

Introduction



African countries (shaded areas) where viral haemorrhagic fevers have been documented in the past



Viral Haemorrhagic Fevers: An Overview

In Africa, viral haemorrhagic fevers (VHFs) include Lassa fever, Rift Valley fever, Marburg and Ebola haemorrhagic fevers, Crimean-Congo haemorrhagic fever (CCHF) and yellow fever. Humans initially contract an infection with a haemorrhagic fever virus through exposure to rodents or insects (for Ebola and Marburg VHFs, the natural reservoir is unknown). Person-to-person transmission of Lassa, Ebola, Marburg and CCHF viruses can occur through direct contact with VHF-infected material.

Typically, during the course of a VHF, the blood vessels and many organ systems are damaged. VHFs are often accompanied by bleeding, reflecting the widespread presence of the virus throughout the patient's body. As a result, the blood, urine, vomitus, pus, stool, semen and saliva from the VHF patient are infectious. This is why VHFs pose a serious risk to caregivers in the health care setting and in the community.

The transmission risk of VHFs in the health care and laboratory setting is well documented. During the 1995 Ebola haemorrhagic fever outbreak in Kikwit (former Zaire, and now the Democratic Republic of the Congo), one fourth of the cases were in health care workers with a history of recent patient care.¹ After barrier nursing practices (such as wearing protective clothing) were implemented, the risk of transmission was reduced. No new cases were reported among health care workers who used these practices. (Fig.1)

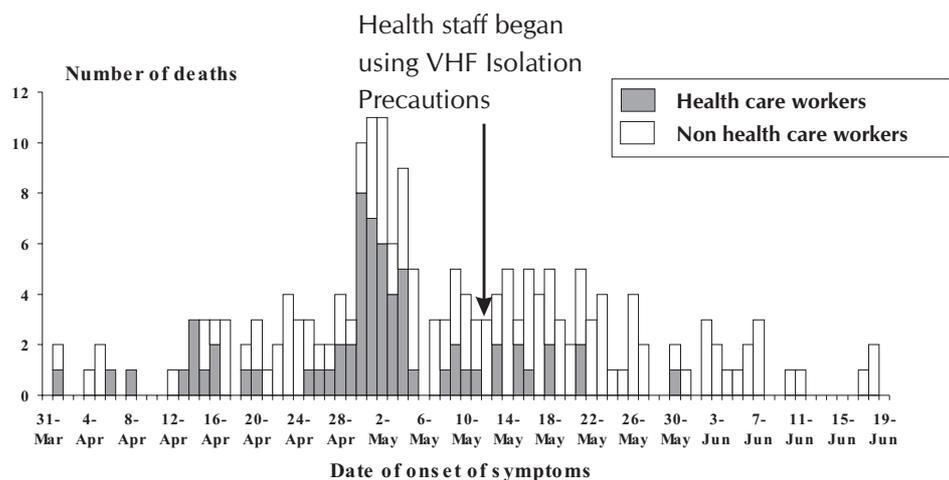
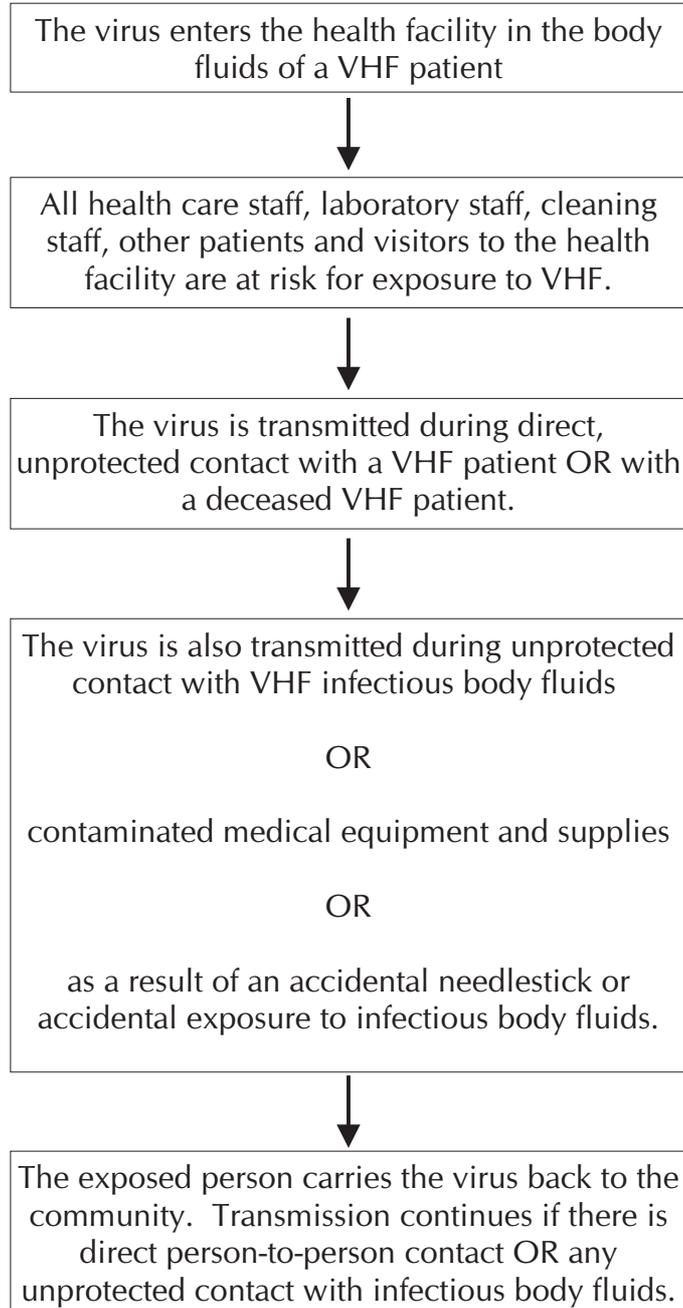


