treatment in a hospital or treatment centre staffed by doctors and nurses qualified and equipped to treat Ebola virus victims. If you do choose to care for your loved one at home, WHO strongly advises you to notify your local public health authority and receive appropriate training, equipment (gloves and personal protective

See Annex: 1.1.2.3

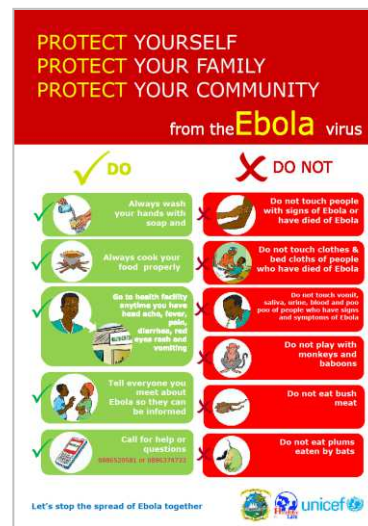
Ebola-FAQ WHO

Information, Education & Communication (IEC) Material - Poster



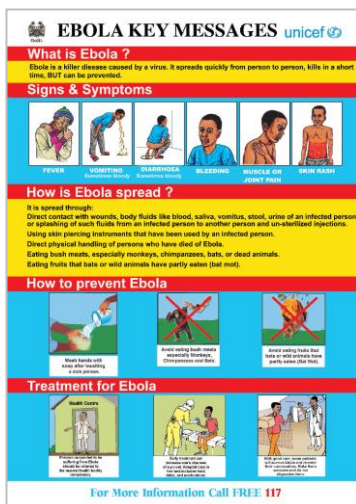
See Annex: 1.1.2.4

**Ebola Poster Protect Yourself 1
Unicef**



See Annex: 1.1.2.5

**Ebola Poster Protect Yourself 2
Unicef**



See Annex: 1.1.2.6

Ebola Key Messages Unicef



See Annex: 1.1.2.7

Visit-Ebola-Centre CDC



See Annex: 1.1.2.8

International SOS Ebola Toolbox

SPREAD THE WORD
Not the disease

The Ebola virus can cause severe viral haemorrhagic fever outbreaks in humans with very high rates of fatalities. Ebola is introduced into the human population through close contact with blood, secretions, organs or other bodily fluids of infected animals.

Symptoms	Prevention
<ul style="list-style-type: none"> ▶ Fever ▶ Intense weakness ▶ Muscle pain ▶ Headache ▶ Sore throat ▶ Vomiting ▶ Diarrhea ▶ Rash ▶ Impaired kidney & liver function ▶ Internal & external bleeding 	<ul style="list-style-type: none"> ▶ Avoid physical contact with Ebola patients ▶ Wash your hands regularly ▶ Cook all animal food by-products thoroughly ▶ Avoid contact with fruit bats, monkeys & other primates ▶ Handle animals with gloves & protective clothing ▶ Use gloves when taking care of infected patients ▶ Avoid contact & do not touch those who have died from Ebola

For more information visit www.who.int

See Annex: 1.1.2.9

Ebola Poster Spread the word

WEST AFRICA Ebola Outbreak

1st Ebola outbreak in West Africa
4 countries:

- Guinea
- Sierra Leone
- Liberia
- Nigeria

Likely host = bats
Ebola is fatal in **55-60%** of cases reported in this outbreak.

How do you get the Ebola virus?
Direct contact with:

- 1** Bodily fluids of a person who is sick with or has died from Ebola. (blood, vomit, pee, poop, sweat, semen, spit, other fluids)
- 2** Objects contaminated with the virus (needles, medical equipment)
- 3** Infected animals (by contact with blood or fluids or infected meat)

Early Symptoms:
Ebola can only be spread to others after symptoms begin. Symptoms can appear from 2 to 21 days after exposure.

- Fever
- Headache
- Diarrhea
- Vomiting
- Stomach pain
- Unexplained bleeding or bruising
- Muscle pain

When is someone able to spread the disease to others?
Ebola only spreads when people are sick.
A patient must have symptoms to spread the disease to others.
After 21 days, if an exposed person does not develop symptoms, they will not become sick with Ebola.

MONTH						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

See Annex: 1.1.2.10

West-Africa-Outbreak-Infographic




EBOLA

What is EBOLA?

- A viral disease that kills in a short time.
- It spreads quickly from person to person.



Who are most at risk?

- Healthcare workers
- Family members of infected person(s)
- People who attend public gatherings, i.e. funerals, weddings

How does Ebola spread?

- DIRECT contact with saliva, vomit, stool, urine, blood and other body fluids of infected person(s).
- Unprotected physical handling of persons who died from Ebola.
- Washing, touching and kissing Ebola infected dead body.
- Washing hands in same bucket as people who touched Ebola infected dead body.
- Contact with or eating meat of infected animals.
- Eating fruits partly eaten by bats and infected wild animals.



Symptoms of Ebola

Early Syntoms


Pains


Fever


Weakness


Headache

Late Syntoms


Rash, Red Eyes


Vomiting


Diarrhoea


Bleeding

In case of suspected Ebola

Should you become sick or you touched a sick person or their body fluid;

- Report to the nearest health facility or call these hotlines: 029 900 9958, 029 900 9972, 029 900 9949
- Listen to the advice.
- You may be sent to a special hospital.
- Don't let anyone touch you.
- Be especially careful of your vomit and diarrhoea.

Early reporting to health facility increases chances of recovery



Prevention of Ebola

- Wash your hands regularly with soap and running water.
- Regularly clean surfaces where people touch
- DO NOT touch an infected person or their body fluid, including blood, vomit, faeces and urine.

EBOLA can be found in animals & bats. Ensure you

- only eat well cooked meat.
- avoid forest animals that are sick or dead.
- avoid eating bats and bat meats.

