

WHO Ebola outbreak response handbook for health and safety in the field

September 2014



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Ref: WHO/HIS/SDS/2014.5

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I. Key messages and executive summary

As a matter of priority and at the highest levels of the Organization, WHO is putting in place a system to ensure the health and safety of deployed staff. Deployed individuals should also consider their own health and safety as the most important element to be assured during the deployment, both for personal reasons and in order to be able to work in the most efficient way. The system put in place by WHO includes assistance and guidance for before, during and after deployment.

Key services before deployment are provided by the WHO Staff Health and Wellbeing (SHW) services, the WHO Human Resources Department and other WHO professionals involved in the Ebola response. This is related to medical assessment and clearance and induction training. During deployment, in the affected countries, the system to ensure health and safety of deployed staff is based on the set-up of teams at national and district levels which include health and safety officers working closely with infection prevention and control (IPC) and other professionals in multi-disciplinary teams, with regular safety assessments at the health-care site and living sites for staff. The health and safety officer will help deployed staff follow instructions and procedures to protect themselves and keep healthy during and after working hours, and will monitor the implementation of these measures. In this handbook, these procedures are described for patient and non-patient care activities with different levels of risk, and recommendations are given for health risks other than Ebola virus disease (EVD), including psychological aspects related to such a demanding mission. A code of conduct to avoid exposure risk during working hours, as well as during social life is also described. Finally, measures to safely and appropriately conclude the deployment are given. In addition, special issues related to potential EVD exposure or infection, procedures for medical evacuations and a list of key resources is also presented at the end of this handbook.

Being deployed for in-country work during an outbreak is challenging. However, WHO and its partners are working with authorities locally to ensure that multiple systems are in place to ensure the safety of those deployed for this Ebola outbreak.

Remember these overall key messages:

- Ebola infection can be prevented by following proper guidance on the use of standard precautions and with proper use of personal protective equipment (PPE).
- Infections can very often be caught outside the health-care setting, so staff must be vigilant to maintain a one meter distance from other suspected patients and to practice hand hygiene after any contact with suspected individuals, as well as to limit contact with people unknown to you.
- Following a “code of conduct” to keep yourself safe will limit non-work related infection risks.
- Have easy access to the key contact numbers for your country in case of emergency.
- Follow through with post-deployment procedures to check in with WHO health and safety staff for both physical and mental health and wellness checks upon return.

Overall, deployed staff should bear in mind that the most important principle is to give priority to their own health and safety. One must be vigilant and rigorously apply the preventive measures and the code of conduct recommended in this handbook.

II. Purpose and audience

Purpose: The purpose of this handbook is to provide staff deployed by WHO with essential information and guidance on how to be healthy and safe before departure, during deployment and after their return home.

Through reading and using this document, staff should:

- gather essential guidance on what medical checks they should undergo and what preventive measures they should adopt before departure;
- understand what essential items, medicines and protective equipment they should prepare and bring with them for the deployment mission;
- learn how to protect themselves from the transmission of Ebola virus in a range of situations during deployment;
- understand other essential measures to ensure their health and safety;
- understand the recommended code of conduct to reduce risk of transmission of the Ebola virus and ensure health and security in the field;
- learn what to do if they fall sick or are involved in an accident.

Proposed audience: All professionals deployed by WHO as part of the 2014 Ebola Response in affected African countries, including consultants, WHO country staff working in affected countries, WHO HQ and regional office staff deployed to affected countries. These deployed staff have different professions (doctors, nurses, epidemiologists, logisticians, managers, etc...), so can be exposed in different ways in the affected countries.

III. Key areas of health and safety for deployed WHO staff and consultants

1. Before deployment

a. Health checks – medical clearance

Before departing on mission, it is mandatory to ensure that you are physically and mentally ready to go. The deployment will involve an intense working environment and long hours so good physical health and preparedness are important. Please note that this mission is contraindicated if you are pregnant.

In the document entitled “Medical recommendations for WHO staff and consultants deployed in the context of the Ebola outbreak in West Africa” (available at:

https://www.dropbox.com/sh/bq7hs5vnr86wqv/AABPQcLg_ip11NdF35X2atPa?dl=0) you will find complete information on the medical requirements and instructions essential before, during and after your deployment.

Once you have been selected for deployment, you will need to obtain medical clearance. To obtain medical clearance:

- WHO staff members based at HQ must make an appointment with Staff Health and Wellbeing (SHW) services by calling 13040. Staff from WHO regional and country offices should contact the Regional Staff Physician of their region.
- Consultants must submit a WHO 223 form (available at: https://www.dropbox.com/sh/bq7hs5vnr86wqv/AABPQcLg_ip11NdF35X2atPa?dl=0) and proof of their vaccinations being up-to-date before departure. Staff deployed to West Africa should be up-to-date with the following vaccines:
 - Yellow fever (mandatory)
 - Diphtheria-Tetanus (ideally within 5 years)-polio +/- pertussis
 - Typhoid vaccine

- Hepatitis A and B
- Meningitis ACYW 135 (mandatory if outbreak is on-going)
- Measles for those born after 1963 who have not had the disease, or 2 doses of MMR
- Rabies is recommended
- Cholera vaccine: only recommended in limited situations and based on risk assessment.

Guinea, Sierra Leone and Liberia are endemic countries for malaria, and that is why chemoprophylaxis and personal protection against mosquito bites day and night are important in preventing malaria and other vector-borne diseases (see section 2f). It is mandatory that staff members deployed to affected areas take chemoprophylaxis before, during and after the mission. For this, you need to consult either the WHO SHW services or a travellers' health service in your country if you are not WHO staff.

