

**GUIDELINE ON HAND HYGIENE IN HEALTH CARE  
IN THE CONTEXT OF FILOVIRUS DISEASE  
OUTBREAK RESPONSE**

**RAPID ADVICE GUIDELINE**

**NOVEMBER 2014**



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# Guideline on Hand Hygiene in Health Care in the Context of Filovirus Disease Outbreak Response

Rapid advice guideline

November 2014

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# Summary of the recommendations

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## Introduction

This document provides a summary of the recommendations for hand hygiene best practices to be performed by health workers providing care and/or support to patients with filovirus infection (Ebola and Marburg viruses). The background for the development of these recommendations is described in Annex 1. The recommendations were developed in accordance with the World Health Organization (WHO) Rapid Advice Guideline procedures (see “Methods” in Annex 2) and are based on systematic reviews of the scientific evidence (see summaries of the results in the “Rationale and remarks” section of each recommendation and in Annex 2) and the consensus of experts. Considerations related to guideline implementation are available in Annex 3.

## Recommendations

### Recommendation 1.

WHO recommends performing hand hygiene, by using either an alcohol-based handrub or soap and running water, applying the correct technique recommended by WHO. Alcohol-based handrubs should be made available at every point of care (at the entrance and within the isolation rooms/areas) and are the standard of care. If alcohol-based handrubs are unavailable, hand hygiene should be performed with soap and running water whenever necessary. When hands are visibly soiled, hand hygiene should always be performed with soap and running water.

*Strong recommendation, high quality evidence for the effectiveness of alcohol-based handrub or soap and water.*

#### *Rationale and remarks:*

This first recommendation is based on the WHO Guidelines on Hand Hygiene in Health Care (1) and is included also in the 2014 WHO 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 (2). The preferred use of alcohol-based handrub for hand hygiene in health care is based on the following criteria for which evidence is provided in the WHO Guidelines and its related Summary (3), namely:

- elimination of the majority of microorganisms (including viruses);
- the short time required for microbicidal activity (20 to 30 seconds);
- availability of the product at the point of care;
- better skin tolerability;
- no need for any particular infrastructure (clean water supply, washbasins, soap and hand towels).

Handwashing with soap and water is also considered highly effective at removing microbial contamination (1), although no specific data are available for filovirus. However, according to experts’ consensus, handwashing with soap and water can be considered highly effective against enveloped viruses.

The correct application technique and duration of the procedure are considered crucial to achieving the desired effect for both handrubbing with an alcohol-based handrub and handwashing with soap and water. For handrubbing, WHO recommends applying a palmful of alcohol-based handrub to

cover all surfaces of the hands. Hands should be rubbed by following specific steps for 20 to 30 seconds until dry (Figure 1) (1-3). When washing hands with soap and water, hands should be wet with clean, running water and a sufficient amount of product to cover all surfaces should be applied. Hands should be rinsed with water and dried thoroughly with a single-use towel (1, 2). WHO recommends that to achieve the desired effect, the procedure should last 40-60 seconds (Figure 2) (1-3).

## Recommendation 2.

In settings where bleach/chlorine solutions are currently used for hand hygiene, WHO recommends implementing a strategy to change to alcohol-based handrub or soap and water.

*Strong recommendation, high quality evidence for the effectiveness of alcohol-based handrubs or soap and water.*

### *Rationale and remarks:*

This recommendation is also based on the WHO Guidelines on Hand Hygiene in Health Care (1) which urge health-care administrators to provide access to a safe, continuous water supply and to the necessary facilities to perform handwashing, and a readily accessible alcohol-based handrub at the point of patient care. The Guidelines also urge national governments to make improved hand hygiene adherence a national priority and to consider providing a funded, coordinated implementation programme, while ensuring monitoring and long-term sustainability.

## Recommendation 3.

Bleach/chlorine solutions currently in use for hand hygiene and glove disinfection may be used in the interim period in emergency situations until alcohol-based handrubs or soap and water become available.

*Conditional recommendation, very low-quality evidence for the comparative efficacy of bleach/chlorine solutions compared with alcohol-based handrub or soap and water, and very low-quality evidence about tolerance to bleach or chlorine solutions for hand hygiene and glove disinfection.*

### *Rationale and remarks:*

Very limited evidence was found to evaluate the efficacy of sodium hypochlorite (bleach/chlorine solutions) compared with other agents when used for hand hygiene or glove disinfection. No comparative study is available to show the efficacy of bleach/chlorine solutions in preventing the transmission of filovirus or other enveloped viruses to patients and health-care workers or in reducing the viral load on hands. However, according to expert consensus, bleach/chlorine solutions with a concentration of 500 ppm sodium hypochlorite (0.05% chlorine solution) can be considered efficacious against filovirus, including when used for hand hygiene.

Furthermore, available data indicate that for hand hygiene efficacy, there is a link between bleach/chlorine solutions' concentration and contact time. A concentration of 0.05% chlorine solution applied for a minimum time of 40 to 60 seconds until hands are dried is considered appropriate for hand hygiene practices. To perform the correct technique, the same steps as for handrubbing should be followed (Figure 1) (1-3).

There is extremely limited evidence showing that bleach/chlorine solutions used for hand hygiene purposes can cause skin irritation or lesions.

