

Notes about the Ebola Virus and How to Protect Yourself and Your Families

Presentation to UNDP Staff
December 2014



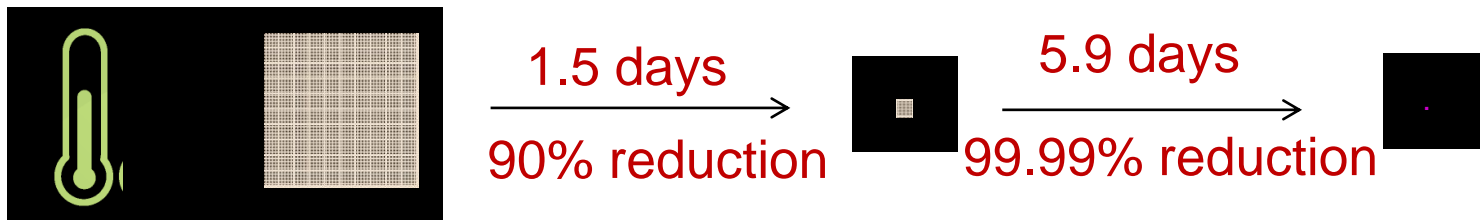
Dr Jorge EMMANUEL
(jorge.emmanuel@undp.org)

Prof Dr Babacar NDOYE

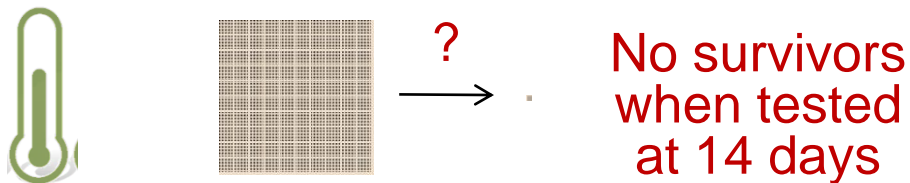
❖ Persistence in the Environment

- Laboratory studies:

- On solid surfaces / room T (20-25°C) / total darkness



- Dried on plastic, metal, glass / room temperature

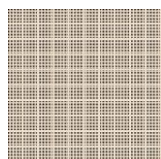


Note: Ebola was completely inactivated sometime before 14 days but the researchers did not determine when. Sunlight degrades Ebola.

❖ Persistence in the Environment

- Laboratory studies:

- Dried on solid surfaces / cold T (4°C)



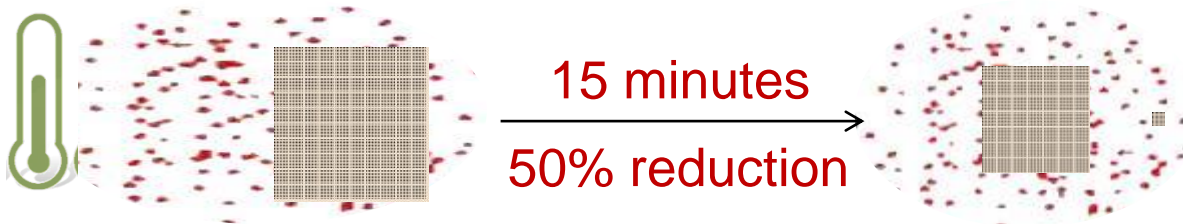
46 days
→
99% to 99.9% reduction

Note: Ebola survived longer in the cold..

❖ Persistence in the Environment

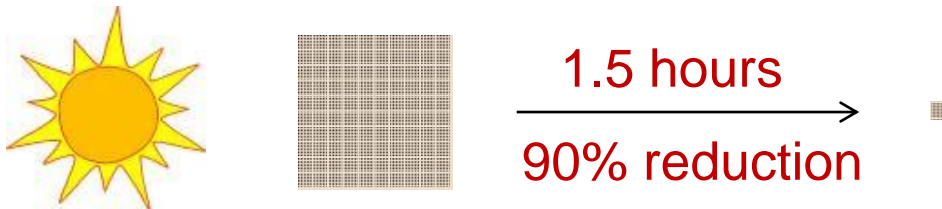
- Laboratory studies:

- In artificial aerosols / 50-55% humidity / room T (22°C)



Note: Aerosol droplets fall to the ground and do not remain suspended in air.

- Outside environment (direct solar radiation at noon)



Estimate based on solar UV radiation at noon in West Africa from November 1-16, 2014

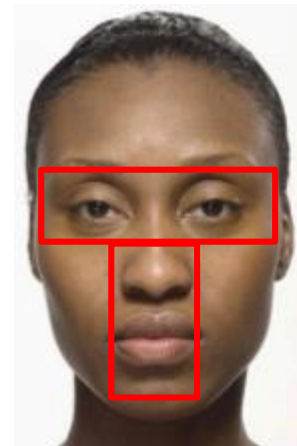
ALL of the links below must happen to get Ebola:



1. An Ebola-infected person who is *showing symptoms*
2. Contact with the person's body fluids (virus can be found in the blood, saliva, semen, faeces, urine, vomitus, sweat, breast milk, and tears)

3. Transfer of that person's contaminated body fluids into:

- Your mucous membranes: eyes, nose, and mouth
- Breaks in the skin



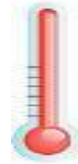
- The hands transfer the virus into the mucous membranes or skin breaks

→ the importance of **HAND HYGIENE**

**DEMONSTRATION
WITH BLACK LIGHT**

◦ Heat:

- Ebola is reduced by 99.999% at **60°C in 22 minutes**
- **Boiling** (100°C) would inactivate Ebola
- Pressurized steam (autoclaving at 134°C) would destroy Ebola rapidly



◦ Chemical disinfection:

- 60-90% ethanol
(ethyl alcohol)
- 0.5% chlorine



❖ Issue to consider with chlorine

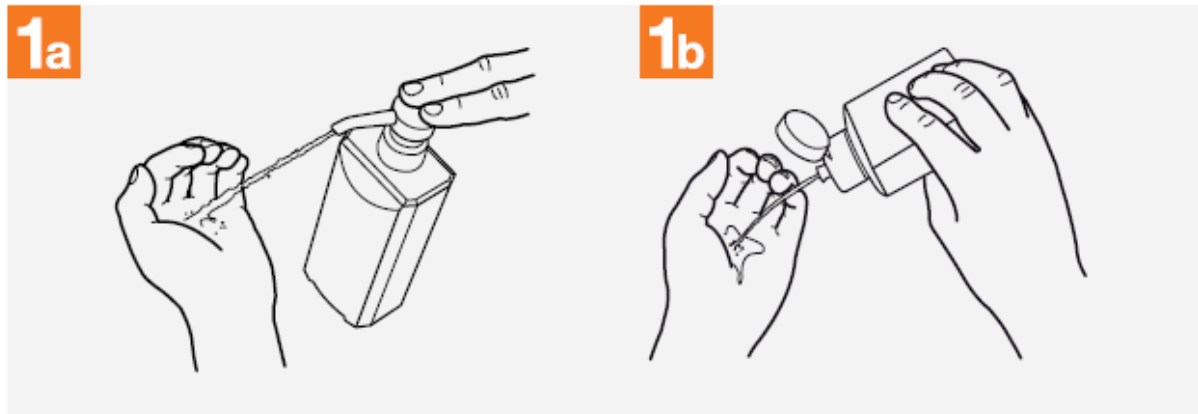
- Chlorine solutions are not effective when there is dirt –it is important to clean with soap and water before disinfection
- Chlorine solutions take some time to destroy Ebola
- Chlorine solution degrades with time, exposure to sunlight, and elevated temperatures

- ❖ **Alcohol-based hand rub** is more effective (Ebola is killed rapidly)
- ❖ Alcohol is not as toxic as chlorine
- ❖ When alcohol-based hand rub is not available, it is acceptable to use **0.05% chlorine** but the duration of the cleaning procedure should be **40 to 60 seconds.**

- **Alcohol-based rub is the preferred method**
- **Facilities should make alcohol-based rubs available as much as possible**

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

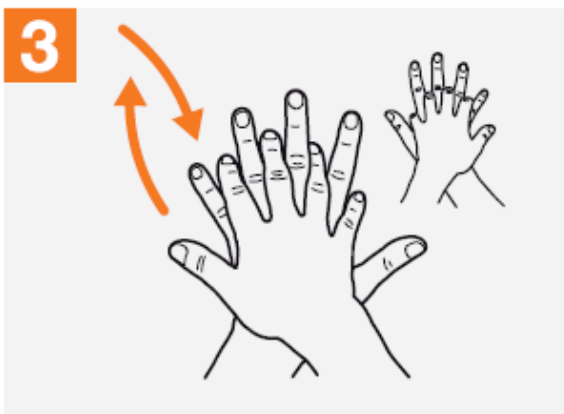
 **Duration of the entire procedure: 20-30 seconds**



1a Apply a palmful of the product in a cupped hand, covering all surfaces;



2 Rub hands palm to palm;



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



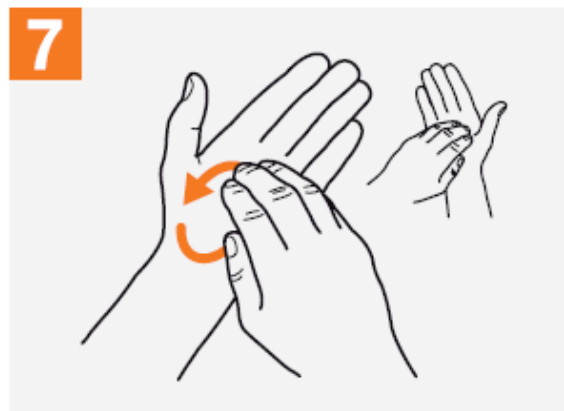
4 Palm to palm with fingers interlaced;



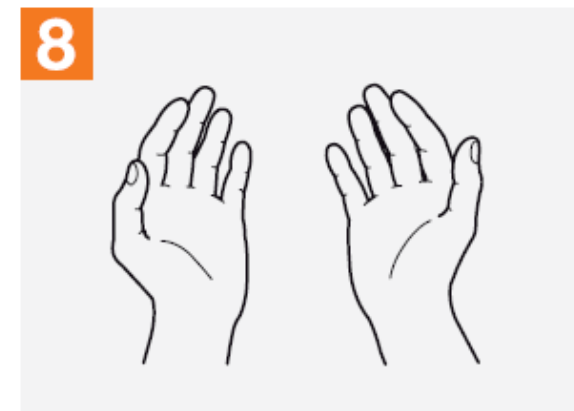
5 Backs of fingers to opposing palms with fingers interlocked;



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



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



8 Once dry, your hands are safe.