Hotlines: 029 900 9958, 029 900 9972, 029 900 9949






Implemented by **giz** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

See Annex: 1.1.2.11

GIZ Ebola Poster

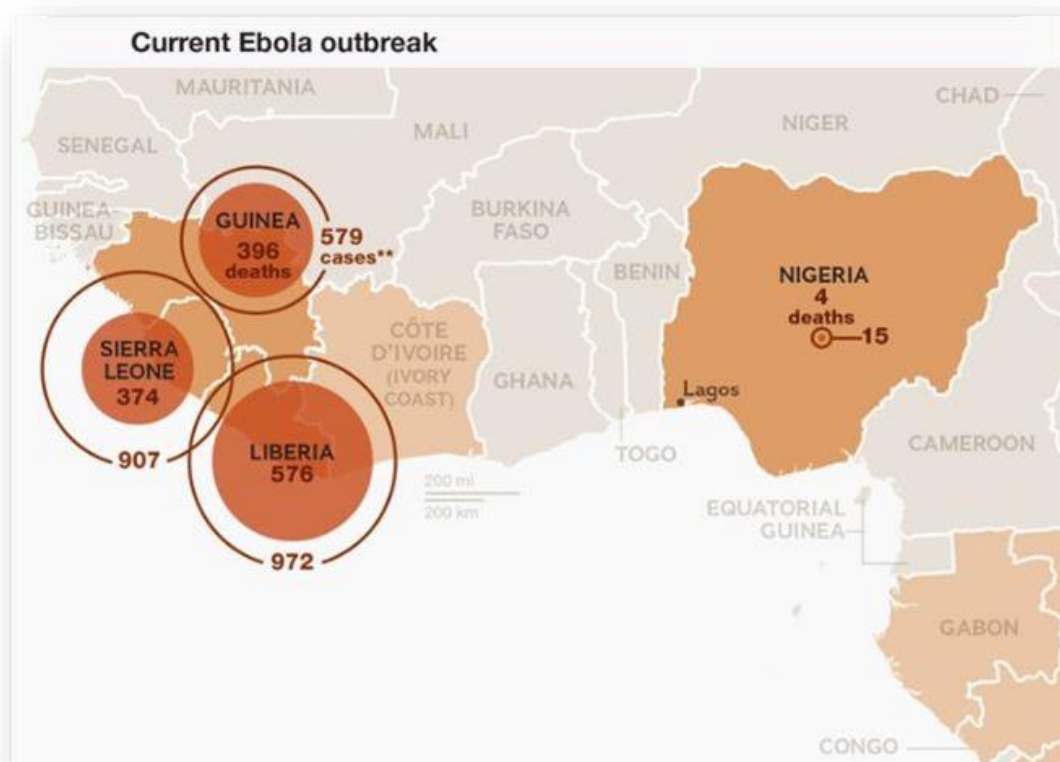
1.2. Ghana specific Information

1.2.1. Issues leading to respective Measures in Ghana

Updated: September 5, 2014

On 21 March 2014, the Ministry of Health (MOH) of Guinea notified the World Health Organization (WHO) of a rapidly evolving outbreak of Ebola virus disease (EVD).

The cases of EVD were initially reported from Gueckedou, Macenta, and Kissidougou in the Forest Region, an area forming the border with Sierra Leone and Liberia; and later in Conakry, the capital city of Guinea (the outbreak began in Guinea in December 2013, but was not detected until March 2014). Blood samples collected from the initial cases tested positive for *Zaire Ebola virus* (EBOV) species by RT-PCR at Institute Pasteur in Lyon, France. On 30 March 2014, the MOH of Liberia reported its first cases of EVD and on 25 May 2014, the MOH of Sierra Leone began reporting cases.



Suspected, probable and confirmed cases and deaths as of August 18, 2014

Source: WHO

The Ministry of Health of Nigeria reported its first case of EVD on 27 July 2014 in result to a case travelling by airplane from Nigeria (with stop-over in Ghana and Togo).

The scale of the ongoing outbreak is unprecedented, with reports of more than 3,944 cases and 1,759 deaths (as of 5 Sep 2014) in the affected countries since March 2014 probably facing much more victims where estimations today calculate up to 20 – 30,000 infected and as of date August 29, 2014, Senegal reported its first case of Ebola.

WHO has alerted neighbouring countries about the outbreak, calling for intensified surveillance for any illness consistent with a viral hemorrhagic fever, especially along land borders.

1.2.2. Outbreak Measures: Course of Time

Updated: October 18, 2014

>> 2-3 July 2014

In an effort to rapidly prevent further spread of EVD in West Africa, WHO convened a special Ministerial meeting on the outbreak. The meeting, held in Accra, Ghana, brought together Ministers of Health and senior health officials from 11 African countries (Côte d'Ivoire, Democratic Republic of the Congo, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Senegal, Sierra Leone, and Uganda), as well as other response partners e.g. Ebola survivors, representatives of airlines and mining companies, and the donor communities. The objective of the meeting was to obtain consensus from Member States and partners on the optimal ways to interrupt ongoing EVD transmission in West Africa in order to reduce the human, social, and economic impact of the current outbreak and any future EVD outbreaks.

The meeting focused on attaining a clear understanding of the current situation and response, including gaps and challenges; developing a comprehensive operational response plan for controlling the outbreak; implementing priority preparedness activities by countries considered to be at risk; and engaging with national authorities to optimally respond to EVD outbreak. The outcome of this meeting was the Strategy for Accelerated Response to Ebola Outbreak in West Africa.

The WHO Strategic Action Plan for Ebola Outbreak Response is divided into two parts: Immediate actions to support the three first EVD affected countries (Guinea, Liberia, and Sierra Leone) and Interventions in neighbouring at-risk countries to increase preparedness and prevent the occurrence of additional outbreaks.

