



## BRIEF REPORT

# Public Health Crisis Preparedness and Response in Korea

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### Abstract

Since the 2006 Pandemic Influenza Preparedness and Response Plan according to the World Health Organization's recommendation, the Republic of Korea has prepared and periodically evaluated the plan to respond to various public health crises including pandemic influenza. Korea has stockpiled 13,000,000 doses of antiviral drugs covering 26% of the Korean population and runs 519 isolated beds in 16 medical institutions. The division of public health crisis response in Korea Centers for Disease Control and Prevention are in charge of responding to public health crises caused by emerging infectious diseases including severe acute respiratory syndrome, avian influenza human infection, and pandemic influenza. Its job description includes preparing for emerging infectious diseases, securing medical resources during a crisis, activating the emergency response during the crisis, and fortification of capabilities of public health personnel. It could evolve into a comprehensive national agency to deal with public health crisis based on the experience of previous national emerging infectious diseases.

## 1. Introduction

The world has been exposed to various emerging infectious diseases in the 21<sup>st</sup> century, starting with severe acute respiratory syndrome (SARS), followed by avian influenza human infection, and the recent Middle East respiratory syndrome (MERS) [1–3]. The influenza

A (H1N1) virus has caused more than 18,400 deaths in 191 countries since its first confirmed case in the USA in April 2009. The world population with no immunity against the novel type of influenza A (H1N1) has led to an influenza pandemic. Korea reported the first suspected case of influenza A (H1N1) on April 28, 2009 and then it spread into communities resulting in 261

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deaths with 3.58 million treated with antiviral medication, approximately 7% of the Korean population. The Korean government executed intense fortification of entry quarantine to prevent influx of infected persons since the declaration of influenza pandemic by the World Health Organization (WHO) on April 24, 2009. The national public health crisis phases escalated from “Attention”, to “Caution”, to “Alert”, and up to “Severe”. The surveillance, treatment, vaccination, and risk communication were performed by the phase (Table 1).

Public health crises caused by emerging infectious diseases are characterized to be unpredictable and widespread, so that the preparedness and response plans are necessary. Furthermore, it is also important to secure infrastructure of emergency response medical resources and to execute rapid response in crises with no loss of time. The management of public health crises requires constant preparedness and response ability. Preparedness is a series of activities in planning, preparation, education, and training to enhance the capabilities of public health personnel [4]. Response is a series of activities to make effective utilization of the national human and medical resources in a time of crisis, leading to minimal casualties and reducing the possibility of a second crisis.

Korea has constructed a system of emergency response medical resources including antiviral drug stockpile and notification of the national medical institutions for public health crises. In 2009 influenza pandemic crisis, quarantine, surveillance, vaccination, and risk communication were performed by the national infectious disease phase.

The Division of Public Health Crisis Response in Korea Centers for Disease Control and Prevention (KCDC) was established in 2007 to take charge of national public health crises due to emerging infectious

diseases. The division is in charge of the planning and running of the national emerging disease response, avian influenza human infection response and management, management of planned pandemic influenza preparedness and response, education and training of public health officials, research and development of public health crisis, and international cooperation. This manuscript aims to introduce the division's role in public health crises in Korea.

## 2. The Division of Public Health Crisis and Response

WHO's global influenza preparedness plan in 2005 recommended that each member state prepare a plan for pandemic influenza and provide national preparedness and response. Korea provided the plan for pandemic influenza preparedness and response in 2006. The Team of Training for Public Health Crisis was set up to prepare for a tabletop exercise for pandemic influenza in Korea to measure the casualties in Korea using a mathematical model, to identify medical resources in 2006 [5]. The team belonged to the Division of Epidemic Intelligence Service. In 2007, the team separated from this division and became an independent division in KCDC. The division has prepared to secure medical resources, to provide manuals, and to train public health personnel in case of an emerging infectious disease causing public health crises. In 2009, it successfully counteracted the pandemic influenza A (H1N1). The division is currently involved in revising the pandemic influenza preparedness and response plan based on the 2009 influenza pandemic experience, so that the revised version would contain international cooperation and newly adapted environments in Korea.

**Table 1.** National disaster phase in Korea

Phase	Situation	Actions
Attention	<ul style="list-style-type: none"> <li>• Emerging infectious disease from abroad</li> <li>• Occurrence of infections of unknown cause in the country</li> </ul>	Monitoring and preparedness
Caution	<ul style="list-style-type: none"> <li>• Forecast for typhoon and rainfall</li> <li>• Domestic flows of global emerging infectious diseases</li> <li>• World Health Organization issued a warning of infectious disease</li> <li>• Occurring newly re-emerging infectious disease in the country</li> <li>• Occurring waterborne infectious disease in the large-scale flooding area</li> </ul>	Operating cooperation system
Alert	<ul style="list-style-type: none"> <li>• Spreading to other areas of emerging infectious disease from abroad after entering the domestic area</li> <li>• Spreading to other areas of newly re-emerging infectious disease in the country</li> </ul>	Operating response system
Severe	<ul style="list-style-type: none"> <li>• Spreading to other areas of waterborne infectious disease</li> <li>• Signs of emerging infectious disease from abroad spreads nationwide</li> <li>• Signs of newly emerging infectious disease in the country spreads nationwide</li> <li>• Signs of re-emerging infectious disease in the country spreads nationwide</li> <li>• Signs of waterborne infectious disease spreads nationwide</li> <li>• Sign of disease spreads nationwide. Massive and simultaneous occurrence of infectious disease in the noncontiguous areas, more than 3 provinces or cities</li> </ul>	Mobilization of response capabilities

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