Japan's Actions to Combat Pandemic Influenza (A/H1N1)

JMAJ 54(5): 284–289, 2011

Tokuaki SHOBAYASHI[*1]

Abstract

Prior to the outbreak of pandemic influenza (A/H1N1) in April 2009, our preparatory actions included the development and revision of the action plan and guidelines, four emergency response exercises, stockpiling of anti-influenza drugs and other supplies, development of laws and regulations, and improvement of organizations and staffing.

Following the outbreak of the A/H1N1 influenza, we took steps including public relations and risk communication, surveillance, border control, public health measures such as temporary closure of schools and other facilities, improvement of healthcare systems, and vaccination. At this stage since the end of the first pandemic surge, the mortality rate in Japan has remained at lower levels than those in other countries.

Evaluating the actions taken in the preparatory stage and after the outbreak, we want to take advantage of the lessons learned and use them in developing the measures to combat a possible second surge of the disease, as well as the anticipated emergence of further pandemic influenza, such as H5N1.

Key words Public relations and risk communication, Border control, Public health measures, Healthcare systems, Vaccine

Introduction

Following the outbreak of pandemic influenza (A/H1N1) in April 2009, the Japanese government took various measures including public relations and risk communication, surveillance, border control, public health measures such as temporary closing of schools and other facilities, improvement of healthcare systems, and provision of vaccines. At this stage since the end of the first pandemic surge, the mortality rate in Japan has remained at lower levels than those in other countries. Although the reason for this result is unknown at present, some attribute it to widespread school closure, good access to medical care, high levels of medical care supported by the dedicated efforts of healthcare workers, timely prescription of anti-influenza drugs, and people's awareness of hygiene habits such as hand washing. Many of these achievements are considered the fruits of the efforts of individual citizens and the professional efforts of healthcare workers at hospitals, clinics, pharmacies, etc.

On the other hand, a number of problems have also been indicated. It is important for us to take advantage of the lessons learned from this experience and use them in developing measures to combat a reemergence of the A/H1N1 influenza virus, as well as the anticipated emergence of further pandemic influenza (H5N1). This report reviews the actions of the Japanese government, including those in the preparatory stage before the outbreak.

*1 Former Director, Office of Pandemic Influenza Preparedness and Response, Ministry of Health, Labour and Welfare, Tokyo, Japan. Director, Tuberculosis and Infectious Disease Control Division, Ministry of Health, Labour and Welfare, Tokyo, Japan (as of September 2011) (shobayashi-tokuaki@mhlw.go.jp).
This article is a revised English version of a paper originally published in the Journal of the Japan Medical Association (Vol.139, No.7, 2010, pages 1459–1463).

Table 1 Measures taken before the outbreak

• Formulation of Pandemic Influenza Preparedness Action Plan (December 2005) and Guidelines for the Prevention and Control of Pandemic Influenza (February 2009) mainly targeting highly pathogenic pandemic influenza (H5N1). • Cabinet decision to establish response headquarters headed by the Prime Minister (October 2007). • Stockpiling of anti-influenza drugs and other supplies. • Four emergency response exercises. • Amendment to the Infectious Disease Act and other laws to control pandemic influenza providing for recommendation of hospitalization and border control measures such as detention (May 2008).

General Matters (Table 1)

Action plan/guidelines

In February 2009, the action plan was revised drastically and the guidelines were formally adopted by the Japanese government. However, (1) these were intended to address the outbreak of highly pathogenic avian influenza (H5N1) rather than a strain with low pathogenicity, and (2) they contained few specific measures to cope with the sudden occurrence of a large-scale mass outbreak.

The Review Meeting on Measures against Pandemic Influenza (A/H1N1) (hereinafter referred to the Review Meeting), organized in March 2010 to review the measures taken, recommended that the action plan and guidelines needed a revision to provide multiple optional countermeasures based on comprehensive consideration of the impacts on health including not only infectivity but also fatality and other factors.

Exercises and other actions for preparedness

The government has so far conducted emergency response exercises four times including the first exercise in September 2006. However, these exercises mostly consisted of tabletop simulation following predefined scenarios, and were not sufficiently practical to cope with the real situation of a pandemic. Although prefectures had also developed action plans, their preparedness for an outbreak was not always sufficient.

The Review Meeting indicated the need for cooperation among the relevant parties including local governments concerning the agreement on role sharing, consideration of response policies, and conduct of practical exercises.

Organization/staffing system

The Head Office of Pandemic Influenza Preparedness and Response, set up in the Ministry of Health, Labour and Welfare (MHLW), gradually expanded its manpower in the period from April to May 2009 to be staffed with 140 persons at the peak. However, they were a group of personnel gathered from various posts without much training in infectious disease control. Ambiguity remained in the role sharing with the National Institute of Infectious Diseases (NIID), quarantine stations, and local government, and their collaboration was also insufficient.

