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Statistical Compilation

Medical Care Provision System for Psychiatric Patients with Coronavirus Disease 2019 (COVID-19) and Infection Prevention Measures in Kanagawa Psychiatric Center (Japan)

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Abstract

Kanagawa prefecture developed a unique medical care system for patients with coronavirus disease 2019 (COVID-19) based on its experience responding to the outbreak on the Diamond Princess Cruise ship in February 2020. In this system, named the "Kanagawa Model", the severity of the symptoms determines which hospital the COVID-19 patient is referred to. Facilities treating "moderately ill" patients (i. e., those in need of oxygen inhalation but not artificial ventilation), comprising the largest number, were designated as "priority medical institutions", one of which was a 180-bed temporary medical facility constructed by the prefecture for this purpose.

Before the infection became widespread, Kanagawa Psychiatric Center began its infection prevention and control (IPC) measures such as implementation of thorough standard precautions, prohibiting inpatients to go out and banning visitors, restriction of face to face consultations, suspension of group activities, and procuring medical supplies including personal protective equipment (PPE). Two negative-pressure rooms were planned to be utilized for infected psychiatric patients whose physical conditions did not require transfer to a general hospital.

When a COVID-19 cluster broke out in a psychiatric institution in Kanagawa, no hospitals accepting involuntary patients with moderate symptoms of COVID-19 were available. This was because the unpredictable behavioral disturbances of mentally ill patients cannot be dealt with safely in general hospitals, but the treatment of an unknown infectious disease like COVID-19 was impossible in psychiatric hospitals without specialists or experienced staff.

In order to solve this dilemma, the prefecture set up psychiatric beds in the temporary medical facility where strict IPC measures were implemented, with emergency care specialists treating the patients. Consequently, the Kanagawa Model was expanded to establish "priority psychiatric institutions for coronavirus."

According to this new model, Shonan Kamakura General Hospital (entrusted with the management of the temporary medical facility) and Kanagawa Psychiatric Center both agreed to cooperatively treat psychiatric patients with moderate symptoms of COVID-19. As stated in the contract, a team of psychiatrists and psychiatric nurses at Kanagawa Psychiatric Center was sent for consultation whenever a psychiatric patient was admitted to the temporary medical facility.

In the present paper, we present issues and future directions of psychiatric hospitals to respond to the spread of COVID-19. As we look back on the efforts of Kanagawa Psychiatric Center for the establishment of medical care provision system for psychiatric patients with COVID-19, as well as the development of internal IPC measures during the period from February 2020 (the beginning of the outbreak) through June 2020 (the lull phase), the following elements were noted as essential in taking effective IPC measures: 1) rapid decision-making by hospital leaders and sharing information with all the personnel, 2) diligent health monitoring of patients and staff, 3) modification of hospital rules and regulations according to the infection phase, 4) IPC education for both staff and patients, and 5) sufficient provision of PPE and other medical supplies.

In the era of the COVID-19 pandemic, it is especially important for psychiatric hospitals to establish a partnership and cooperation agreement with general hospitals by requesting local government aid as a mediator, if necessary, in order for psychiatric patients whose physical condition is deteriorating to be transferred quickly to receive appropriate medical management.

Keywords : coronavirus disease (COVID-19), infection prevention measures, psychiatric patients with COVID-19, medical care provision system

Introduction.

The new coronavirus disease 2019 (COVID-19) has caused an unprecedented situation in Japan, with people refraining from going out due to the declaration of a state of emergency, stagnation of social, economic, and cultural activities, and the threat of medical collapse. According to data from the Japan Broadcasting Corporation (NHK) ²⁴, at the peak of the outbreak (April 11th 2020), the maximum number of new infections per day was 720, but since May 25th, when the emergency declaration was lifted nationwide, the number of infections has remained between 21 and 75 until June 20th. However, the situation remains unpredictable because there is a high possibility that the infection will spread again with the resumption of social activities.

