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Opinion

A lesson learned from the MERS outbreak in South Korea in 2015

Introduction

Middle East respiratory syndrome (MERS) viruses can spread rapidly to many people, and thus pose a global pandemic threat. MERS viruses broke out in one hospital in Pyeongtaek, South Korea (hereinafter Korea), on May 2015. Thirty-six patients died and 186 people were infected. The Koreans experienced a national crisis, contributed to by the poor initial response of the affected hospitals, an inadequate response from the government, the economic depression that followed the outbreak, and the psychological impact of the outbreak on the Korean population. To date, the Korean government has not taken systematic actions to deal with global pandemics in the future.

This article comments on how Korea can learn from its response to a MERS outbreak to be better prepared to control other epidemic and pandemic infectious diseases. We define the Korean reaction (which includes four major stakeholders) as a hospital infection control issue (Figure 1). The four stakeholders were either directly or indirectly involved in the outbreak of MERS in Korea. We argue that the nation has to transform its current reaction into an emergency management issue involving all stakeholders.

MERS outbreak as a hospital infection control issue

Hospitals

Mainly because of poor ventilation and ineffective disinfection in one hospital, MERS viruses began to spread rapidly to patients, visitors, and even to healthcare workers. A few neighbouring hospitals also showed a similar pattern of nosocomial transmission. Consequently, healthcare workers made all efforts to improve infection control or hygiene; however, this took time. Therefore, hospitals became major stakeholders in preventing the loss of human lives.

Government agencies

The Korea Centers for Disease Control and Prevention (KCDC) under the Ministry of Health and Welfare (MW) insisted on not sharing MERS information from the hospitals with the public at the initial stage of the outbreak under the pretext of hospital protection, although in reality this decision may have been based on nepotism. Further, the Ministry of Public Safety and Security (MPSS), which is a single, comprehensive emergency management agency, did not implement any specific action to prevent the loss of human lives. Thus far, only the KCDC has tried to improve preparedness against similar pandemics.

Residents

Some Koreans were involved in manipulating the facts on the MERS outbreak and then spreading rumours through the Internet or mobile phones. Further, given the Korean culture, many people did not realize that it was not advisable for them to visit the infected patients in hospitals and share their drinks or foods. Also, a few infected residents attempted to go to public places without permission from the government. However, the majority of residents considered the MERS outbreak to be a national emergency and thus paid attention to its progress by exchanging relevant information.

Others

Other stakeholders took steps to efficiently respond to the outbreak of MERS. For instance, business establishments continued to operate but measured the body temperature of their customers and distributed hand sanitizers to them, which nonetheless constituted an incomplete preventive measure. Mass media also attempted to trace and reveal the sources of rumours, in the process causing political conflicts. Many schools temporarily cancelled classes, although unnecessarily, so that their students could stay at home. The military isolated infected soldiers in remote facilities, but this move came rather late.

MERS outbreak as an emergency management issue for all stakeholders

Korea did not give all four stakeholders equal involvement in dealing with the MERS outbreak. Rather, one stakeholder — healthcare workers in hospitals — played multiple roles in controlling MERS viruses. Thus, the situation was perceived as almost entirely a hospital infection control issue. Considering that the MERS outbreak was not only a health issue but also an emergency management issue, the model for controlling similar epidemics or pandemics in the future-oriented model should involve all stakeholders in an early and co-ordinated response. Emergency management consists of four phases: emergency prevention/mitigation (legalization, inspection,
disease prediction, etc.), emergency preparedness (emergency operation planning, training, etc.), emergency response (infection control, health treatment, etc.), and emergency recovery (insurance, medical evaluation, etc.).

Appropriate roles and responsibilities in all the phases have to be assigned to each of the four stakeholders in advance. Although many stakeholders tried to play their own roles during the MERS outbreak in Korea, their responses were somewhat late and unco-ordinated, and thus contributed to the national crisis. In fact, their specific roles and responsibilities should have been assigned before the MERS outbreak. In this context, nations should implement regular training in and exercise of emergency management measures.

Pandemics, as a type of emergency, pose three kinds of risk: loss of human lives, economic damages, and psychological impact. In the case of the MERS outbreak in Korea, local government and hospitals were oriented toward decreasing the number of deaths, mainly because they regarded the outbreak as an infection control issue. They did not realize the need to address the economic damage or the psychological impact on the general population, especially at the initial response stage.

Without a co-ordinated response, the MERS outbreak caused considerable economic damage in Korea. Almost nobody dared to visit shopping malls for fear of infection. Further, because MERS scared away foreign tourists, including many Chinese and some Japanese visitors, the tourism industry suffered considerably. Thus, the national economy was significantly depressed, and the economic growth projection fell to about 2%. Regarding the psychological impact, most people worried about catching MERS and thus wore masks whenever they went out. Similarly, many primary and middle schools throughout the peninsula cancelled classes to protect their students from MERS, contrary to the recommendation of the World Health Organization.

**Hospitals**

Hospitals played a major role in reducing the loss of human lives during the MERS outbreak; however, this does not mean that they have done extraordinary work. After Pyeongtaek St Mary’s Hospital failed to screen the first infected patient, MERS viruses spread to many parts of Korea. Further, the Samsung Medical Center in Seoul refused to share MERS information with the public, which made the situation worse. Hence, hospitals need to be more professional in dealing with infection control, in particular by educating quarantine doctors and in following the Hippocratic Oath.

**Government agencies**

The KCDC and MW will certainly remain the major government institutions that should take charge when a pandemic occurs in Korea. However, the MPSS must also become proactively involved during such an outbreak. Thus far, the MPSS officially considers only three types of hazard under its management scope: fires, floods that accompany typhoons, and maritime accidents. As a co-operative or co-ordinating institution in relation to all hazards, the MPSS must therefore extend its activities to the KCDC, other departments, and local government, and apply countermeasures against new diseases.

**Residents**

Contrary to the expectation of the government, the level of emergency awareness of Korean residents increased considerably during the MERS outbreak, particularly as the death toll rose. These residents should now directly demand that the
government and the whole nation take more systematic actions against new pandemics toward achieving efficient emergency management. The public must also be willing to challenge cultural practices, and in particular to cooperate with restrictions on visiting hospitals.

Others

Other stakeholders, including business establishments, mass media, schools, and the military played their own roles in responding to the outbreak of MERS within their areas. However, they should have approached the issue more seriously from the beginning of the emergency response instead of merely acting as outsiders in a national crisis. Considering that a pandemic may spread quickly to anyone, these entities should join the major stakeholders from the initial response stage.

Conclusion

The MERS outbreak in Korea in May to July 2015 caused the biggest loss of human lives due to the disease outside the Middle East. Thus far, however, the Korean government has yet to comprehensively improve its national response against pandemics. The key tenet is that Korea must not consider the MERS outbreak to be a hospital infection control issue. Rather, the nation must regard such an outbreak as an emergency management issue involving all stakeholders, particularly in fighting against new pandemics in the international community.

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