The Review Meeting recommended that MHLW, NIID, quarantine stations, and local governments (public health centers and prefectural and municipal public health institutes) should significantly strengthen organization and staffing relevant to infection control and crisis management, develop human resources, define the functions of the organizations concerned, and clarify the role sharing and relationship among them.

Specific Matters

Public relations and risk communication

One of the most advantageous aspects of the various measures can be found in the area of public relations and risk communication. A diverse range of preparatory efforts was made via the public relations channels before the outbreak. Following the outbreak of pandemic influenza, important announcements were made at press conferences by the MHLW Minister in person, in addition to the press conferences held by administrative officials regularly at fixed times (twice a day since April 25, 2009, once a day since April 27, gradually less frequently thereafter). General public relations activities to provide information to citizens included a full-page newspaper advertisement, TV spots, posters, information via the Internet, leaflets, and website publishing.

The mass media offered informative feature programs, which helped many people understand what the pandemic influenza was and what everyone should do. This presumably prompted people to take concrete actions, such as handwashing and wearing a mask when they have symptoms.

One of the least advantageous aspects also

occurred in public relations and risk communication. We have long been emphasizing that there are limitations to the national government's ability to measures against pandemic influenza and we need the coordinated efforts of citizens, local governments, and healthcare workers to fight the disease. Regrettably, we failed to create a necessary sense of unity, and many felt like they were being forced by the national government and became disgruntled with it. Overly frequent notifications studded with difficult-to-understand official jargon did not accurately convey the intention of the national government to local authorities and frontline healthcare workers, while the national government was unable to directly grasp the problems of the people at the front line. This lack of sufficient communication with the people at the front line is considered the cause of the dissatisfaction.

The Review Meeting recommended that the national government needs to consider how to provide information quickly and directly to local governments and frontline medical institutes, including the use of the Internet. It also recommended that information should be provided through specifically dedicated spokespersons, the responsibility for public relations should be clearly defined, and its content should be centralized.

Surveillance

Starting from April 29, 2009, surveillance was conducted in various forms according to the situation of infection. Universal reporting, conducted from the beginning, was terminated on July 23, and was replaced with the strengthening of cluster surveillance. The Review Meeting indicated that the change of the surveillance method was far too late as seen from the standpoint of frontline healthcare institutions, and that the surveillance system should be strengthened so that it can be operated properly by local authorities and the national government in a meaningful manner. For the future, it is necessary to consider when and how the surveillance system should be operated, including the operation at ordinary times, paying attention to the workloads of local governments and healthcare institutions and listening to the opinions of the various persons concerned.

The reason why we could not detect the outbreak in the Kansai area on May 16 earlier may be explained by the fact that frontline workers did not fully understand the importance of the notification dated April 29 concerning the reporting of an outbreak of respiratory infections of unknown cause. If this notification had been recognized well at the front line, the unusual accumulation of patients without a recent history of overseas travel might have been reported immediately. Unfortunately, things did not happen that way. This experience emphasized the need to reconsider how notifications are issued, and the Review Meeting, based on these considerations, recommended the strengthening of the routine operation of the surveillance system.

Border control

When pandemic influenza first broke out abroad, the fatality of the disease was reported to be high or unknown. Based on this information, quarantine on flights from Mexico was commenced on April 25 according to the action plan and guidelines. From April 28 to May 21, flights from three North American countries were subjected to on-board quarantine, isolation, detention, and health monitoring, and all persons entering the country were asked to answer questionnaires and received health cards. In response to the detection of a patient in Japan, the government issued the Guideline for Securement of Medical Services, Quarantine and Requests for Temporary Closure of Schools, Day-care Facilities on May 22. At the same time, it was decided that on-board quarantine was to be conducted only after an advance notice, detention was discontinued, and the health monitoring of all passengers of flights from three North American countries was shelved.

After the WHO declared phase 6 on June 12, the Guideline was revised on June 19 considering the situation of epidemics in Japan and the world. Isolation of patients, health monitoring of persons in close contact with patients, and collection of questionnaires were discontinued. In the case where multiple patients were confirmed from a group of people sharing the same itinerary, members of the group were to receive PCR tests and recommended to seek medical care.

While some members of the Review Meeting considered that the effectiveness of quarantine was limited, some others appreciated the effectiveness, including that in gaining time for the enhancement of preparedness in the country, and further collection of knowledge was recommended. It was also recommended that a mechanism allowing

flexible response should be developed, enabling the expeditious reduction of border controls based on the infectivity of the virus and the characteristics of symptoms and referring to expert opinions, the minimization of the number of persons under health monitoring, and the clarification of the criteria for discontinuing health monitoring.