In Kanagawa Prefecture (hereinafter referred to as "the prefecture"), the first case of COVID-19 infection in Japan was reported on January 16th 2020, and the largest cluster of infections (hereinafter referred to as "cluster") occurred on February 3rd 2020, on the cruise ship Diamond Princess (hereinafter referred to as "the cruise ship") docked at Yokohama Port. Based on the experience of many administrative and medical institutions in the prefecture, the prefecture was the first in Japan to

identify the specific needs of COVID-19 and to establish its own medical care delivery system, the Kanagawa Model. The Kanagawa Prefectural Psychiatric Center (hereafter referred to as "this hospital"), to which the authors belong, has been promoting nosocomial infection prevention measures since February, and at the same time has been involved in the development of a medical care delivery system for psychiatric patients affected by COVID-19 in cooperation with the prefecture and other medical institutions. In this paper, we review the history of our efforts from February 2020 to June 2020 (the so-called "first wave" period) and discuss the future direction and issues of COVID-19 countermeasures in psychiatric hospitals based on our experiences.

I. Outline of the hospital and the designated medical institution for infectious diseases in Kanagawa Prefecture

1. Overview of the hospital

This hospital is a psychiatric hospital belonging to the Kanagawa Prefectural Hospital Organization (hereinafter referred to as "the Organization"), which consists of five prefectural hospitals and a head office. In 1990, Kinkouin, established in 1929, and Serigaya-en,

established in 1963, were renamed Kanagawa Prefectural Psychiatric Center Kinkou Hospital and Serigaya Hospital, respectively. In December 2014, with the construction of a new hospital, they were integrated as the Kanagawa Prefectural Psychiatric Center. The hospital has 323 beds, including two emergency wards (70 beds in total), four specialized wards [an adolescent ward (30 beds), a mood disorder ward (30 beds), an addiction ward (45 beds), and a forensic ward (33 beds)], a long-term nursing care ward (35 beds, including two negative pressure rooms for tuberculosis patients), a ward to support community transition (40 beds) for patients preparing for discharge, and a high-care psychiatric ward (40 beds) for long-term inpatients who are "severe and chronic" with a clozapine unit that accepts patients who have been introduced to clozapine from psychiatric institutions in the prefecture. The number of staff as of June 2020 stands at 54 doctors (47 psychiatrists [24 full-time, seven senior residents, and 16 part-time] and seven part-time anesthesiologists), one dentist, 256 nurses, 11 clinical psychologists, 11 occupational therapists, 18 psychiatric social workers, 1 medical social worker, seven pharmacists, one radiologist, two clinical laboratory technicians, three dietitians, 17 cooks, and 33 clerks.

According to the statistics for fiscal year (FY) 2018 ¹⁴⁾, the total number of outpatients was 58,822, the total number of inpatients was 107,631, the hospital bed utilization rate was 91.3%, the number of emergency visits was 301 (179 for Article 23 emergency admissions), and the number of inpatients was 227 (154 for Article 23 emergency admissions). The main psychiatric diagnoses based on the International Classification of Diseases, Tenth Edition (ICD-10) were F1 (mental and behavioral disorders due to psychoactive substance use), F2 (schizophrenia, schizotypal disorders and delusional disorders), F3 (mood disorders), and F4 (neurotic disorders, stress-related disorders and somatoform disorders), making up 27%, 11%, 18%, and 22% of outpatients (first visit only), and 26%, 36%, 18%, and 9% of inpatients, respectively. The age distribution of hospitalized patients was as follows: 11% were under 20 years old, 17% were in their 20s, 16% were in their 30s, 20% were in their 40s, 19% were in their 50s, 11% were in their 60s, and 6% were over 70 years old. The hospital is characterized by a high ratio of F1 patients in both outpatients and inpatients because it is a prefectural designated center for addiction treatment, and a similar ratio of patients in their teens to 60s. There is no inpatient ward for dementia patients (when there is a request for admission,

patients are referred to a dementia specialist hospital or psychiatric hospital with specialized beds in the prefecture). The number of patients over 70 years old is only 6%, partly because we do not have an inpatient ward for patients with dementia. In addition, the hospital does not have a full-time internist, so when an inpatient has a physical complication that cannot be handled by a psychiatrist, the patient is referred to a nearby general hospital for consultation or transfer.