Fig. 1. The number of infected health care workers declined after barrier nursing practices were begun during the Ebola haemorrhagic fever outbreak at Kikwit, 1995. One case resulted from an inappropriate use of barrier nursing practices.

1 Khan AS et al. The Reemergence of Ebola Hemorrhagic Fever, *Journal of Infectious Diseases*, in press, 1998.



How VHF Is Transmitted in the Health Care Setting



What Is in This Manual

This manual describes a system for using VHF Isolation Precautions to reduce the risk of transmission of VHF in the health care setting. The VHF Isolation Precautions described in the manual make use of common low-cost supplies, such as household bleach, water, cotton cloth, and plastic sheeting. Although the information and recommendations are intended for health facilities in rural areas in the developing world, they are appropriate for any health facility with limited resources.

Who the Manual Is For

The manual is intended primarily for health officers who implement infection control in the health care setting, and for:

- Health facility administrators
- Hospital outbreak coordinators
- Chief medical officers
- Chief nursing officers
- Medical and nursing staff
- Medical and nursing educators
- Public health officers and programme administrators.

Objectives

The information in this manual will help health facility staff to:

1. Understand what VHF Isolation Precautions are and how to use them to prevent secondary transmission of VHF in the health facility.
2. Know when to begin using VHF Isolation Precautions in the health care setting.
3. Apply VHF Isolation Precautions in a large-scale outbreak. (When a VHF occurs, initially as many as 10 cases may appear at the same time in the health facility.)



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4. Make advance preparations for implementing VHF Isolation Precautions.
 5. Identify practical, low-cost solutions when recommended supplies for VHF Isolation Precautions are not available or are in limited supply.
 6. Stimulate creative thinking about implementing VHF Isolation Precautions in an emergency situation.
 7. Know how to mobilize community resources and conduct community education.

How to Use the Manual

This manual can be used as a rapid reference when one or two cases of a VHF appear in a health facility and no previous preparations for VHF Isolation Precautions have been done. Administrators or hospital outbreak coordinators can use the information and instructions to set up an isolation area quickly and make adaptations from local materials so that an effective system of infection control can be implemented as soon as possible.