>> 27 July 2014

The Ministry of Health of Nigeria reports its first case of EVD. The patient had flown from Liberia's capital, Monrovia, with a stopover in Ghana, changed planes in Togo, and then arrived in Lagos, Nigeria.

Ghana Health System (GHS) identified 11 contacts to the index patient disembarking at Ghana Kotoka Airport in Accra. Tracing and monitoring was applied and was manageable to 10 of the 11 contact cases, all of them tested negative during incubation period (21 days).

>> 12 August 2014

In an interview with the Presidential Press Corps after a meeting (12 Aug 2014) of the Inter-Ministerial Action Group on Ebola at the Flagstaff House the acting Director of Public Health, Dr Badu Sarkodie announced "Ghana is to have three Ebola isolation centres in the next two weeks in Tema General Hospital for the southern sector, the Komfo Anokye Teaching Hospital for the middle belt and the Tamale Teaching Hospital for the northern sector".

Additionally it was announced, that Health authorities had so far assessed and tested 37 suspected cases of Ebola, with all testing negative.

>> 13 August 2014

President John Dramani Mahama met with his team of Ministers coordinating Ghana's response to the Ebola Viral Disease on 13th August, 2014. The meeting reviewed and evaluated not only interventions instituted so far, but also successes and challenges associated with the fight against the deadly Ebola Viral Disease in Ghana.

Arising out of the discussions, President Mahama, among other things, directed that: Additional Six Million Ghana Cedis (GHC 6million) be released immediately to augment the fight against EVD; ten thousand additional Personal Protective Equipment (PPEs) be procured to ensure the safety of frontline workers who may come into contact with the disease should an incident be recorded in Ghana and immediate steps be taken to secure an insurance policy for health workers who may be infected with the virus while providing service(s) to affected patients.

Ghana so far tested forty-five (45) suspected cases of Ebola Viral Disease: all negative.

>> 15 August 2014

Press Statement of the Ministry of Foreign Affairs, Ghana and regional Integration: Advice to all Ghanaians to refrain from travelling to Ebola outbreak countries. Furthermore the government placed a three months suspension on all international meetings and conferences in the country.

>> 21 August 2014

In the MOH/Health Partners Mid-year Review Meeting, the Director of Public Health, Dr. Sarkodie presented and updated on the Ebola outbreak with special regards to Ghana attempts, action and plans regarding Ebola outbreak preparedness.

Dr. Sarkodie confirmed the earlier announced action plan of GHS to set up three Ebola centres in Ghana:

These would be in Tema General Hospital for the southern sector, the Komfo Anokye Teaching Hospital for the middle belt and the Tamale Teaching Hospital for the northern sector. An alternative for isolation and treatment would be explored at Abokobi, Greater Accra region.

The schedule to initiate the process was scheduled to be three weeks. In the meanwhile Regional Hospitals are directed to create holding rooms for Ebola suspect cases e.g. at Korlebu Teaching Hospital and Military Hospital, Accra. Additionally toll-free hotlines had been started (Vodafone, GHS).

He added on the first Ebola case in Nigeria (Patient PS) and declared 20 contacts in Ghana were meanwhile traced and followed (all healthy up to date). Follow-up was according to the country preparedness plan with regularly contact tracing through Disease Control Officers (District level) for 21 days.

Surveillance situation at border crossing points (1x airport, 54x land and 2x sea) was still a great challenge, though Disease Control Officers had announced that fishermen in Nunguo (returning from Liberia) were under follow-up.

Regarding outbreak preparedness Dr. Sarkodie added that 6,000 PPE's (Ebola type) (>treatment) and 1,300 PPE's (H1N1) (>specimen taking) had been ordered.

He pointed out, that still challenges had to be addressed such as the up-to date inadequate isolation preparedness and lack of PPE's and IEC materials and asked to support roll out of staff training.

>> 27 August 2014

WHO Organizes Workshop to Strengthen Preparedness and Response for Countries against Ebola: The first in a series of preparedness and response workshops aimed at strengthening Africa's defenses against the Ebola Virus Disease (EVD) outbreak occurring in parts of West Africa began on Tuesday in Brazzaville, Congo.

Organized by the World Health Organization (WHO), the 3-day workshop brings together more than 40 Disease Prevention and Control Officers, Clinicians and Infection Control Officers as well as Social Mobilization, Health Education and Communication experts from ten countries (including Ghana, Kenya, Namibia, Tanzania, Zambia and Zimbabwe). Participants are drawn from the Ministries of Health and WHO Country Offices and will build their capacity in currently recommended strategies to control EVD. These include surveillance and data management; infection prevention and control; case management; laboratory sample collection and transportation, and social mobilization. Others are communication techniques and development of messages; logistics and proper use of Personal Protection Equipment and preparation of response and preparedness plans.

It is expected that at the end of the workshop, they would have acquired the necessary knowledge and skills to adequately conduct similar workshops in their respective countries.

>> 2 September 2014

Ghana agrees to UN request for Ebola logistics hub. Accra to become logistic center fighting Ebola in West Africa. Ban Kimoon and President Mahama agreed on that. Especially medication and medical staff shall be rapidly flown in affected countries.

Following the outbreak of the Ebola virus, most of the regular commercial flights into the affected areas have been suspended, making it difficult for equipment, logistics and personnel to reach the affected nations.

Using Accra as the Logistics and Coordination Centre would therefore open a vital corridor to get urgently-needed supplies and health personnel into the affected countries and areas.

The United Nations and Ghana will work closely to put in place appropriate screening and prevention measures to avoid any adverse effects on Ghana as a result of the operations of the Logistics Centre.

The UN has also offered to assist Ghana in reviewing and strengthening the country's Ebola preparedness, as steps are taken to prevent the virus from entering the country.