2. Psychiatric Emergency Medical System in Kanagawa Prefecture

In Kanagawa Prefecture, there is a 24-hour psychiatric emergency medical system ¹³⁾, which coordinates and handles psychiatric emergencies under a cooperative system of the prefecture and three major cities (the three ordinance-designated cities of Yokohama, Kawasaki, and Sagami-hara, and Kanagawa Prefecture, which has jurisdiction over other municipalities). On weekdays, each public health center in the four prefectures and cities handles initial emergencies and Article 23 emergency calls, while the psychiatric emergency departments in the prefecture and three cities handle nighttime and holiday calls, consultations, and transports. Secondary and tertiary emergencies are handled by the rotating hospitals during weekdays, holidays,

and nighttime, and by seven core hospitals (this hospital, Kitasato University Hospital, Kawasaki City Kawasaki Hospital, Showa University Northern Yokohama Hospital, and the following three hospitals). The total number of emergency beds available in the core hospitals is 33, of which 16 are in our hospital, which can be regarded as the core hospital of the emergency psychiatric care system in the prefecture. To ensure the availability of beds, patients admitted to our hospital are transferred to the cooperating hospitals after their acute symptoms improve.

In addition, Kanagawa Prefecture has secured 14 dedicated beds in the three core general hospitals (Yokohama City Minato Red Cross Hospital, Saiseikai Yokohama City Eastern Hospital, and Yokohama City University Medical Center) as part of its emergency psychiatric transfer program. When patients admitted through the emergency system have physical complications, or when other patients have psychiatric symptoms that make it difficult for them to be transferred to a general hospital through regional medical cooperation, they are accepted in the dedicated beds and treated for psychiatric disorders and physical complications in parallel.

3. Designated medical institutions for infectious diseases in Kanagawa

Prefecture

In Kanagawa Prefecture, medical institutions designated for infectious diseases include Yokohama City Municipal Hospital (2 beds), which is a Type 1 hospital, eight Type 2 hospitals (Prefectural Ashigara Hospital, major municipal hospitals) with infectious disease beds (72 beds in total), and four hospitals (Kanagawa Cardiovascular and Respiratory Disease Center, National Hospital Organization Kanagawa Hospital, and two other hospitals) with tuberculosis beds (166 beds in total)¹⁶⁾. The psychiatric care at these designated medical institutions for infectious diseases is mainly outpatient and in-hospital liaison services, and there are no psychiatric beds except at Yokohama City University Hospital and Kawasaki Municipal Kawasaki Hospital.

II. Development of the mental health care provision system in Kanagawa Prefecture related to COVID-19 and the history of our hospital's efforts

Figure 1 shows the number of newly infected people (excluding those infected on cruise ships) in Kanagawa Prefecture from January 16th 2020, when the first infected person was detected in the prefecture, to June 20th 2020. The period from January 16th to February 24th is referred to as the "early infection period", February 25th

(announcement of the government's basic policy) to April 6th as the "alert period for the spread of infection", April 7th (declaration of a state of emergency) to May 24th as the "spread period", and May 25th (lifting of the state of emergency nationwide) to June 20th as the "lull period".

In the early stage of the infection, our hospital worked mainly to collect and share information on COVID-19 and prepared to accept infected people on cruise ships who presented with psychiatric symptoms. In February, there was already a strong sense of crisis regarding the spread of the infection in the prefecture, and our hospital began to take nosocomial infection prevention measures in earnest at the beginning of the period of alert for the spread of the infection. In mid-April during the epidemic period, a cluster occurred in a psychiatric hospital in the prefecture, and because transfers due to COVID-19 were not covered by the Emergency Psychiatric Transfers for Physical Complications Project, it was difficult to coordinate a place to accept patients admitted for treatment who required oxygen inhalation. This led to the recognition of the need for a system that would enable the smooth provision of medical care to psychiatric COVID-19 patients. In the form of an expansion of the "Kanagawa Model" medical care delivery system for COVID-19³⁾ already