Public health measures (temporary closure of schools and other facilities)

In response to the emergence of first patients in Japan on May 16, mainly comprising high school students in Hyogo and Osaka Prefectures, the government requested the temporary closure of schools in the entire areas of these prefectures, rather than the closure of particular schools or classes. This decision was made because the patients were high school students who would meet many people and go to many places in club activities, they could become the main sources of infection among children/students of other elementary, junior high, and high schools in communities, and the infection routes and the extent of infection spread were unknown.

The Review Meeting generally considered that the uniform temporary closure of schools was effective to a certain extent. The Review Meeting recommended further consideration of the temporary closure of schools, day nurseries, day-care centers, etc. in terms of its effectiveness and how it should be implemented.

It was also indicated that temporary closure might have considerable social and economic impacts, as the infected students' parents, if employed, could be obliged to take leave from work. It was recommended that the national government should consider these issues and devise an implementable policy, taking into account the appropriateness of countermeasures and the preparation of business continuity plans (BCPs) by enterprises.

Healthcare system

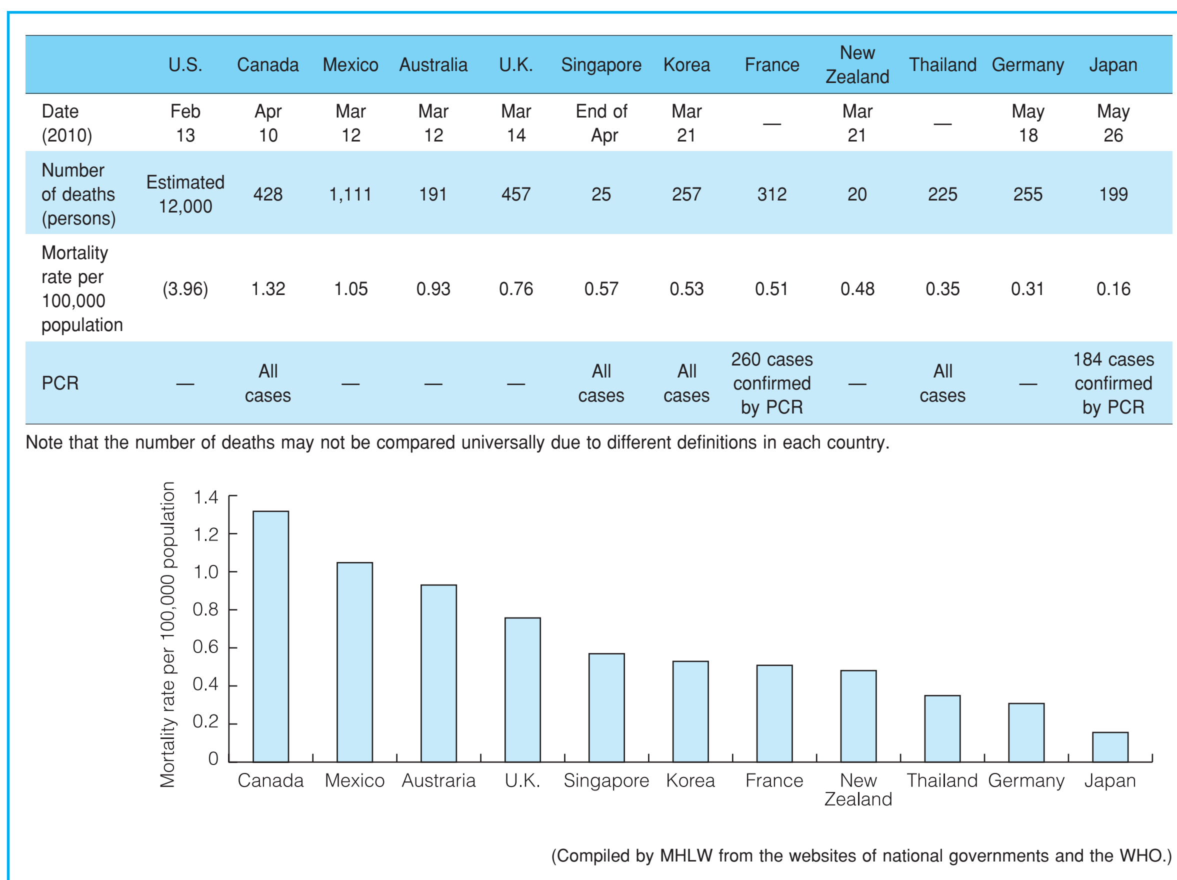
Immediately following the outbreak, we requested prefectures and other authorities to set up fever counseling centers according to the action plan and guidelines for the purpose of ensuring early detection of patients with pandemic influenza, preventing the spread of infection by means of appointments before suspected patients visit hospitals, providing psychological support to local inhabitants, and mitigating concentration of the workload to particular medical institutions. As a further means of preventing the spread of infection, fever outpatient clinics were opened with the cooperation of designated medical institutions for infectious disease to separate the patients with pandemic influenza and those with other diseases so that there would be minimal contact between them.