>> 24 September 2014

First Ebola case confirmed in USA (case travelling from Liberia to USA by flight) and later first Ebola case in Spain confirmed (health care worker acquired infection in country) thus Ebola outbreak at risk to develop to pandemic.

>> 29 September 2014

UN mission to combat Ebola opened it's headquarter in Ghana: United Nations Mission for Ebola Emergency Response (UNMEER)

At the inter-ministerial committee meeting on Ebola preparedness and response it was reported on the fort come of the three Ebola units currently under construction in Ghana: In the report to Tema, some construction and functional organization (human resources planning) challenges were brought up and as a result of this, a delegation visit to Tema was scheduled.

At that visit, were representatives of Ministry of Health, WHO, Ghana Armed Forces and GIZ were present, construction site was evaluated and findings were planned to be discussed at the next meeting.

Regarding the construction sites at Tamale and Kumasi and due to construction challenges it was put up the question whether to rethink these two locations.



Ebola isolation center construction site at Tema

Additionally, Dr. Sarkodie reported towards the Ashanti regional training for case management September 30 to October 3, 2014. As one result of that successful workshop the ministry is now awaiting Ebola awareness action plans from the districts. Additionally he announced, Ghana now having delivered and distributed 9,000 more PPE to the regions and the health facilities.

1.2.3. Contacts in Case of Medical Questions and Emergencies

Updated: August 29, 2014

All Regional Hospitals are directed to create holding rooms for Ebola suspect cases e.g. at Korlebu Teaching Hospital and Military Hospital, Accra.

Hotlines

Toll-free:

+233 (0) 2 99 00 99 58

+233 (0) 2 99 00 99 72

+233 (0) 2 99 00 99 49

37 Military Hospital:

+233 (0) 2 99 100 157

+233 (0) 2 99 100 574

+233 (0) 2 99 100 807

Ambulance Transport

WARA – West African Rescue Association

24 hour emergency assistance numbers:

+233 (0) 243 666 111

+233 (0) 288 270 270

Hospitals - Accra

Korlebu Teaching Hospital

Out Patient Department (OPD)

P.O. Box 77, Korle Bu

Accra - Ghana

Tel: +233 (302) 674072

+233 (302) 673036

Email: info@kbth.gov.gh

Medical Directorate

Tel: +233 - (302) 666766

Email: dma.sec@kbth.gov.gh

37 Military Hospital

Accra, Cantonments, Miils

Road/Liberation Road

Tel: 0299 100 -579, -574, -807

Ridge Hospital

P.O. Box 184

Accra, Castle Road, Adabraka

Tel: +233 30 267 9325

WEST AFRICAN RESCUE ASSOCIATION

WARA CALL CENTRE

Most people at some time in their life will have to phone an emergency line for assistance. If you have ever called for assistance before you may be wondering why the person on the other side of the line asks so many questions when all you want is an ambulance?

Perhaps the mere thought of having to phone for assistance makes you nervous or overwhelmed.

The goal of this article will better equip you with how to deal with making an emergency call for help:

WHAT TO EXPECT WHEN CALLING WARA IN AN EMERGENCY?

1. **Stay calm:** Take deep breaths before calling for help. Adrenaline will be pumping; you might be frightened, unsure or just experienced something traumatic. Staying calm and level headed allows you to share the right information to us and ensures a faster response.
2. **Know your location** and number you are calling from. To reach you, you have to tell us accurately where you are. Look for well-known landmarks. Know your number and keep your phone switched on - in case we will need to reach you again.
3. Call taker will ask you **pertinent standard questions** regarding your emergency situation. Answer them calmly and clearly and give as much information as you can.
4. **Let the call center agent guide the conversation.** They are trained in knowing what to ask. This will also save time as the pertinent information is requested and gained more effectively.

WHAT WILL THE AGENT REQUIRE FROM YOU?

You may feel a lot of the questions are unnecessary or time delaying but they give us a clear indication of the exact assistance you may require and which personnel and equipment to send to the scene.

Depending on the emergency here are some **standard questions** which may be asked:

1. **Location** – where you are and where did accident happen? Can you identify any well-known landmarks?
2. **Nature of the problem** – What actually happened? How many people are injured? The age and sex of the injured/sick person? What are the injuries or nature of the situation? Basic description of what happened? What does the scene look like?
3. **Time Element** – when did this happen? When did the symptoms start? This is a good gauge of how serious the problem could be or possibly indicative of what could be wrong.

See Annex: 1.2.3.1

WARA Call Center

WEST AFRICAN RESCUE ASSOCIATION

EMERGENCY CALL HANDLING GUIDELINE

WARA 24 hour Emergency assistance numbers:

+233 (0) 243 666 111
+233 (0) 288 270 270

ATTENTION: Never hang up during an emergency telephone call!