To meet foreseeable needs for the duration of the trip you will need to bring with you a medical kit with sufficient medical supplies (including your regular treatments, if any). This kit should include basic medicines to treat common ailments, a thermometer, first aid articles and any other specific medical items such as syringes and needles. You will find a full list of contents of a basic medical kit in the document “Medical recommendations for WHO Staff and consultants deployed in the context of the Ebola outbreak in West Africa” (https://www.dropbox.com/sh/bq7hs5vnr86wqvyy/AABPQcLg_ip11NdF35X2atPa?dl=0), as well as the content of the medical kit provided to WHO staff in HQ and in the regional offices. Toilet items should also be carried in sufficient quantity (dental care, eye care, skin care and personal hygiene). Alcohol-based handrub solutions are the best option for hand hygiene while travelling because they are the most effective antimicrobial product for this use and if you carry pocket bottles with you, they can be used at any time needed and everywhere. Make sure that you bring a sufficient number of bottles with you.

b. Induction training

Before deployment to the field or when you reach the country you have been assigned to, you will receive induction training. This training will be delivered either in Geneva, at a regional office, or at a country office, depending on your starting point and travel arrangements. The induction training aims to provide an introduction on EVD and essential operational guidance to all staff regardless of their functions and affiliations, to increase awareness about the health and safety issues that you will have to bear in mind before, during and after your deployment.

In addition, for those staff being deployed to work in high risk conditions such as patient care, safe burials or laboratory work, additional training will be offered in Geneva, at the Regional Office or at the country office, depending on the path of your deployment. For reference, the training slides are available at:

https://www.dropbox.com/sh/bq7hs5vnr86wqvj/AABPQcLg_ip11NdF35X2atPa?dl=0.

c. Briefing about country situation and reports from staff already deployed

You will be briefed about the country situation before deployment and provided with reports from staff already deployed. You will receive an additional, more detailed briefing upon arrival. If the pre-deployment briefing has not been in place and/or was not proactively provided, please explicitly request this briefing by asking the WHO Representative or in-country WHO Health and Safety Coordinator. A list of focal points in Geneva with contact details is provided below in section IV.e.

If you have the opportunity, please make sure that you contact other colleagues who have already been deployed to Ebola outbreak affected countries to gather their experience and advice.

2. During deployment

a. Conduct code

General principles

Particularly in hot spots where the outbreak is not yet under control and given that early EVD symptoms are non-specific, deployed staff are advised to adopt the following precautionary behaviour in their social and work life:

- Avoid shaking hands and hugging people
- During meetings, keep a distance of at least 1 meter from colleagues
- Avoid sexual activity during your mission; if you decide not to follow this recommendation, always use condoms
- Use respiratory etiquette if you sneeze or cough. Request others to do the same if they don't
- Perform hand hygiene frequently, especially in the moments mentioned above.

Buddy system

The **buddy system** is a system where two people, the “buddies”, operate together as a single unit so that they are able to monitor and help each other. In dangerous activities, where buddies are often peers, the main benefit of the system is improved safety. Each buddy can be there to prevent the other becoming a casualty, or rescue the other in a crisis. This also allows the less experienced buddy to learn quickly from close and frequent contact with the experienced buddy, than if operating alone.

The responsibility of a buddy is to:

- Help create a welcoming environment
- Give tours of work area
- Be a source of clarification of the various policies, procedures and protocol
- Be patient and positive. Help develop role confidence

- Answer frequently asked questions to help lessen the tendency towards role confusion and uncertainty
- Introduce colleagues and staff. Assist with building effective and productive networks
- Assist with training on key processes and procedures, such as using PPE and infection control.

b. Infection prevention and control (IPC) measures for patient care

Only the key IPC measures to be adopted for health-care workers' protection are listed in the present document. The content of this section is based on the WHO 2014 "Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola" (and its summary), available at: http://www.who.int/csr/resources/publications/ebola/filovirus_infection_control/en/. More extensive guidance can be found in this document.

These IPC measures need to be tailored according to the risk assessment of Ebola virus transmission in different situations during health care. These are usually related to the activities (e.g., type of patient care, cleaning activities, waste management, burials, etc...) and the staff functions (e.g., doctors and nurses, cleaners, logisticians). While preparing for and then performing these activities, team members should always supervise each other and the presence of a support person to help/assist should be ensured.

Necessary condition for the implementation of these IPC measures is the availability of equipment and supplies (e.g., soap or alcohol-based handrub solutions, chlorine, PPE) in sufficient quantity every time before an operation starts.

Main recommendations for health-care workers' (e.g., nurses, doctors, carers, caring family members) protection during patient care

- When you start working in a setting where suspected or confirmed cases of EVD are being admitted, make sure that the necessary isolation precautions have been put in place and that PPE and hand hygiene supplies are available, as recommended in the above-mentioned WHO IPC guidance document.¹ If this is not the case, do not accept to work in unsafe conditions, contact the head physician or nurse or local coordinator in the health-care setting and ask for explanations, and also report this immediately to your team coordinator. In section IV, you will find a quick guide on what to do if you feel working conditions are unsafe.
- Carefully apply **standard precautions** when providing care to ALL patients, regardless of the signs and symptoms they present with and whether or not they are suspected or confirmed cases of EVD. These include:
 - **hand hygiene** (see Annex 1)
 - use of disposable medical examination **gloves** before contact with body fluids, mucous membrane, non-intact skin and contaminated items, and
 - **gown** and **eye protection** before procedures and patient care activities likely to involve contact with or projection of blood or body fluids.
- Before entering the isolation areas, **put on PPE** according to the expected level of risk and follow the steps recommended by WHO (see Annex 2). The PPE include:

¹ *Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola*. Geneva: World Health Organization, 2014. Available at http://www.who.int/csr/resources/publications/ebola/filovirus_infection_control/en/

- correctly sized non-sterile examination gloves or surgical gloves;
- a disposable, long-sleeved, impermeable gown;
- a medical mask and eye protection (goggles or face shield), in particular if contact with blood and body fluids is anticipated;
- closed, puncture and fluid resistant shoes (e.g. rubber boots).