On August 28, the government announced the Pandemic Influenza (A/H1N1) Outbreak Scenario, and asked prefectures to study the incidence of patients with pandemic influenza and the number of severe cases, and to research and consider appropriate response measures and systems. In addition, prefectures were asked to confirm and report the number of beds at medical institutions providing hospitalized care. They were also asked to support the systematic provision of necessary medical services according to local situations through such measures as securing the availability of medical institutions accepting patients and facilitating the coordination of care for severe patients.

The Review Meeting recommended that further review was necessary concerning the necessity for establishment of fever counseling centers and fever outpatient clinics, who the intended users (if these are established) should be, and what the expected roles, functions, and systems are, taking into consideration the degree of pathogenicity and other factors. It also recommended continued discussion on the medical service systems needed based on local situations and further reinforcement of collaboration between medical institutions and public administration.

Vaccines

Considering the pathogenicity of pandemic influenza, it was not practical to implement mandatory unscheduled vaccination under the Vaccination Law. On the other hand, the targets of scheduled vaccination were limited to aged citizens, and there was no time to amend the law to include younger people. Because of these reasons, vaccination was conducted not based on the Vaccination Law but as makeshift emergency measures. Making an exception to the existing rules, the national government took responsibility for conducting vaccination in a budget-based program with the cooperation of prefectures, municipalities, and medical institutions.



	U.S.	Canada	Mexico	Australia	U.K.	Singapore	Korea	France	New Zealand	Thailand	Germany	Japan
Date (2010)	Feb 13	Apr 10	Mar 12	Mar 12	Mar 14	End of Apr	Mar 21	—	Mar 21	—	May 18	May 26
Number of deaths (persons)	Estimated 12,000	428	1,111	191	457	25	257	312	20	225	255	199
Mortality rate per 100,000 population	(3.96)	1.32	1.05	0.93	0.76	0.57	0.53	0.51	0.48	0.35	0.31	0.16
PCR	—	All cases	—	—	—	All cases	All cases	260 cases confirmed by PCR	—	All cases	—	184 cases confirmed by PCR

Note that the number of deaths may not be compared universally due to different definitions in each country.

(Compiled by MHLW from the websites of national governments and the WHO.)

Fig. 1 International comparison of mortality from pandemic influenza (A/H1N1)

Because the availability of vaccines was limited and the supply was expected to increase stepwise, priorities were defined as to who should receive vaccination first. While the national government indicated an example of the standard vaccination schedule, prefectures were allowed to move up the vaccination schedule according to the situations of vaccination and vaccine procurement.

Regarding the size of vials, (1) the vaccines in 10-ml vials could be produced more efficiently and would reach more people early, (2) the use of multi-dose vials was customary in Western countries, and (3) one manufacturer declared it could not produce 1-ml vials of vaccines for pandemic influenza by the end of 2009 unless the production of vaccines for seasonal influenza was discontinued. Considering these factors, it was decided that one manufacturer would produce 10-ml vials until the end of the year, while the other three would produce 1-ml vials.

The Review Meeting recommended a revision of the Vaccination Law, the enhancement of vaccine production capacity, preparation for improving vaccination systems, discussion on responsibility and cost sharing, consideration on mass immunization, and prompt formulation of vaccination guidelines. While prioritized targets of vaccination should be determined by the national government considering citizens' opinions, it was also recommended that prefectures and municipalities should be able to implement rules flexibly according to local situations.

Conclusion

Although more than a year has passed since the outbreak of pandemic influenza (A/H1N1), many experts still warn that we should not underestimate the pathogenicity of influenza in this outbreak. The low mortality in Japan could be a

result of mere luck, and more than 10,000 persons are estimated to have died in the United States (**Fig. 1**). We must not drop our guard.

Some have criticized that the reaction of the national government was overly excessive. The CDC in the United States indeed reported on May 8, 2009 that the disease would be mild in most of the people infected. However, the report identified severe and fatal cases among healthy young people and children, and also indicated some differences in characteristics from seasonal influenza. The WHO on May 11 announced the fatality rate in Mexico, which was similar to that in the 1957 Asian influenza. The Japanese government revised its response measures on May 22 and June 19, while it was July when measures were eased in the United Kingdom, Korea, and China. If the mortality in Japan turned out to be as high as that in the United States, we could have been criticized in the opposite way. Finding the right timing for judgment is a difficult task in crisis management.

This outbreak gave us precious experience. We should take advantage of this experience in developing the measures to combat a possible second surge of the disease, as well as the anticipated emergence of further pandemic influenza, such as H5N1.