This guideline helps you to ensure fast and adequate emergency reaction

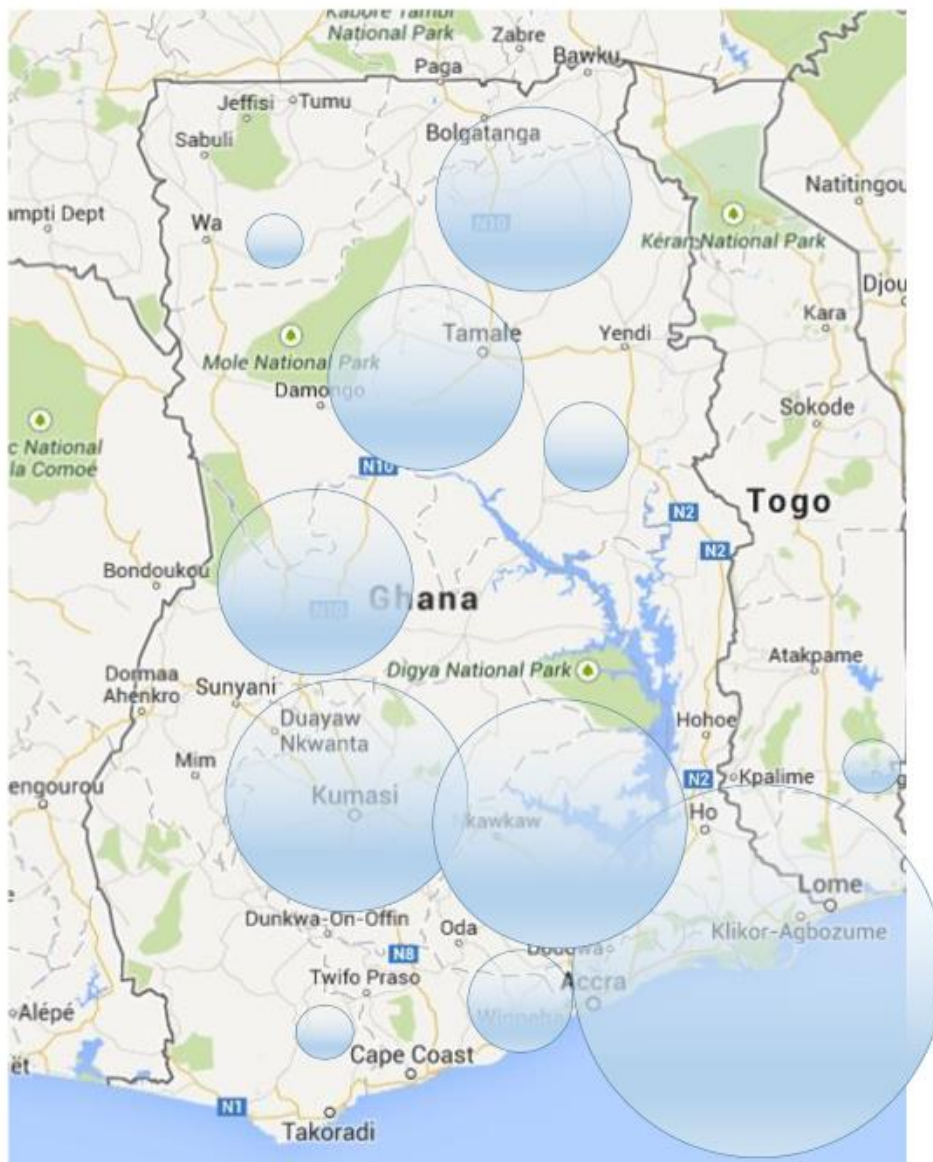
1. Identify, who you are and give your membership identification number - and company name (if you are registered with a company).
2. What happened? (Explain, why you currently need help)
3. Where did it happen? (Emergency location - with useful landmarks/address, maybe GPS Coordinates)
4. How many injured Persons?
5. What kind of injuries? (Tell all you know + what you see - report any hazards on site)
6. Names and ages of those injured
7. Telephone contact to maintain contact throughout the emergency situation.
8. Wait for Questions! (Reconfirmation of all given information)

See Annex: 1.2.3.2

WARA Emergency Call Handling Guideline

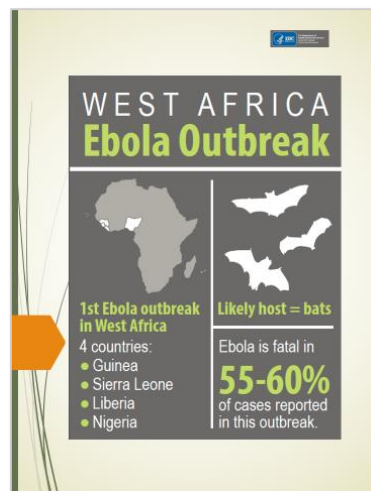
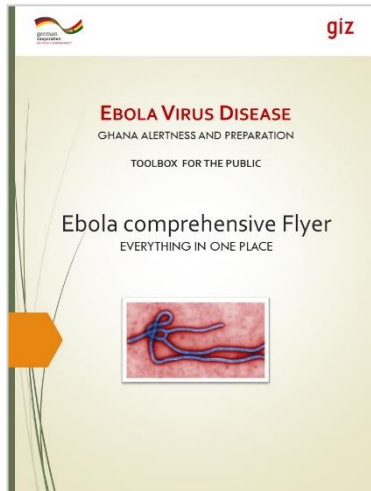
1.2.4. Laboratory Data on Ebola Testing (location) – update

**Suspect Ebola Cases in Ghana -
Ebola Testing (PCR) at Noguchi Memorial Institute of Medical Research
(all Test results negative)**



Circles indicate number of testings by size (total n = 62)
Data source: Ghana Health Service, Source of Map: Google Maps

1.2.5. Ebola comprehensive Flyer – Everything in one Place



See Annex: 1.2.5
Ebola Flyer

2. Special Information for Health Care Workers

2.1. General Information

2.1.1. Ebola Case Definition

Updated: August 22, 2014, Source: CDC

Early recognition is critical for infection control. Health care providers should be alert for and evaluate any patients suspected of having Ebola Virus Disease (EVD).

Person under Investigation (PUI)

A person who has both consistent symptoms and risk factors as follows:

1. Clinical criteria, which includes fever of greater than 38.6 degrees Celsius or 101.5 degrees Fahrenheit, and additional symptoms such as severe headache, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage;
AND
2. epidemiologic risk factors within the past 21 days before the onset of symptoms, such as contact with blood or other body fluids or human remains of a patient known to have or suspected to have EVD; residence in - or travel to - an area where EVD transmission is active; or direct handling of bats or non-human primates from disease-endemic areas.