The manual can also be used for planning and carrying out in-service training aimed at strengthening VHF Isolation Precautions. It can be accompanied by workshop activities, in which participants discuss and practice the recommendations made in this manual.

The manual should be used to help health facilities make advance preparations for responding with appropriate precautions when a VHF case is suspected.

This manual consists of nine sections:

- Section 1** **Use Standard Precautions with All Patients** describes how to establish routine precautions for infection control. The section emphasizes the importance of using Standard Precautions consistently, especially handwashing before and after examining patients with fever.
- Section 2** **Identify Suspected Cases of VHF** lists common signs and symptoms of VHF and the immediate precautions to take when a VHF is suspected.
- Section 3** **Isolate the Patient** lists recommended supplies and describes how to set up an isolation area. It includes checklists that can be used in an emergency situation and practical suggestions for alternate equipment when recommended items are not available.
- Section 4** **Wear Protective Clothing** describes the protective clothing that should be worn when VHF is present in the health facility. It also provides information about selecting appropriate items when recommended clothing is not available.
- Section 5** **Disinfect Reusable Supplies and Equipment** describes the use of VHF Isolation Precautions during patient care and when disinfecting and cleaning contaminated surfaces, supplies and equipment. This section also presents recommended first aid for accidental exposures.
- Section 6** **Dispose of Waste Safely** describes step-by-step procedures for disposing of VHF-contaminated waste. It also lists detailed instructions for building an incinerator from available material.
- Section 7** **Use Safe Burial Practices** describes how to prepare bodies of deceased VHF patients safely for burial and how to prevent disease transmission through contact with the deceased patient.
- Section 8** **Mobilize the Community and Conduct Community Education** provides guidance for involving the community in disease prevention and control activities when VHF is suspected. It also describes how to choose a VHF Coordinator.
- Section 9** **Make Advanced Preparations to Use VHF Isolation Precautions** lists steps for preparing in advance to use VHF Isolation Precautions. If advance preparations have been carried out, and a VHF is suspected, the supplies are ready and health facility staff are trained in recommended practices. When advance preparations are not possible, VHF Isolation Precautions must be implemented in an emergency situation.

The **Annexes** provide additional details about specific topics described in the manual.

Glossary for Use with This Manual

Changing room	Area next to isolation ward where health workers dress in protective clothing, disinfect hands and gloves, and dispose of soiled and contaminated protective clothing.
Cleaning	Removal of any soiling or other material on equipment or surfaces before disinfection or sterilization.
Contamination	Presence of infectious agent in blood and other body fluids, on body surfaces and medical equipment, clothing and supplies. Contact with contaminated body fluids or items is a risk for disease transmission.
Disinfection	Elimination of <i>most</i> microorganisms from a surface, making it safe for reuse. "Sterilization" means eliminating <i>all</i> microorganisms.
Health care worker	Any person trained to provide patient care (medical, nursing, paramedical, emergency room nurses, community health workers).
Health facility	Any hospital, health centre or clinic with inpatient facilities. Also any facility providing emergency or first-service care.
Health facility staff	All patient care, laboratory, cleaning, disposal, reception, and administrative staff who are likely to have contact with suspected VHF cases, VHF infectious body fluids, and infectious waste.
Isolation area/ward	The area in the health facility used for housing suspected VHF patients. It includes the patient's room or area, isolated latrine or toilet, family entrance, and changing room.
Protective clothing	Masks, gloves, gowns, eyeglasses, caps, aprons, and boots. Provides protection against splashes or spills of infectious material when examining suspected VHF cases or handling infectious waste and laundry.
Sharps container	Puncture-resistant container for collecting used needles and syringes.
Standard Precautions	Practices for limiting or preventing disease transmission in the health care setting.
Sterilization	Elimination of all microorganisms (viral, bacteria, and fungal) through heat, using an autoclave or steam sterilizer, or other appropriate methods.
VHF Coordinator	Designated health officer who coordinates infection control and outbreak response, and provides liaison with the community and other agencies involved in outbreak control.
VHF Isolation Precautions	Barrier nursing and other infection control practices for preventing contact between VHF infectious body fluids and non-infected persons.