Additional PPE, depending on performed tasks and risk assessment, may include:

- **double gloving**, when undertaking any strenuous activity (e.g. carrying a patient) or tasks in which contact with blood and body fluids is anticipated (e.g., if the patient has symptoms like diarrhoea, bleeding or vomiting and/or the environment could be contaminated with blood or body fluids);
 - waterproof apron, if gown is not impermeable;
 - disposable overshoes and leg coverings, if boots are not available;
 - particulate respirator (FFP2 or EN certified equivalent or US NIOSH-certified N95), when performing procedures that promote the generation of aerosols.
- Perform **hand hygiene** with an alcohol-based handrub solution (20-30 seconds) or soap, running water and single-use towels (40-60 seconds), applying the correct technique recommended by WHO (see Annex 1):
 - before donning gloves and PPE, prior to entry into the isolation room/area;
 - before any clean/aseptic procedures being performed on a patient;
 - after any exposure risk or actual exposure to the patient’s blood or body fluids;
 - after touching (even potentially) contaminated surfaces/items/equipment;
 - after the removal of PPE, upon leaving the care area.

Always perform hand hygiene with soap and water when hands are visibly soiled. Alcohol-based handrub solutions should be made available at every point of care.

- When providing care to suspected or confirmed EVD cases:
 - Organize your work so that you can complete a sequence of care or the highest number of tasks once entered in the isolation room/area, thus avoiding back and forth to the non-secure area.
 - Limit direct contact with the patient (and with blood or body fluids) to essential care procedures.
 - For activities which do not require contact with the patient or care equipment, keep a distance of at least one meter (about 3 feet) from the patient.
 - Limit the use of needles and other sharp objects, as much as possible. Ensure safety of injections and phlebotomy procedures and the safe disposal of syringes, needles, scalpel blades and other sharp objects in puncture-resistant containers.²
- Before exiting the isolation room/area, **carefully remove and dispose of PPE** (including boots) into waste containers or infectious waste bags and perform hand hygiene. When removing PPE, be careful to avoid any contact between the soiled items (e.g. gloves, gowns) and any area of the face (i.e. eyes, nose or mouth) or non-intact skin. Do not re-use disposable PPE.
- Autopsies and the movement of human remains should be avoided. If you have to perform an autopsy, wear all the above-mentioned PPE, including double gloves and a particulate respirator or a PAPR if performing internal autopsy.

² WHO best practices for injections and related procedures toolkit. World Health Organization, Geneva, 2010; Available from: http://www.who.int/injection_safety/toolbox/9789241599252/en/

c. IPC to safely collect and process blood and other body fluid samples³ (for nurses, doctors, laboratory technicians)

1. Before entering patient room

1. Assemble all the necessary equipment:

- Equipment for collecting blood
- PPE
- Hand hygiene supplies
- Materials for waste management
- Materials for the packaging of samples.

2. Label blood collection tubes and fill in the laboratory form and epidemiological questionnaire

3. Put on the above-mentioned full PPE (see section 2.b) and perform hand hygiene according to instructions¹

2. Collect blood sample from the patient with particular attention to:

- Preparing infectious waste bags and a leak-proof and puncture resistant sharps container within the room
- Identifying and preparing the patient
- Being very careful not to soil or injure yourself during and after the procedure
- Immediately putting the needle into the leak-proof and puncture resistant sharps container
- Immediately stopping the bleeding and cleaning the patient's skin
- Putting items that drip blood or have body fluids on them into the infectious waste bag

³ How to safely collect blood samples from persons suspected to be infected with highly infectious blood-borne pathogens (e.g. Ebola). Available at <http://www.who.int/csr/resources/publications/ebola/blood-collect-en.pdf?ua=1>

3. Carefully prepare the blood sample for transport according to instructions³

4. If appropriate, proceed with further patient care but change gloves and perform hand hygiene if gloves are visibly soiled with blood or body fluid or if moving to another patient

5. Safely remove PPE and perform hand hygiene according to instructions (Annex 2)^{1,4} when exiting the isolation room/area

6. Safe processing of samples in the laboratory:

- Wear the above-mentioned full PPE (see section 2.b) to undertake any laboratory activity
- Use particulate respirators (e.g., FFP2, or EN certified equivalent, or US NIOSH-certified N95) or powered air purifying respirators (PAPR) when aliquoting, performing centrifugation or undertaking any other procedure that can generate aerosols
- Perform hand hygiene before donning gloves, after removing gloves and PPE, and after any contact with potentially contaminated surfaces, even when PPE is worn
- Undertake all laboratory samples processing under a safety cabinet or at least a fume cabinet with exhaust ventilation. Do not carry out any procedure on the open bench
- When finished, safely remove PPE and perform hand hygiene. When removing PPE, avoid any contact between the soiled items (e.g. gloves, gowns) and any area of the face (i.e. eyes, nose or mouth).
- Do not hang up the apron or gown for reuse - discard immediately.

⁴ “How to put on and how to remove personal protective equipment” Posters. World Health Organization, Geneva, 2014. Available from: <http://www.who.int/csr/resources/publications/ebola/en/>

d. IPC measures for cleaning and disinfection and waste management activities (for cleaners, logisticians)

- Cleaners should wear rubber gloves, a long-sleeved impermeable gown and boots and in addition, facial protection (goggles or face shield) when undertaking activities with increased risk of splashes or in which contact with blood and body fluids is anticipated, including the handling of linen.
- Spraying (i.e. fog) occupied or unoccupied clinical areas or of people wearing PPE with disinfectant should not be done because it is a practice with no proven disease-control benefits that can be potentially dangerous because droplets containing the virus can be generated and it can create the perception of false safety. If local operating protocols call for spraying of chlorinated water or other mixtures, workers involved in the spraying should ensure they are protected with proper full PPE to guard against the creation of aerosols and skin, eye and mucous membrane contact with the spray.
- Contaminated environmental surfaces or objects should be cleaned and then disinfected as soon as possible using standard hospital detergents/disinfectants (e.g. a 0.5% chlorine solution).
- Waste should be segregated at the point of generation to enable its appropriate and safe handling. All solid, non-sharp, infectious waste should be collected in leak-proof waste bags and covered bins.
- Syringes, needles, scalpel blades and other sharp objects should be disposed of in puncture-resistant containers.

e. IPC in community work (social mobilization, contact tracing, safe burials, etc...)