Probable Case

A PUI whose epidemiologic risk factors include high or low risk exposure(s) (see below)

Confirmed Case

A case with laboratory-confirmed diagnostic evidence of Ebola virus infection

Exposure Risk Levels

Levels of exposure risk are defined as follows:



>> High Risk exposures

A high risk exposure includes any of the following:

- Percutaneous (e.g., needle stick) or mucous membrane exposure to blood or body fluids of EVD patient
- Direct skin contact with, or exposure to blood or body fluids of, an EVD patient without appropriate personal protective equipment (PPE)
- Processing blood or body fluids of a confirmed EVD patient without appropriate PPE or standard biosafety precautions
- Direct contact with a dead body without appropriate PPE in a country where an EVD outbreak is occurring

>> Low Risk exposures

A low risk exposure includes any of the following

- Household contact with an EVD patient
- Other close contact with EVD patients in health care facilities or community settings. Close contact is defined as:
 - a. Being within approximately three feet (one meter) of an EVD patient or within the patient's room or care area for a prolonged period of time (e.g., health care personnel, household members) while not wearing recommended personal protective equipment (i.e., standard, droplet, and contact precautions; see Infection Prevention and Control Recommendations (www.cdc.gov/vhf/ebola/hcp/patient-management-us-hospitals.html))
 - b. Having direct brief contact (e.g., shaking hands) with an EVD case while not wearing recommended personal protective equipment.
- Brief interactions, such as walking by a person or moving through a hospital, do not constitute close contact



>> No known Exposure

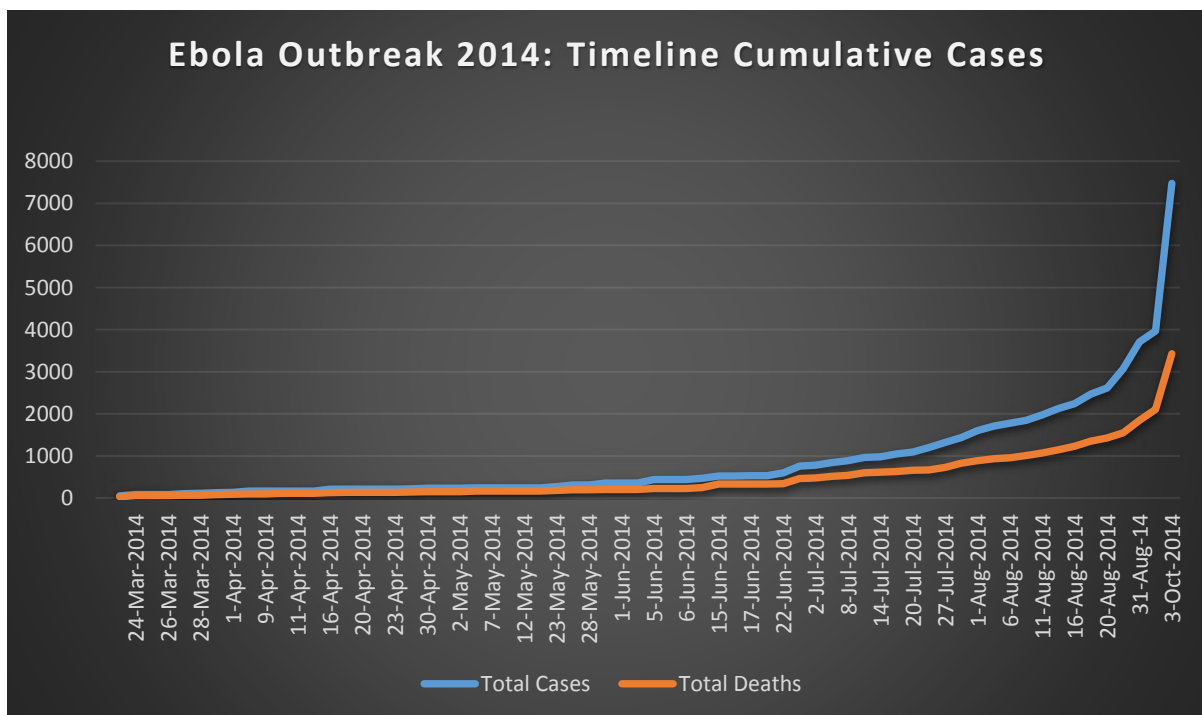
Having been in a country in which an EVD outbreak occurred within the past 21 days and having had no high or low risk exposures.

