

Ebola disease: Infection prevention and control in hospital and community settings

Dear Editor,

The World Health Organization (WHO) has announced the 2014 outbreak of Ebola virus as an international public health emergency.^[1] This outbreak originated in Guinea in the month of March, and gradually involved five nations in the West Africa (viz. Sierra Leone, Liberia, Nigeria, Senegal, and the Democratic Republic of Congo).^[2] The outbreak was caused by the Zaire species of Ebola virus which is generally associated with high case fatality rate.^[3] The disease estimates suggest that the magnitude of the Ebola virus disease was way beyond the previous similar outbreaks and magnitude, and has grown at an exponential rate, with the number of new cases getting doubled every 20–30 days.^[4,5]

Ebola virus belongs to the Filoviridae family, which persists in a reservoir species (viz. apes, man, and perhaps other mammalian species), and has been classified as Category A potential bioterrorism agent.^[2,6] It can be easily eliminated by heat, alcohol-based products, and sodium or calcium hypochlorite.^[7] Humans acquire Ebola infection through close contact with various body fluids of infected reservoir species or through direct contact (viz. broken skin or mucus membranes) with different body fluids of infected or deceased people/with the surfaces and materials contaminated with these fluids.^[6,7] Humans cannot transmit the disease until they develop symptoms (viz. incubation period varying from 2 to 21 days); it, however, remains a potential source of infection till their body fluids contain the virus.^[6,7]

Although multiple reasons (viz. lack of preparedness, delayed initial response, weak public health care delivery system, disruption in the ecology of forests, poverty, migration and international travel of infected persons, human resource constraints, poor awareness among people, minimal trust on public authorities, development of a sense of fear among people, non-utilization of the public health sector, funeral rituals involving intense body contact with the deceased, existence of no specific treatment or vaccine) have been identified, absence or insufficient implementation of adequate infection prevention and control measures in both hospital and community settings has allowed the disease to go beyond epidemic proportions.^[1,2,5,6,8] In fact, strengthening of infection prevention and control, along with other

measures has eventually enabled Senegal and Nigeria to achieve the Ebola-free status.^[9,10]

The WHO has released multiple recommendations such as safe processing of laboratory samples,^[6] employing standard precautions for all patients regardless of the their clinical presentation,^[7] isolation of the confirmed/suspected cases in isolation wards,^[7] regulating the movement of health workers and family members in isolation rooms,^[5] ensuring continuous usage of personal protective equipments by health professionals and caretakers,^[11] promoting safe handling of biomedical wastes,^[6] encouraging use of appropriate disinfectants for the decontamination of surfaces and equipments,^[7,8] maintaining hand hygiene,^[12] prompt assessment of any health professional or individual exposed to any infectious body fluid,^[7] appropriate management of confirmed cases to prevent further transmission,^[13] and constitution of a committee to supervise the overall activities in both hospital and community settings^[14] to enable comprehensive implementation of infection prevention and control measures in hospital settings.

At the same time, absence of appropriate prevention and control measure in community settings has extensively contributed toward increase in the number of cases (as more than the diagnosed cases, it is the undetected patients/contacts who have transmitted the infection at an unprecedented rate).^[2,5] Thus, measures like contact tracing and follow-up of the identified contacts for a period of 21 days,^[15] sensitizing the health workers to take appropriate precautions at the time of contact tracing (using alcohol-based hand rub solutions, etc.),^[7] educating people about the precautions needed while taking care of patient in a family or during travel or at times of burial of deceased,^[6,7] avoiding contact with the reservoir species (fruit bats, apes, etc.),^[1,2] and maintaining good personal and hand

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hygiene^[6,12] should be implemented in community settings to further decrease the incidence of disease.

To conclude, implementation of appropriate infection prevention and control measures in both hospital and community settings will not only reduce the magnitude of the disease but also significantly interrupt the chain of transmission in the affected regions.

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