1. During social mobilization activities, interviews for contact tracing and case finding in the community:

- Always carry PPE (at least impermeable gown, face mask, eye protection and examination gloves), boots and hand hygiene products (preferably an alcohol-based handrub solution) with you.
- Avoid shaking hands and any other social contacts during social mobilization activities and interviews.
- Maintain a distance of more than one metre (about 3 feet) between you and the interviewee or anyone you are meeting, even if the person doesn't seem to be sick.
- Avoid any physical contact with the interviewee and with the environment.
- When these precautions are adopted and when interviewing asymptomatic individuals (e.g., neither fever, nor diarrhoea, bleeding or vomiting), PPE is not required.
- Avoid entering the private dwelling and do not accept any food or drink offered to you during contact tracing and case finding activities.
- Do not have any physical contact and do not provide care to a suspected case unless you have been trained to undertake these activities and can put on PPE (at least the gloves, impermeable gown, a mask and eye protection).
- Perform hand hygiene after any contact with a suspected case and potentially contaminated environment, and when leaving the place where you conducted the interview(s) for contact tracing and case finding in the community.

2. Safe burial practices and ceremonies of a suspected or confirmed EDV case (only the precautions for HCWs' protection are highlighted here; consult the specific WHO document on safe burials for full recommendations (available at:

https://www.dropbox.com/sh/bq7hs5vnr86wqv/AABPQcLg_ip11NdF35X2atPa?dl=0):

- Before starting any procedure, wear PPE (impermeable gown, face mask, eye protection and double examination gloves or heavy duty gloves) and rubber boots or closed, puncture and fluid resistant shoes and overshoes.
- Keep handling of the dead body to a minimum.
- Collect a post mortem sample (swab).
- Do not spray, wash or embalm the dead body or human remains.
- Do not spray the environment.
- Place the body in a plastic impermeable body bag that meets safety requirements, seal and disinfect the outside surfaces of the body bag (wipe over with a disinfectant and seal). Use two body bags if a coffin is not immediately available.
- Place all non-reusable PPE and any reusable equipment (e.g. boots) in separate biohazard bags and bring them to the hospital or health-care post for appropriate handling (e.g. incineration or decontamination).
- After completing all activities (e.g., transport of the body bag to the coffin or place of burial; any cleaning activity of the environment), safely remove PPE and perform hand hygiene according to instructions.^{1,4} When removing PPE, avoid any contact between the soiled items (e.g. gloves, gowns) and any area of the face (i.e. eyes, nose or mouth).
- PPE is not required for individuals driving or riding in a vehicle to collect human remains, provided that drivers or passengers do not handle the dead body of a suspected or confirmed EDV case.

f. IPC - when you leave the job

There is a risk of EVD transmission when you leave your workplace too. In addition, EVD is not the only infectious disease that you may be exposed to in West Africa.

To avoid exposure to EVD outside the workplace, protect yourself by following these recommendations:

- Avoid direct contact with the blood and other body fluids of people with EVD or unknown illnesses.
- Avoid direct contact with the bodies of people who have died of EVD or unknown illnesses.
- Avoid contact with any objects that have been or may have been contaminated with blood or body fluids.
- Avoid sexual activity during your mission, in particular with an infected person or a person recovering from EVD. If you decide not to follow this recommendation, always use condoms.
- Avoid touching live or dead animals. Avoid handling raw or undercooked meat.
- Avoid taking crowded public transport.
- Keep your hands clean. Perform hand hygiene with water and soap or an alcohol-based handrub solution especially:
 - Before, during, and after preparing food
 - Before eating food
 - After using the toilet
 - After blowing your nose, coughing, or sneezing
 - After touching an animal, animal feed, or animal waste
 - After touching garbage
 - After touching frequently touched surfaces
 - After any contact with a sick person
 - Before and after caring for someone who is sick.
- Avoid touching your face unless you have performed hand hygiene immediately beforehand.

- To protect yourself against mosquito bites day and night in order to prevent malaria and other vector-borne diseases:
 - Wear long-sleeved clothes
 - Use insect repellent day and night
 - Sleep under an impregnated bednet
 - Be aware of malaria symptoms (fever plus flu-like symptoms, diarrhoea)
 - Consult a doctor as soon as possible (within no more than 12h) from an onset of fever
 - Carry standby treatment for malaria.
- Only drink safe water. Water purification tablets, chloramine (“Aquatabs”) should be used to make drinking water for yourself if access to drinking water is not guaranteed. This will protect you from most water-borne diseases including cholera. Please note that if the water is turbid/dirty, you will need to filter it first!
- Ensure safe food preparation techniques to prevent diarrhoea: boil it, peel it or leave it; eat cooked food while still hot, cover the food. More information on “Guide on safe food for travellers” (available at: <http://www.who.int/foodsafety/publications/travellers/en/>).
- For diarrhoea: only oral dehydration salts made with safe boiled and chlorinated water should be taken.

g. Other health and safety issues

1. Workplace violence⁵

Workplace violence is a cause of physical and psychological pain for victims and witnesses, with increased risk for their well-being. Workplace violence is a particular concern in health-care facilities in specific situations where a small percentage of patients or

⁵ Adapted from WHO, ILO, PSI and ICN Framework guidelines for addressing workplace violence in the health sector. Available at <http://whqlibdoc.who.int/publications/9221134466.pdf>

visitors may turn violent due to mental illness, drug or alcohol abuse, or emotional problems. Health-care staff or their family or friends may also create violence resulting from stress, substance abuse, emotional problems, or troubled relationships. The suffering and humiliation resulting from violence usually leads to lack of motivation, loss of confidence and reduced self-esteem. If the situation persists, consequences could result in mental illness, psychological disorders, substance abuse, and ineffective performance.

To prevent workplace violence:

- Be aware of the risk of violent behaviour in the workplace
- Know how to identify signs of potential violence
- Be alert to danger signs that represent a change in attitude or behaviour – know your patients’ and co-workers’ normal behaviour and reactions
- Respond quickly and appropriately to possible danger signs
- Take precautions to reduce the chance of you or a co-worker being a victim of violence.

