Utility of contact tracing in reducing the magnitude of Ebola disease

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Introduction

The 2014 Ebola outbreak in West-Africa, which originated in the month of March in Guinea and was eventually declared as an international public health emergency, has exposed wide gaps in the public health sector.^{1,2} In the modern era, stakeholders (such as representatives from international welfare agencies, policy makers, political leaders) generally share a common voice for equitable distribution of health services & community participation (pillars of primary health care); eradication of poverty & hunger (Millennium Development Goal); and economic progress of the world as a whole; this outbreak has unmasked bitter facts about the practical realities prevalent in different parts of the globe.³

Ebola outbreaks

Ebola virus disease is not something which has appeared for the first time (almost twenty such outbreaks have already been reported starting from 1976),⁴ and thus associating a known enemy with deaths of thousands of people (including doctors, nursing staff, outreach

workers, laboratory personnel, etc.) is somewhat difficult to digest.⁵ Furthermore, the public health care delivery system has failed to cope with the extensive caseload; health authorities have failed to win the trust of the community; people are still unaware about the disease; the clinicians do not have any effective tool (drug or vaccine); and health workers are unable to successfully identify infectious cases / contacts in the affected nations – all of these factors in combination have allowed a rapid progression of the disease and thus further worsen the concern.^{3,5,7}

Progression of the disease

The Ebola virus is transmitted to humans mainly through close contact with various body fluids of infected primate species or fruit bats, or through direct contact (viz. broken skin or mucous membranes) with different body fluids of infected people, and with surfaces and materials contaminated with these fluids.^{7,9} Given the increasing knowledge regarding the appropriate preventive measures, it has become apparent that the maximum risk of acquiring the Ebola virus infection is not from confirmed patients, but from the late detection or isolation of the suspect / probable cases (viz. contacts of the confirmed cases).⁸ Thus, it is crucial to identify, trace and give appropriate attention to the contacts in order to minimize the further transmission of the disease.^{3,6,10} However, the activity of contact tracing has taken a backstage in most of the affected settings, as the caseload of the disease has grown at an exponential rate.⁵

Contact tracing and its practical utility

Contact tracing is defined as the identification and follow-up of persons (as these possess a high risk of acquiring & transmitting the infection further), who may have come in contact with an infected person.¹⁰ Broadly, the practice of contact tracing essentially is comprised of three elements, namely, contact identification, contact listing, and follow-up.¹⁰ The strategy of

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contact tracing is justifiable as a major proportion of the new Ebola patients acquires the infection after coming in contact with the infected individuals, and hence all potential contacts of Ebola patients should be followed-up for 21 days after the exposure.^{6,11} In fact, confirmatory evidence is available to suggest the role of contact tracing in combating the outbreaks of Ebola disease in diversified settings (viz. Uganda in 2004, Senegal & Nigeria in 2014).¹²⁻¹⁴

Dos and Don'ts in contact tracing

It is advocated that all health professionals who are engaged in the activity of contact tracing should take appropriate preventive measures (viz. avoid shaking hands, maintain a distance of more than one meter during an interview with the contacts, and always carry alcohol-based hand rub solutions), in order to refrain from acquiring the infection themselves.⁸ Furthermore, contact tracing has even been recommended for the persons who have been exposed to an individual with symptoms of Ebola (fever, chills, malaise, sore throat, myalgia, headache, etc.), at the time of international travel.¹⁵ It is of extreme importance to isolate all contacts who develop an illness during the surveillance period to prevent initiation of any new chain of transmission.^{7,16} These contacts are only discharged from the hospitals after two negative reverse transcriptase polymerase chain reaction test results are obtained at least 48 hours apart.¹⁷

Additional attributes in contact tracing

The overall success of contact tracing is eventually determined by the extent of community engagement and their trust in public health authorities.^{3,18} Thus, public health authorities should take all steps to enhance community participation in the affected regions.¹⁸ In order to address the issue of preparedness in countries where no Ebola cases have been detected, the World Health Organization has advocated for the development of an action plan to remain prepared to counter any new case of Ebola.^{19,20} In fact, definitive recommendations have been made to build an effective system for contact tracing right at the onset of the outbreak.^{15,16}

Conclusion

To conclude, the approach of contact tracing possesses enormous potential for effectively addressing the concerns of increasing caseloads of Ebola virus disease. However, the onus lies on health professionals and their ability to win the trust of the people to enhance the success of the initiative.

Authors' contribution statement SS conceived the manuscript design and wrote the manuscript. PS performed the literature review. JR supervised the overall process and epidemiologic interpretation of the information. All authors revised and approved the final version of the manuscript.

Conflicts of interest All authors – none to declare.

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