

ORIGINAL RESEARCH

# Knowledge, Attitude, and Practice of Use of Safety Precautions Among Health Care Workers in a Nigerian Tertiary Hospital, 1 Year After the Ebola Virus Disease Epidemic



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## Abstract

**BACKGROUND** Several studies have found that compliance with universal precautions (UP) reduces the risk of exposure to diseases transmitted through blood and body fluids. Several efforts were made during the 2014 Ebola virus disease (EVD) outbreak in Nigeria to ensure a better behavioral change toward the practice of UP.

**OBJECTIVES** This study assessed knowledge, attitude, and practice of the use of universal safety precautions among health care workers in a tertiary hospital in Osun State in southwestern Nigeria, 1 year after the containment of the EVD epidemic in Nigeria.

**METHODS** Descriptive cross-sectional study among 274 health care workers of LAUTECH Teaching Hospital Osogbo, selected using systematic sampling method. Data collected using semistructured, pretested questionnaires were analyzed using SPSS software version 17.0 (Chicago, IL, SPSS Inc.).

**FINDINGS** Two hundred twenty (80.3%) washed their hands regularly after procedures, 256 (93.4%) used gloves regularly when caring for all patients, 100 (36.5%) said they occasionally recap needles carefully, and 250 (91.2%) said they properly handled and disposed sharp instruments and wastes. About 224 (81.8%) had good mean knowledge score, 154 (56.2%) had a positive attitude score, and 192 (70.1%) had a good mean practice score for UP among respondents. The practice of UP was statistically significantly associated with gender, years of work experience ( $P = .002$ ), and knowledge of ( $P = .039$ ) and attitude about UP ( $P = .007$ ).

**CONCLUSIONS** The good knowledge and practice scores of UP were associated with better attitude toward handwashing and the use of gloves during the post-EVD period compared with the pre-EVD period. A significant proportion still recap used needles just like during the pre-EVD period.

**KEY WORDS** Ebola virus disease, health care workers, knowledge and practice, Nigeria, universal precaution (UP)

## INTRODUCTION

The year 2014 witnessed the largest outbreak of the Ebola virus disease (EVD) outbreak in some

West African countries, including Nigeria. On August 8, 2014, the World Health Organization (WHO) identified the EVD outbreak in West Africa as an extraordinary event and a Public Health

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Emergency of International Importance.<sup>1</sup> Apprehension, morbidity, and mortality accompanied this disease outbreak, which was eventually contained through several public health measures instituted by stakeholders and coordinated by the health sector. Like HIV and hepatitis B virus infection, the EVD virus could be transmitted through health care workers (HCWs) contacting blood and other body fluids from infected patients.<sup>2,3</sup>

Worldwide, almost 3 million HCWs experience percutaneous exposure to bloodborne pathogens each year.<sup>4</sup> Also, about 2.5% of the total HIV global cases are due to occupational exposure among HCWs.<sup>4</sup> Thus health care providers remain at risk of acquiring bloodborne infections.<sup>5</sup> Many exposures can be prevented by careful adherence to existing infection control precautionary measures.<sup>6,7</sup>

Standard precautions are the minimum infection prevention practices that apply to all patient care, irrespective of suspected or confirmed infection status of the patient, in any health care setting. These practices aim to both protect HCWs and prevent them from transmitting the infections to their patients. These include but are not limited to hand hygiene, use of personal protective equipment (PPE; eg, gloves, gowns, and masks), needle safety, and safe handling of potentially contaminated equipment or surfaces and proper disposal of sharps, body fluids, and other clinical wastes.<sup>8</sup>

Despite the availability of detailed guidelines, the knowledge of and compliance with standard precautions vary among HCWs and have been found to be inadequate in both developed and developing countries.<sup>9–11</sup>

A little more than 1 year after the containment of the EVD epidemic, the culture of handwashing and observance of universal precautions was successfully encouraged among HCWs and the general population, and it is expected that this culture, including regular use of PPE, would be sustained through positive behavioral change among HCWs over time. This would limit human-to-human spread through HCWs in case of future outbreak. This study assessed knowledge, attitude, and practice of the use of safety precautions among HCWs in a tertiary hospital in Osun State in southwestern Nigeria 1 year after the containment of the EVD epidemic in Nigeria.

## METHODS

The study area was Osogbo, the capital of Osun State, with a population of about 4.2 million.<sup>12</sup>

There are 3 levels of health care, the primary being managed by the local government, the secondary by the state government, and the tertiary by both the state and federal governments. LAUTECH Teaching Hospital is a tertiary level health facility in Osogbo, and it takes referrals from the general hospitals and primary health facilities within the state. During the 2014 EVD outbreak, the hospital took numerous steps toward improving EVD awareness among populations and HCWs; some of this included seminars and workshops on EVD, sponsoring media awareness sessions on radio and television, and printing and dissemination of EVD preventive measures through posters and flyers, and with special emphasis on the health workforce.

The study population consisted of all HCWs in the service of LAUTECH Teaching Hospital, Osogbo. HCWs whose work puts them at high risk of EVD were purposely included in this study; these include doctors, nurses, and laboratory scientists. HCWs with less than 1 year of experience were excluded from the study. This was a descriptive cross-sectional study.

Expecting the prevalence of correct knowledge of universal precaution among HCWs to be 50%, the Leslie Fischer formula for calculation of sample size in population less than 10,000 was employed.<sup>13</sup> A sample size of 254 was calculated, and this number was increased to 280 to account for attrition and nonresponses.

Sampling was done using a systematic sampling method. A list of eligible HCWs irrespective of education level was obtained from the establishment unit of the hospital. Using a ratio of 1:3:6 to represent the registered numbers of laboratory scientists, doctors, and nurses/community health extension workers, respectively, a sampling frame of the HCWs was prepared. A systematic sampling of 1 in 3 names on the list was drawn and these were used to represent the study population. Sampled HCWs were followed up including those on annual leave and those on nights or off duties. The process of selection was repeated in situation where the allocated slots of HCWs were exhausted.

**Research Instruments.** The WHO/Centers for Disease Control and Prevention (CDC) guidelines and recommendations<sup>14</sup> were modified to produce the carefully designed tool used in data collection. The instrument includes semistructured, self-administered, and pretested questionnaires administered by 3 research assistants. The instrument was validated by 2 experts in the field of epidemiology and applied research. The reliability

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