Precautions to reduce the chance of violence:

- Know where alarms are located and how to use them
- Report poor lighting
- Report unauthorized personnel
- Lock up personal belongings
- Do not carry around (and show) a lot of cash
- Don’t wear a lot of jewellery
- Adopt the “buddy system”; never walk alone.

What to do if violence seems likely and how to protect yourself:

- Get help if you feel unsafe while dealing with anyone; excuse yourself from the scene
- Be alert to overemotional patients, visitors and staff who make threats or show extreme anger
- Report all incidents to your supervisor

2. Heat stress

Heat stress is a very serious and widely recognised problem for workers dealing with Ebola outbreaks in tropical climates. The climate in Guinea, Sierra Leone and Liberia is generally hot and humid; monsoonal-type rainy season (May/June to November/December); dry season (December to May). Most health-care settings are not air-conditioned, including the facilities managed by WHO. Temperatures in health-care facilities are about 30°C (or 86 °F) with humidity up to 90%. Working in heavy PPE or a Hazmat suit can lead to heat exhaustion. Temperature inside the Hazmat suit can reach as much as 46°C. Health workers can lose several litres of water per shift through sweating.

Factors that increase the risks of heat illnesses are:

- High temperature and humidity
- Direct sun exposure (no shade)
- Limited air movement (no breeze)
- Low fluid consumption
- Physical exertion
- Heavy personal protective clothing and equipment
- Poor physical condition or health problems
- Some medications, for example, blood pressure pills or antihistamines
- Pregnancy
- Lack of recent exposure to hot working conditions
- Previous heat-related illness
- Advanced age (65+).

To prevent and manage heat illnesses: know the signs!⁶

Signs and symptoms of heat exhaustion:

- Headache
- Nausea
- Dizziness
- Weakness
- Irritability
- Thirst
- Heavy sweating
- Elevated body temperature
- Decreased urine output.

If not recognized and dealt with immediately these symptoms can escalate into more serious **heat stroke** including:

- Confusion
- Loss of consciousness
- Seizures
- Body Temperature of 40 °C (or 104 °F) or more
- Hot, dry skin or profuse sweating.

Heat rash is the most common problem in hot environments. Heat rash is caused by sweating and looks like a red cluster of pimples or small blisters. Heat rash usually appears on the neck, upper chest, in the groin, under the breasts and in elbow creases. In case of heat rash: provide cooler, less humid environment, keep rash area dry, apply powder to increase comfort, do not use ointments and creams – anything that makes the skin warm or moist may make the rash worse.

Heat cramps are muscle pains usually caused by physical labour in a hot work environment. Heat cramps are caused by the loss of body salts and fluid through sweating. If you have heat cramps:

⁶ Adapted from OSHA-NIOSH InfoSheet: Protecting Workers from Heat Stress. Available at <http://www.cdc.gov/niosh/docs/2011-174/pdfs/2011-174.pdf>.

drink water and have a snack (e.g. bananas, coconut), and/or carbohydrate electrolyte replacement drinks (e.g. sports drinks) every 15-20 minutes. Avoid salt tablets. Get medical help if you have heart problems, are on a low sodium diet, or if cramps do not subside within an hour.

If a staff member shows signs of heat exhaustion:

- Carry out medical evaluation and treatment
- Give liquids to drink
- Remove unnecessary clothing, if wearing PPE apply IPC rules for removal
- Cool the head, neck, and face with cold compress or have the workers wash his or her head, face and neck with cold water
- Encourage frequent sips of cold water.

To prevent heat illnesses:

- Get familiar with the symptoms of heat illness and learn to recognize heat related problems in yourself and your colleagues
- If you are new to the job or have been away for more than a week, gradually increase workload and allow more frequent breaks during the first week
- Drink small amounts of water frequently before you become thirsty to maintain good hydration (1 cup every 15-20 mins)
- Watch your urine – it should be clear or lightly coloured
- Eat regular meals and snacks as they provide enough salt and electrolytes to replace those lost through sweating as long as enough water is consumed
- Set up a buddy system (see section 2a) if possible
- Watch your breath and heart rate; if these become accelerated, stop working.
- Take frequent rest periods with water breaks in shaded or air-conditioned recovery areas.
- The option of being able to use light, comfortable PPE, where appropriate, is of great benefit for this reason.

h. Psychosocial issues and managing stress

Stress is the state experienced when faced with a challenge, threat, or change, and where there is a possible imbalance between demands and resources. Staff who experience stress are less efficient in carrying out their assigned tasks. Working in the field most likely means being confronted with human suffering, being away from family and lacking the usual social support.

It is of the utmost importance to know what can be done to protect oneself from being drawn into a whirl of unmanaged stress, which may lead to depression and anxiety, psychosomatic complaints, over-involvement with beneficiaries, callousness, apathy, self-destructive behaviours such as drinking and dangerous driving, interpersonal conflicts, or post-traumatic syndrome. This may in turn result in higher accident rates through poor decision-making and putting oneself or others at risk, higher rates of illness, absenteeism, loss of commitment and higher rates of turnover.

All these issues can compromise the success of a mission. Although stress during deployment in the field is unavoidable, some stress can be prevented or reduced and the effects on individual staff members and on their team be lessened. This requires actions undertaken by individual staff members, by managers and supervisors, by teams, and by the Organization as a whole.

Before the mission

The best way to prevent acute stress is being informed and to having a sense of control. Pre-deployment briefings will share the following useful information with staff members:

- medical information on the virus, modes of transmission and symptoms
- information about protective measures
- stressors that will likely be present
- stress reactions linked to this type of situation

- stress prevention and coping mechanisms to put in place
- information on community reactions in an Ebola epidemic.

This information will also allow team members to:

- assess and understand their strengths, weaknesses and limitations;
- recognize signs of stress in themselves and others;
- prepare individual coping mechanisms to put in place during the emergency;
- express and share fears, worries, etc. in a confidential way.

