

Lessons learned from practices during the initial response to COVID-19 on the cruise ship Diamond Princess

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Abstract: The battle against coronavirus disease 2019 (COVID-19) still continues three years after the onset of the pandemic, but there are concerns about the next emerging infectious disease. This study reports the practices during the initial response to COVID-19 on the cruise ship Diamond Princess and lessons learned from a nursing perspective. During these practices, one of the authors dealt with a sample collection team from the Self-Defense Forces and collaborated with the Disaster Medical Assistance Team (DMAT), Disaster Psychiatric Assistance Team (DPAT), and other teams. They mentioned the passengers' state and the distress and fatigue of the personnel assisting them. This revealed the specifics of emerging infectious diseases and their commonalities, regardless of the disaster. Results identified three crucial points: *i*) predicting the impact of lifestyle changes on health due to isolation and implementing preventive measures, *ii*) protecting individual human rights and dignity even in health emergencies, and *iii*) support for personnel providing assistance.

Keywords: COVID-19, initial response, nursing, lessons learned

Introduction

Globally, various disasters occur frequently, including natural disasters, emerging infectious diseases, and compound disasters. Moreover, there are concerns about the next emerging infectious disease, Disease X (1). This article reports the practices during the initial response to coronavirus disease 2019 (COVID-19) on the Diamond Princess and the lessons learned from a nursing perspective for future disasters.

Practices on the Diamond Princess

On February 3, 2020, the Diamond Princess docked in Yokohama with 3,711 passengers and crew (2). The passengers and crew underwent health examinations without disembarking from the ship for 14 days (2). The number of people with symptoms increased, conducting polymerase chain reaction (PCR) testing for COVID-19 was difficult (3), and medical transportation to Japan was difficult. This caused confusion among the quarantined, passengers, crew, and also medical personnel.

The Government of Japan decided to respond with administrative and healthcare personnel who implemented border control, infection control, and treatment of patients (4). Based on the Japanese

Government's decision, one of the authors of this article participated in the initial mission, which was to assess the status of COVID-19 and to create a system to facilitate sample collection and data compilation as an epidemiology team in mid-February 2020 (Figure 1). At the same time, the author responded to inquiries about test results from the Disaster Medical Assistance Team (DMAT), which was in charge of transporting positive patients and examining those with symptoms. The Self-Defense Forces, which collected samples, asked the epidemiology team about improving the testing procedure and contact list.

Distress and fatigue of the personnel providing assistance

The DMAT, the Self-Defense Forces, and doctors on the ship were physically and mentally exhausted from the difficult situations. The Self-Defense Forces and DMAT were considered to be at a higher risk of infection than other personnel because they directly interacted with passengers to conduct PCR testing and to examine symptomatic people, such as those with a fever. Moreover, there was tension regarding the risk of infection related to emerging infectious diseases and difficulty in maintaining personal protective equipment.



Figure 1. Mapping new fevers and infected people (color-coded onboard map).

At the time, the prospects for dispatching subsequent medical personnel from the DMAT were uncertain because of the problem of returning to work at hospitals after returning from the ship. The only "people" who symptomatic passengers were able to interact with were only the DMAT or the Self-Defense Forces. As frontline medical personnel, they fielded complaints, criticisms, and questions from passengers.

The medical personnel were greatly concerned about their prospects for the future, quarantine standards, and they were distressed by repeated questions with no ability to offer answers. We responded to the disaster like Eid-Heberle *et al.* later suggested (5), trying to understand those personnel, respecting them, and discussing the limitations of and issues with data collection at the time. Mindful of the psychological changes after a disaster, we also listened carefully and expressed gratitude as necessary.

Passengers' state

Passengers were in extremely serious condition as reported by the DMAT, DPAT, and other teams. Symptomatic passengers expressed anxiety and resentment regarding the order and waiting time for sample collection as well as concerns and uncertainty. Children were no longer laughing. The situation was even more difficult for people in rooms without windows, who were at their mental limit; no one explained what would happen in the future and they were worried that they might be infected. Passengers complained of a variety of physical ailments, and some passengers showed signs of exacerbation of chronic illnesses.

In the confusion, they only received regular medications for their chronic illnesses while in quarantine, and no additional support was provided to maintain their health while in isolation.

Lessons learned

These practices revealed the specifics of emerging infectious diseases and their commonalities, regardless of the disaster. This was because COVID-19 was an

emerging infectious disease, all of the passengers and related parties were apprehensive, and the DMAT dispatched to the disaster site could not be instructed by their directors to return to normal work (6). That said, victims' anxiety and the need for personnel to provide assistance were consistent, regardless of the disaster.

From a nursing perspective, three lessons were learned to better prepared for future disasters.

i) Predicting the impact of lifestyle changes on health due to isolation and implementing preventive measures. From a nursing perspective, lives that could have been saved during a disaster may be lost due to disaster-related deaths. To prevent such situations, timely support must be provided so that people can maintain their health and prepare for recovery and reconstruction (5). Consequently, support to maintain health even if isolation is necessary, and support to alleviate stress in response to movement restrictions (exercises to maintain health, interventions that can monitor mental aspects, consultation with a psychiatrist, when necessary, ways to change mood, *etc.*) is possible.

ii) Protecting individual human rights and dignity even in health emergencies. For those infected with emerging infectious diseases, the interests of the group are prioritized over those of the individual, and there may be a lack of explanations and considerations for the individual during the initial response to a public health emergency. Passengers had mental problems such as anxiety and sadness, and they complained of uncertainty about their future. Mental health support needs to be provided immediately after a disaster and information needs to be provided to those affected. Further steps need to proceed so that individual considerations can be made.

iii) Support for personnel providing assistance. Personnel dealing with emerging infectious diseases are at risk of infection, experience a huge psychological impact (7,8), and encounter dilemmas (9), such as being unable to return to work immediately after providing assistance, unlike during a normal disaster response. Personnel who provide frontline treatment need support and understanding. The status and activities of personnel providing assistance and their subsequent compensation must be addressed in the future.

In conclusion, these lessons can be drawn from when dealing with emerging infectious diseases. Moreover, nurses comprise the largest portion of healthcare personnel and are expected to play a crucial role in prevention, preparedness, the response to, and recovery from health crises.

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