There is no evidence that low concentrations of bleach/chlorine solutions used for hand hygiene cause respiratory irritation, other respiratory symptoms or asthma. However, respiratory symptoms are clearly reported and described in patients, health workers and other users as a consequence of exposure to bleach/chlorine solutions used for environmental decontamination.

Finally, there is evidence for risk of irritative conjunctivitis as a result of exposure to bleach/chlorine solutions.

Therefore, the experts concluded that the use of bleach/chlorine solutions at the concentrations currently used for hand hygiene (500 ppm sodium hypochlorite or a 0.05% chlorine solution) can be acceptable from a tolerability point of view, when other hand hygiene agents are unavailable. However, dermatologically speaking, alcohol-based handrubs are considered the best option for hand hygiene. In addition, using chlorine is not advised for people with pre-existing skin conditions (e.g. contact dermatitis). It is essential to establish safety measures and assessments in settings where bleach/chlorine solutions are being used for hand hygiene.

In terms of balancing benefits and harms, the conclusion is that for the proposed recommendation, the benefits outweigh the harms.

No major variability is expected with respect to the values and preferences of health workers and the use of chlorine solutions for hand hygiene. It was highlighted, however, that alcohol-based handrubs are generally preferred because they are better tolerated and produce much less skin barrier impairment than all other means of hand antisepsis mentioned in the present guideline.

With respect to glove disinfection, no study was retrieved on efficacy of bleach/chlorine solutions compared with alcohol-based handrub or other antisepsis products, including water and soap. Only one study assessed the permeability of surgical gloves to sodium hypochlorite 13% and showed no permeation or glove damage.

Although best IPC practices dictate that gloves should be changed between patients, in the specific context of EVD outbreaks, the decontamination of gloves has been considered for the purpose of avoiding changing both pairs of gloves between patients within the isolation area, given the high risk of health-care workers' hand contamination with a patient's blood and/or bodily fluids. Experts convened by WHO to develop recommendations on personal protective equipment to be used for the care of EVD patients (4), agreed that glove disinfection could help facilitate changing gloves safely, while providing clinical care for patients with filovirus disease and/or when gloves become compromised. In these cases, a two-step procedure should be followed: 1) disinfect the outer gloves before removing them safely and 2) keep the inner gloves on and disinfect them before putting on a fresh outer pair. Alcohol-based handrubs are preferred when disinfecting gloved hands. However, if this is unavailable, bleach/chlorine solutions are acceptable in the interim.

Figure 1. Handrubbing technique

# How to Handrub?

**RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED**

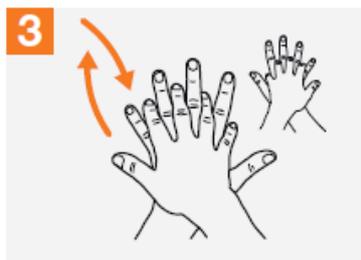
 Duration of the entire procedure: 20-30 seconds



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;



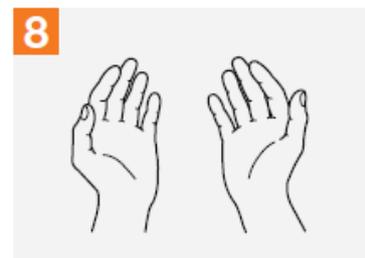
Backs of fingers to opposing palms with fingers interlocked;



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;



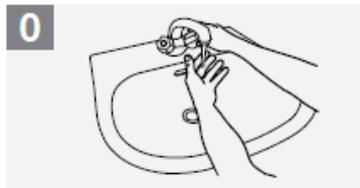
Once dry, your hands are safe.

Figure 2. Handwashing technique

# How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

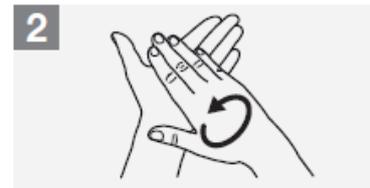
 Duration of the entire procedure: 40-60 seconds



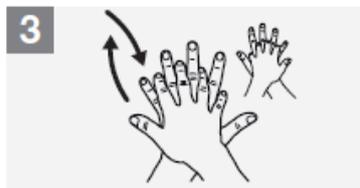
0 Wet hands with water;



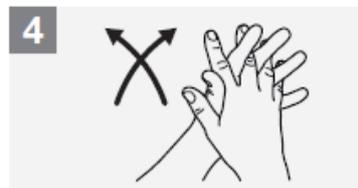
1 Apply enough soap to cover all hand surfaces;



2 Rub hands palm to palm;



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



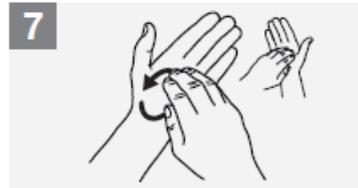
4 Palm to palm with fingers interlaced;



5 Backs of fingers to opposing palms with fingers interlocked;



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



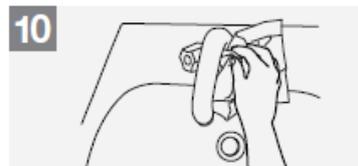
7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



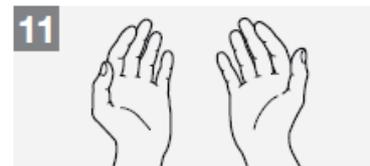
8 Rinse hands with water;



9



10



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