During the mission

Potential stressors related to EVD

A variety of physical and psychological stressors may affect the psychosocial wellbeing of staff and hamper their performance. These include dealing with:

- long working hours and fatigue;
- difficulty maintaining self-care activities for example taking exercise, having good eating habits, etc...;
- working within large multi-disciplinary and multi-cultural teams;
- constant pressure to keep performing;
- prolonged separation from personal social networks;
- strict protective measures, which include heavy protective equipment (dehydration, heat, exhaustion); physical isolation, constant awareness and vigilance, pressure to follow strict procedures;
- lack of means to complete work;
- fear of infection enhanced through common symptoms mistaken for EVD (simple fever, diarrhoea);
- fear of contaminating others;
- symptoms (bleeding skin, massive diarrhoea, etc...);
- limited opportunities for curative treatment focusing on supportive and palliative care;
- patients' rapid deterioration and high mortality rates;

- tension between the public health priorities, wishes of the patients (not willing to be isolated or treated) and traditions (burial traditions);
- stigmatization and possible aggression against staff through working with EVD patients;
- exposure to consequences of the epidemic in the community (e.g., social network deterioration, patients abandoned by their families, orphaned children);
- need for high flexibility, improvisation and adaptation to situations;
- cultural shock in particular due to misunderstanding of the traditional belief system; dealing with differences in the interpretation of reality (such as Ebola is caused by witchcraft or introduced to harm the opposition or for other political reasons, ambulances take away people who never return because they are killed).

Preventing and addressing stress at different levels

The role of the Organization and field managers

Managers should be role models for staff under their supervision and conduct themselves in ways that show how to mitigate stress (e.g., taking appropriate work breaks, carrying out stress reduction procedures such as relaxation exercises).

Managers need to be familiar with and convey to staff:

- health and safety practices and procedures (including time for required rest and recreation, etc);
- practices and opportunities for promoting physical health;
- the organizational culture, policies, and practices to counteract staff stress;
- team-building techniques, including facilitating communication and conflict management;
- the signs of stress, burnout, and vicarious traumatization;
- skills in stress management and psychological first aid;
- the importance of regular communication with families; and
- a feeling of togetherness, mutual respect and solidarity.

Key measures that staff can put in place to keep healthy and prevent stress:

- observe adequate rest and breaks during the working day;
- maintain healthy habits (exercise, relaxation, nutrition, enough sleep, etc.);
- attend group debriefing and share coping skills;
- make sure there is clear communication and information flow within the team;
- put in place buddy systems to look out for signs of exhaustion in colleagues.
- follow routine health and safety practices and participate in stress reduction activities, including regulating work schedules, taking breaks, taking time off and engaging in personal stress reduction activities;
- recognise and understand one's individual signs of stress;
- manage one's own stress, analyse one's coping skills and ways of improving them;
- accept, express and share emotions, fears, difficulties, satisfaction (in a secure place);
- participate in training and briefing sessions to ensure that fear, stress, etc. are not affecting the learning and concentration capacity of the teams (i.e. briefings on isolation methods, infection control measures, transmission, etc.);
- set goals to provide a sense of control that could include keeping up with paper work even if staff are not able to work in the field, writing a diary, learning a new skill, knit a scarf, keeping fit, etc;
- keep the mind active by reading, writing, playing games, etc;
- look for, or inject humour into their situation, which can mitigate stress or hopelessness;
- believe in something strongly meaningful to them (e.g., in family, a god, or other);
- actively and regularly apply stress management techniques;
- make friends and build support systems;
- stay sensitive towards others, as families of local staff may be affected by the outbreak.

Signs of stress may be physiological, emotional, cognitive or behavioural. This is a *list of most common signs* that might help you recognize that you are experiencing a stress condition:

PHYSIOLOGICAL reactions to stress:

- increasing heart rate
- increasing blood pressure
- increasing muscle tension
- sweating
- increased adrenaline production and secretion, and
- superficial breathing at higher frequencies.

EMOTIONAL reactions to stress:

- fear
- irritation
- depressive mood
- anxiety
- anger, and
- diminished motivation.

COGNITIVE reactions to stress:

- decreased attention
- narrowing of perception
- forgetfulness
- less effective thinking
- less problem solving, and
- reduced learning ability.

BEHAVIOURAL reactions to stress:

- decreasing productivity
- increasing smoking
- increasing drug use and/or alcohol consumption
- making errors, and
- reporting sick.

3. Concluding deployment

a. Procedures for concluding the deployment

While we have described many difficult and demanding situations that could be associated with deployment, the great majority of staff will conclude their deployment without incident and with the successful completion of work that has had high visibility for themselves, been rewarding in its training and experience-building and had a positive impact on the biggest Ebola outbreak ever known.

That said, WHO is aware that whatever the nature of the deployment, the work, travel and nature of the deployment will be tiring and stressful for most staff members. Moreover, you will have run the risk of being exposed to serious infectious diseases during your deployment, no matter how long you are deployed. Therefore, WHO has a standard procedure for concluding deployment.

- All deployed staff will undergo a post-deployment debriefing session, to gather information on the deployment process, in order to improve operations. This will ideally be done in person but may be done by phone based on operational considerations. These debriefings focus on what the staff member observed, experienced and learned during their deployment, and how the Organization could potentially benefit from this experience. Although an operational debriefing is not explicitly concerned with stress management, the experience of feeling listened to about field experience and reviewing organizational practices can also reduce stress, if any, in the individual staff member.
- After deployment, staff and non-staff are asked to contact SHW services in Geneva (ext. 13040) or the Regional Staff Physician in the regions, to get an end of mission debriefing.

b. Psychological support and stress management after conclusion of deployment

The effects of stress encountered during an assignment do not magically disappear when the staff member returns home. The stresses associated with leaving the field may include leaving colleagues who have become close, needing to attend to many practical tasks, such as completing reports, conducting handovers, coping with reverse culture shock, and reconnecting with family members who have not shared similar experiences.

