

Supplementary Material 1. Development scenario**Scenario Background**

The training scenario depicts an outbreak of an unidentified infectious disease in the fictional city of Cheongmyeong-si. A university student visits at the hospital with tingling sensation in her hands and a cough, symptoms that were initially not recognized as part of an infectious disease of unknown origin. It was later observed that both the university and its affiliated high schools had recently seen a significant increase in students exhibiting similar symptoms. In response, the Korea Disease Control and Prevention Agency (KDCA) established a central epidemiological investigation and response teams (ERTs) and quickly deployed personnel to the affected area to initiate a prompt response.

In this scenario, 3 contingencies were outlined. First, while monitoring overseas epidemic trends, a mutation of the Hendra virus was detected in the Southern Hemisphere, prompting the World Health Organization to declare it a serious public health threat. Second, the number of suspected cases of the unidentified infectious disease began to rise in Korea, with local media reporting that samples from suspected Hendra virus patients had been received and were being tested by the KDCA. Third, additional information was received regarding the considerations for implementing control measures at university. One university expressed concerns about whether final exams would be held and the potential impact on the national exam schedule.

Case Review

This scenario involves the first reported case and 2 suspected initial infections.

Case 1

The first suspected case was that of a 22-year-old Korean woman who had been experiencing fever, tingling sensation in her fingers, and coughing since approximately 8 PM on 1 December 2024. She was prescribed oral medications (antipyretic, antihistamine, etc.) at Cheongmyeong Clinic on the afternoon of December 2. On the morning of December 4, the patient presented to the emergency department of Cheongmyeong Medical Center with persistent fever (38.1 °C), numbness in her hands, cough, and dyspnea. She was admitted to the respiratory department with a C-reactive protein level of 25 and a chest X-ray showing lung infiltrates and unspecified pneumonia. At 18:00 on December 4, the patient was transferred to the intensive care unit (ICU) with a Saturated percutaneous oxygen saturation (SpO₂) of 75% to 85%, mental drowsiness, and vital signs of 90/40-120-26-39.8. She was placed on a ventilator. Test results for coronavirus disease 2019 (COVID-19), influenza, and 13 respiratory viruses were negative, and blood, urine, and sputum cultures were pending at the time.

Case 2

The second suspected case involved a 22-year-old Korean woman who presented to the emergency department of Cheongmyeong Medical Center on December 2 with mild cough and fatigue since November 22, as well as tingling sensation in her hands and fever since November 2. She was diagnosed with acute unspecified pneumonia and admitted to the respiratory department on December 3 with respiratory distress and septic shock. Subsequently, she was transferred to the ICU and placed on a ventilator. On December 5, at 12:00, her SpO₂ level decreased rapidly, resulting in vital signs of 80/40-138-26-38.6 °C. Concurrently, the patient exhibited ventricular tachycardia and ventricular fibrillation, requiring cardiopulmonary resuscitation. Despite efforts, the patient passed away at 14:00. She tested negative for COVID-19, influenza, and 13 respiratory viruses, and blood, urine, sputum, and cerebrospinal fluid cultures were pending at the time. The patient had a history of both international and domestic travel, having attended a language school abroad from August 13 to November 20 and visited a horse farm during her trip. After returning home, from November 25 to 29, she attended a university festival.

Contacts on Scenario

The individuals in the first and second reported cases both attended and operated a booth at a university festival during the transmission periods. The festival held in an indoor gymnasium, involved participants from three universities in Cheongmyeong-si, as well as local residents and high school students affiliated with the universities. A food court was also

available for attendees to purchase food while browsing the various exhibitor booths. In addition to the reported cases, students who participated in the festival and local residents in the surrounding area also reported similar symptoms.

The individual in the first case sought treatment at a local clinic following the onset of symptoms and was later admitted to the emergency department of a nearby general hospital due to persistent symptoms. The patient was subsequently transferred to the respiratory ward, where her condition worsened, and she was ultimately admitted to the ICU. As a result, patients and healthcare workers who had contact with her during this process were required to undergo additional transmission testing. The individual in the second case visited the same hospital as the first case, where she was admitted to the emergency department, respiratory ward, and ICU. This situation required considering control measures for both patients and healthcare workers who had been in contact with her.