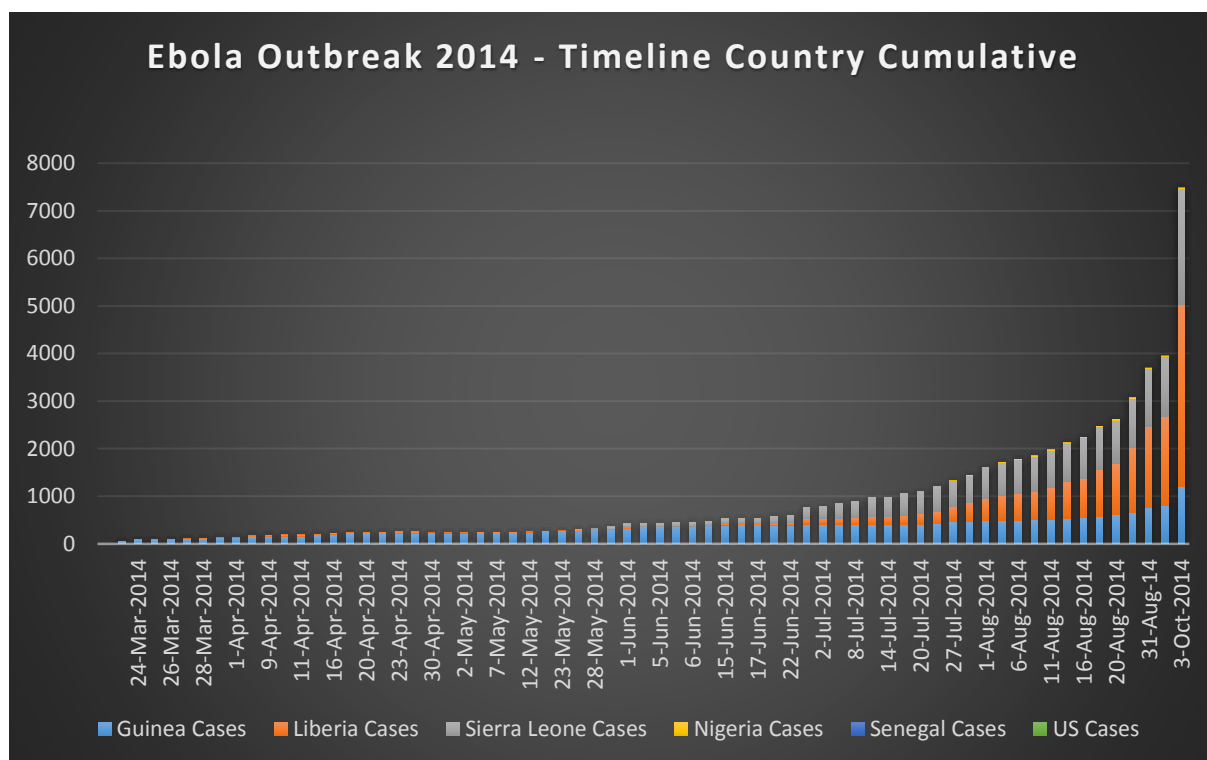
As of 22 August 2014, countries with EVD outbreaks are Guinea, Liberia, and Sierra Leone. There are also cases of EVD in Lagos, Nigeria. For more information about specific districts where the EVD outbreak is occurring, visit:

www.cdc.gov/vhf/ebola/outbreaks/guinea/

2.1.2. Epidemiologic Data

2.1.2.1. Ebola Outbreak 2014: Timeline Cases





Case counts updated in conjunction with WHO and CDC

Total Cases

October 15, 2014

- Suspected and Confirmed Case Count
8997
- Total Deaths
4493
- Laboratory Confirmed Cases
5006

Country	Total cases	Total death
Liberia	4249	2458
Sierra Leone	3252	1183
Guinea	1472	843
Nigeria	20	8
Spain	1	0
Senegal	1	0
USA	1	1

2.1.2.2. WHO: Ebola Response Roadmap

See Annex: 2.1.2.2

Ebola WHO Road Map 05 Sep 2014

2.1.3. Training and Information Material

See Annex: 2.1.3.1

Manual African-Healthcare Setting VHF CDC

See Annex: 2.1.3.2

VHF Pocket Book Guinea WHO

2.1.4. Information for Health Care Coordinators

WHO Outbreak Recommendations and Guidelines

See Annex: 2.1.4.1

WHO Outbreak Communication Guidelines

See Annex: 2.1.4.2

WHO recommended Guidelines for Epidemic Preparedness

See Annex: 2.1.4.3

WHO Outbreak Response Plan West Africa

See Annex: 2.1.4.4

WHO Outbreak Response Plan Annex

See Annex: 2.1.4.5

MSF Filovirus Haemorrhagic Fever Guideline

2.2. Ghana specific Information

2.2.1. Contacts for Clinical Care Management and Isolation Measures

Updated: September 1, 2014

At the MOH/Health Partners Mid-year Review Meeting on August 21, 2014, the acting Director of Public Health, Dr. Sarkodie confirmed the earlier announced action plan of GHS to set up three Ebola centres in Ghana:

These would be in Tema General Hospital for the southern sector, the Komfo Anokye Teaching Hospital for the middle belt and the Tamale Teaching Hospital for the northern sector.

An alternative for isolation and treatment would be explored at Abokobi, Greater Accra region.

The schedule to initiate the process was scheduled to be 3 weeks.

In the meanwhile Regional Hospitals in Ghana are directed to create holding rooms for Ebola suspect cases e.g. at Korlebu Teaching Hospital and 37 Military Hospital.

Up-to date 37 Military Hospital is the only hospital in Ghana having set up an Ebola-Unit ready to treat Ebola confirmed cases (2 isolation beds available) – it needs to be highlighted though, that according to GHS recommendations, 37 Military Hospital as a military institution is not the first hospital to address in case – this would be Korlebu Teaching Hospital /OPD in the first place.

Hospitals (Accra Region)

Korlebu Teaching Hospital

Out Patient Department (OPD)

P.O. Box 77, Korle Bu

Accra - Ghana

Tel: +233 (302) 674072 / +233 (302) 673036

Email: info@kbth.gov.gh

Medical Directorate

Tel: +233 - (302) 666766

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37 Military Hospital

Accra, Cantonments, Mills Road/Liberation Road

Tel: 0299 100 -579, -574, -807

Ridge Hospital

P.O. Box 184

Accra, Castle Road, Adabraka

Tel: +233 30 267 9325

Laboratory (Ebola Testing)

Noguchi Memorial Institute for Medical Research

Biosafety 3 level laboratory with area designated for specimen preparation using negatively pressurization plus ultraviolet light room.

Laboratory is capable of investigating Ebola specimen (test system: Real Star Filovirus Screen RT-PCR Kit, Altona Diagnostics) having the equipment to run real-time Ebola-PCR on up to three machines (3 x 96 tests maximum) at a time.