The post-deployment debriefing exercise is conducted by the staff counsellor and/or the staff psychologist and focuses on how staff have responded to the stresses they have experienced during their deployment. It may explore what their experiences were, what their thoughts and feelings about these experiences are, and how they are dealing with those thoughts and feelings. It focuses especially on their current emotional state and any needs they may have for further individual or family support or other interventions. It further includes education about the possible delayed impact of stressful experiences on an individual.

Support and advice should also be offered to HQ staff not deployed on how to understand and relate to staff coming back from the field. This may include the need to be recognised, to be touched, not judged, and the need for adequate rest.

Ideally, psychological support follow-up should be provided after 3 months and 1 year. The diagnosis and treatment of post-traumatic stress disorder requires specialized psychological and medical care which should be sought if suspected.

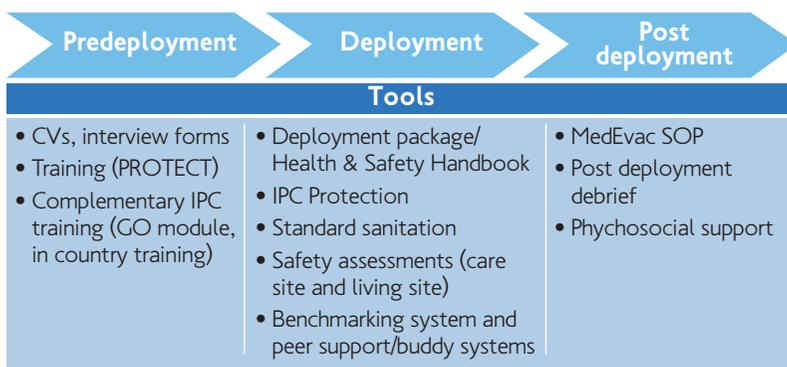
IV. Special issues

a. What to do if you think working conditions are unsafe

WHO and its partners have put in place measures to ensure your safety while you are deployed. WHO and the International Labour Organization have published a Briefing Note to highlight the occupational health and safety issues related to EDV.⁷ From the deployment point of view, this “safety system” started when you were recruited through a comprehensive approach to screening volunteers for deployment for experience, training and ability to work in a developing country, in complex stressful environments. In addition, a set of training modules have been developed for helping staff before deployment prepare for the different jobs they will have to do in the field. While deployed, the safety “systems” in place include additional complementary training and supervision by IPC and Health and Safety staff linked to the WHO Country Office and at Ebola treatment centres. Each centre will also have regular assessments of safety and new tools for staff reminders and checklists are being put in place to increase safety in the workplace and in your living areas. Finally, post deployment, there are mechanisms described above that will allow WHO to check in on the health and safety of individuals deployed to work in the Ebola response. The graphic below describes some of these tools.

⁷ Ebola Virus Disease: Occupational Safety and Health - joint WHO/ILO briefing note for workers and employers. Available at: http://www.who.int/occupational_health/publications/ebola_osh/en/

The Solution Package



It is clear that working conditions may not always be perfect given the difficult context of the health systems in the affected countries. However, individuals deployed by WHO must know that it is their right and obligation to report when working conditions truly become unsafe. While WHO and its partners will be doing formal external assessments of safety in all Ebola treatment centres eventually, deployed staff should raise specific issues directly to the responsible health and safety officer at their facility or to their team lead coordinator. If there is no health and safety officer, staff are asked to contact directly the national Health and Safety Officer or national IPC lead. A formal system for assessing and investigating these complaints through the national and international IPC and health and safety teams exists with a regular assessment of complaints.

b. What to do if you think you have been exposed

Steps to be followed in case of percutaneous (needle stick injury or any other sharps injury) or muco-cutaneous exposure to blood, body fluids, secretions, or excretions from a patient with suspected or confirmed EVD:

1. immediately and safely stop any task you were performing
2. leave the patient care area
3. safely remove PPE

4. wash the affected skin surfaces or the percutaneous injury site with soap and water immediately after leaving the patient care area. Accordingly, irrigate mucous membranes (e.g. conjunctiva) with copious amounts of water or an eyewash solution, and NOT with chlorine solutions or other disinfectants.
5. Immediately report the incident to your local coordinator, the clinical lead of the medical team in the field if coordinator is absent, and the occupational health and safety officer where available. This is a time-sensitive task and should be performed as soon as you leave the patient care unit.

If you inadvertently touched an object contaminated with blood or body fluids with your bare hands, immediately perform hand hygiene. If your clothes were soiled with potentially infectious fluids, remove the clothes as soon as possible, perform hand hygiene and wash exposed skin if contaminated too. In these cases, but also if you were in a close contact with a sick person, dead body, an animal without adequate protection or you think you were exposed to the Ebola virus in any other way, report immediately to your local coordinator and the occupational health and safety officer, where available.

If exposed, you will be medically evaluated (including for other potential exposures, e.g. HIV, HCV) and receive follow-up care. You will need to take your body temperature twice daily for 21 days after the incident. A consultation with a medical doctor (ideally specialist on infectious diseases will be set up as soon as possible if you develop fever within 21 days of exposure. If are suspected of being infected you will be evacuated with suitable means of transportation from the deployment area to a location/facility designated by WHO, to receive appropriate care.

For more details, please refer to the document “Procedures for WHO Staff & Consultants: Exposure to Ebola Virus in the Context of the Ebola Outbreak in West Africa” (available at: https://www.dropbox.com/sh/bq7hs5vnr86wqvy/AABPOcLg_ip11NdF35X2atPa?dl=0).

c. What to do if you think you are infected

If you have a sudden onset of fever ($T > 38^{\circ}\text{C}$), or other signs and symptoms (headache, intense fatigue, generalized or articular pains, nausea, vomiting, diarrhoea, hiccups, etc...):

- Immediately and safely stop any ongoing tasks
- Stay put at your accommodation site and do not go to work
- Do not hide symptoms and immediately report to the WHO field coordinator or clinical lead of the medical team
- Wait until the WHO site coordinator informs you of the appropriate decisions and plan of actions
- Avoid self-medication

d. Health insurance, support with MedEvac

Any professionals (whether staff members or not) deployed by WHO will be granted health insurance during and after the deployment for medical problems linked with the deployment. A detailed explanation of the terms and conditions of this will be given by the SHW services (if you are WHO staff) or with your contract (if you are a consultant) before deployment.

All cases of potential or actual staff exposure to EVD will undergo an **individualized** risk assessment as soon as possible after occurring. The medical team will establish the level of risk and the protocol to follow. If required, WHO will endeavour to initiate prompt arrangements to evacuate the person with suitable means of transportation from the deployment area to an appropriate location/facility designated by WHO. Guidelines for timeframes and means of transportation will be placed under the responsibility of the Director, SHW.

In the current outbreak, the standard operating protocol is for the Coordinator, Insurance and Pension Services to be informed of the MedEvac by the SHW Director and to provide the hospital receiving the case with a signed letter of guarantee of payment for medical care.

e. Infrastructure and contact points for health, safety and security issues (key numbers and contact persons)

WHO is putting in place a system to ensure the health and safety of deployed staff. This system includes assistance and guidance before, during and after the deployment provided by the SHW services and other WHO professionals involved in the Ebola response. The contact persons and numbers in the SHW services are detailed below.

In the affected countries, the system to ensure the health and safety of deployed staff is based on the set-up of teams at national and district levels, which include health and safety officers working closely with IPC and other professionals in a multi-disciplinary team. These teams, in coordination with other staff from the WHO country offices, will ensure that deployed staff receives full induction training, briefings about the country situation, instructions about their functions, protection equipment and the details and numbers of people to be contacted in case of need or emergency. The health and safety officer will help deployed staff to follow instructions and procedures to protect themselves and keep safe and healthy during and after working hours and will monitor implementation of these measures.

If you do not receive these instructions and contact details, please immediately ask the team coordinator or staff in the WHO country office and do not start work until you have received them. A set of key contact numbers for the different countries and WHO HQ is listed below:

Main contact details

WHO HQ/ SHW, Geneva

Dr Caroline Cross, Director:

+41795090655 / +33685 122042, crossc@who.int

Dr Dorothee Hergibo, Medical Officer:

+412279 13040 / +41796 198538, hergibod@who.int

Mrs Nathalie Casalis, Staff Counsellor:

+412279 13040 / +41795006537, casalish@who.int

Mrs Eva Murino, Psychologist: +412279 13040, murinoe@who.int

WHO HQ/Global Ebola Response, Geneva

Dr Nahoko Shindo, Clinical Care Deployments:

+412279 13446 / +41792446011, shindon@who.int

Dr Constanza Vallenias, IPC Deployments:

+412279 14143 / +41 79 322 7230, valleniasc@who.int

Mr Patrick Drury, GOARN:

+412279 13425 / +41793089807, druryp@who.int

AFRO clinic

Dr RIZET Roland can always be reached at:

+47 241 39 164 or +47 241 39 415, and by email at rizetro@who.int

Location	Number	Email
WCO Sierra Leone		
WCO Liberia		
WCO Guinea		
WHO HQ Staff Health and Wellness		
WHO HQ Global Alert and Response Network team		
WHO Ebola Staff Hotline		

Annex 1: How to perform hand hygiene

How to perform hand hygiene by hand rubbing or handwashing

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

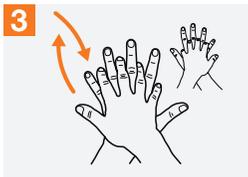
 Duration of the entire procedure: 20-30 seconds



Apply a palmful of the product in a cupped hand, covering all surfaces;



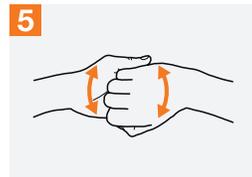
Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Once dry, your hands are safe.

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 **Duration of the entire procedure: 40-60 seconds**



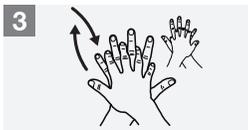
Wet hands with water;



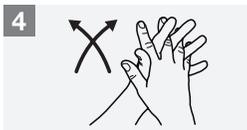
Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



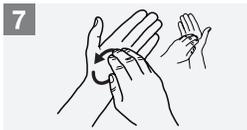
Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



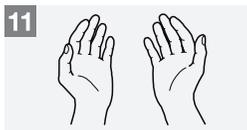
Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.

Steps to **remove** personal protective equipment (PPE)

- 1** Remove waterproof apron and dispose of safely. If the apron is to be reused, place it in a container with disinfectant.



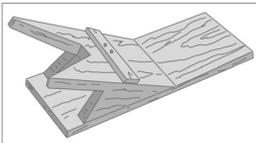
- 2** If wearing overshoes, remove them with your gloves still on (If wearing rubber boots, see step 4).



- 3** Remove gown and gloves and roll inside-out and dispose of safely.



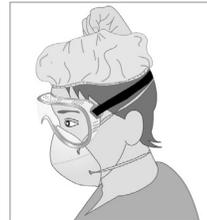
- 4** If wearing rubber boots, remove them (ideally using the boot remover) without touching them with your hands. Place them in a container with disinfectant.



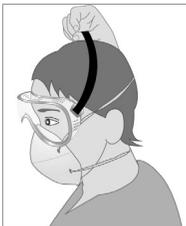
- 5** Perform hand hygiene.



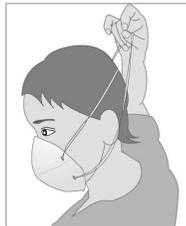
- 6** If wearing a head cover, remove it now (from behind the head).



- 7** Remove face protection:
7a Remove face shield or goggles (from behind the head). Place eye protection in a separate container for processing.



- 7b** Remove mask from behind the head. When removing mask, untie the bottom string first and the top string next.



- 8** Perform hand hygiene.



Source: Modified from Clinical Management of Patients with Viral Haemorrhagic Fever: A pocket Guide for the Front-line Health Worker. World Health Organization, 2014