University of Ghana Legon

Legon PO Box LG 581 Ghana

Email: oboateng@noguchi.ug.edu.gh

Tel: + 233 - 302 - 501 178 / 9

www.noguchimedres.org/

Virology Department:

Prof. W.K. Ampofo

Head, Senior Research Fellow

www.noguchimedres.org/index.php/virology

Hotlines

Toll-free: +233 (0) 2 99 00 99 58
+233 (0) 2 99 00 99 72
+233 (0) 2 99 00 99 49

37 Military Hospital: +233 (0) 2 99 100 157
+233 (0) 2 99 100 574
+233 (0) 2 99 100 807

2.2.2. Laboratory Data on Ebola Testing in Ghana (Health Care Workers)

EBOLA Laboratory Investigations (PCR) in Ghana (all negative) updated: 22 August, 2014		
NO	REGION	NUMBER OF CASES
1	ASHANTI REGION	10
2	GRATER ACCRA REGION	20
3	EASTERN REGION	12
4	WESTERN REGION	1
5	CENTRAL ACCRA REGION	3
6	BRONG AHAFO REGION	6
7	NORTHERN REGION	2
8	VOLTA REGION	1
9	UPPER EAST REGION	6
10	UPPER WEST REGION	1
	TOTAL	62



Ebola Laboratory Investigations and Conformance to Ebola Case Definitions Evaluation/Estimation

Up-to date 62 samples have been analyzed for specific Ebola-RNA in Ghana but medical indication for investigations is not necessarily due to Ebola case definitions always. According to Public Health Specialists in Accra, Ghana who knew the cases, in about 40 – 60% of investigations indication for testing was safety precaution only e.g. cases presented with isolated bleeding after trauma but eventually having positive travel anamnesis to EVD outbreak countries.

Therefore up to 60% of investigations were performed in persons not fulfilling the criterium 'Person Under Investigation' (PUI) (= obligatory clinical criteria AND epidemiologic risk factors) and were therefore no 'Probable Cases' (= A PUI whose epidemiologic risk factors include high or low risk exposure).

Nevertheless estimated 50% of cases had high or low risk exposures (e.g. positive travel anamnesis to EVD outbreak countries e.g. in military personal).

Update October 10, 2014:

A total of 105 suspected Ebola cases have up to date been tested at Noguchi Memorial Institute for Medical Research (NMIMR) and all tested negative for Ebola-RNA. Currently, there is no confirmed cases of Ebola reported in Ghana.

2.2.3 Other Information

See Annex: 2.2.3

WHO Ebola Briefing for HOCs – What about Ghana?

3. Links

- Case Definition for Ebola Virus Disease (EVD)
<http://www.cdc.gov/vhf/ebola/hcp/case-definition.html>
- CDC Information – Questions and Answers on Ebola
<http://www.cdc.gov/vhf/ebola/pdf/ebola-qa.pdf>
- Ebola Virus Disease Outbreaks: Maps
<http://www.who.int/csr/disease/ebola/maps/en/>
- Ebola Update and Case Counts in 2014 Ebola Outbreak in West Africa
<http://www.cdc.gov/vhf/ebola/outbreaks/guinea/index.html>
http://www.who.int/csr/don/2014_08_22_ebola/en/
<http://www.who.int/csr/resources/publications/ebola/response-roadmap/en/>
- European Society of Clinical Microbiology and Infectious Diseases (ESCMID)
https://www.escmid.org/news_discussion/news/news_on_ebola/
- Infection Pathway and Spread of Ebola in West Africa (German)
<http://www.faz.net/aktuell/politik/ausland/afrika/ebola-der-tod-kennt-keine-grenzen-13084629.html>
- Med Box Aid Library, Ebola Toolbox
<http://www.medbox.org/ebola-toolbox/>
- Robert Koch Institute (German)
http://www.rki.de/DE/Content/InfAZ/E/Ebola/Ebola_node.html
- West Africa Ebola Outbreak Infographic
<http://www.cdc.gov/vhf/ebola/pdf/west-africa-outbreak-infographic.pdf>
- West African Rescue Association
<http://ghana.westafrican-rescue.com/Contact-Us.aspx>
- WHO recommended Guidelines for Epidemic Preparedness and Response
<http://libdoc.who.int/hq/1997/WHO EMC DIS 97.7.pdf>

4. Annex

See annex on CD (attached to last page) or visit www.hespa.net/ebola-ghana

- 1.1.2.1 [Questions and Answers on Ebola CDC](#)
- 1.1.2.2 [Ebola Factsheet CDC](#)
- 1.1.2.3 [Ebola-FAQ WHO](#)
- 1.1.2.4 [Ebola Poster Protect Yourself 1 Unicef](#)
- 1.1.2.5 [Ebola Poster Protect Yourself 2 Unicef](#)
- 1.1.2.6 [Ebola Key messages Unicef](#)
- 1.1.2.7 [Visit-Ebola-Centre CDC](#)
- 1.1.2.8 [International SOS Ebola Toolbox](#)
- 1.1.2.9 [West-Africa-Outbreak-Infographic](#)

- 1.2.3.1 [WARA Call Center](#)
- 1.2.3.2 [WARA Emergency Call Handling Guideline](#)

- 1.2.5 [Ebola Flyer](#)

- 2.1.2.2 [Ebola WHO Road Map 05 Sep 2014](#)

- 2.1.3.1 [Manual African-Healthcare Setting VHF CDC](#)
- 2.1.3.2 [VHF Pocket Book Guinea WHO](#)

- 2.1.4.1 [WHO Outbreak Communication Guidelines](#)
- 2.1.4.2 [WHO recommended Guidelines for Epidemic Preparedness](#)
- 2.1.4.3 [WHO Outbreak Response Plan West Africa](#)
- 2.1.4.4 [WHO Outbreak Response Plan Annex](#)
- 2.1.4.5 [MSF Filovirus Haemorrhagic Fever Guideline](#)

- 2.2.3 [WHO Ebola Briefing for HOCs – What about Ghana](#)