established by the prefectural government, our hospital and the prefectural government's temporary medical facilities under the revised Law Concerning Special Measures against Influenza AIDS (hereinafter referred to as "Special Measures Law") collaborated to operate the "Psychiatric Corona Medical Facilities" to accept psychiatric patients with moderate COVID-19 symptoms ⁸⁾. During the lull period, a roadmap was drawn up and the medical treatment system was reorganized step by step to achieve compatibility between infectious disease countermeasures and normal medical care. As far as the prefecture is aware, nine inpatients at psychiatric hospitals in the prefecture tested positive by polymerase chain reaction (PCR) tests during the "first wave", including two patients with moderate COVID-19 (one of whom was admitted before the hospital became a key psychiatric coronary care facility) who were transferred to our hospital. The following is a detailed description of the infection situation in the prefecture, the process of developing a medical care delivery system, and the history of our hospital's efforts to prevent nosocomial infections at each period.

1. Early stage of infection (January 16th to February 24th, 2020)

(1) Situation in the prefecture

On January 28th 2020, when a char-

tered plane for returnees was dispatched to Wuhan City, Hubei Province, China, where COVID-19 was widespread, the Ministry of Health, Labour and Welfare (hereinafter referred to as "MHLW") established the COVID-19 Countermeasures Headquarters within the ministry, and on February 1st, it issued an administrative notice ¹⁷⁾ requesting local governments to establish a medical care provision system for COVID-19. At this time, there were almost no new cases of infection in Japan, and the national government asked local governments to establish outpatient clinics and consultation centers for returnees and contacts, and instructed medical institutions to guide patients suspected of being infected (hereinafter referred to as "suspected cases") to consultation centers for returnees and contacts or outpatient clinics. It did not provide any specific policy on the treatment system of medical institutions.

In the prefecture, there were no new infections from January 17th to February 10th, and from February 11th to February 24th, there were 0 to 4 people per day (average 0.5 people per day), for a total of only 18 people ¹²⁾. However, on February 3rd, several people on board a cruise ship returning to the port of Yokohama were confirmed to be infected, eventually resulting in a large cluster of 712 people. (note: prefectural statistics

do not include the number of people infected on the cruise ship). The MHLW, the prefecture, cities with public health centers, and the disaster medical assistance team (DMAT) worked together to conduct PCR tests and to coordinate and transport patients to receiving medical institutions. Many medical institutions in the prefecture were involved in the treatment of infected patients.

(2) Initiation of COVID-19 measures in our hospital

During this period, the hospital asked outpatients to refrain from visiting the doctor in case of fever, and all visitors, including staff, to disinfect their hands and wear masks at the hospital entrance, but the medical treatment system remained as usual. When a suspected case occurred during or at the time of hospitalization, or when a passenger with psychiatric symptoms on a cruise ship was requested to be admitted to the hospital, the patient was observed in a negative pressure room (two beds) for tuberculosis patients in the long-term nursing care ward, and personal protective equipment (PPE) was used until the symptoms disappeared or the results of PCR tests were known. For this purpose, we started to prepare for the acceptance of COVID-19 patients at our hospital by confirming the flow line at the time of admission and orienting the staff of the ward concerned. During this period,

however, there were no suspected or infected cases, and although a cruise ship approached us to admit a passenger with suicidal ideation, he was not admitted because his symptoms disappeared quickly after disembarkation.

What was important in the hospital during this period was to collect a wide range of information related to COVID-19 issued by specialized organizations and various academic societies, mainly by the Medical Safety Promotion Office, and to take measures to share this information promptly throughout the hospital. Since the volume of information was large and its contents changed in a short period of time, we utilized the circular function of the electronic medical record system to provide information on the symptoms of COVID-19 and how to respond to symptomatic cases, to disseminate information on the flow of handling fever patients, specimen collection, and transportation procedures for PCR testing, to call for thorough prevention of droplet and contact infection in addition to standard precautions, and to share questions and answers from staff members. As further spread of the infection was predicted, an infection control meeting was started on February 19th by hospital executives, section heads, and members of the Medical Safety Promotion Office. This meeting was held every morning on weekdays (and is still being held as of

June 20th) so that policies and measures could be decided promptly, and the hospital system could be set up in the face of daily changes in the situation. At this meeting, we shared new information on COVID-19 countermeasures, checked the health status of patients and staff and reported on the follow-up status of those with symptoms, and checked the inventory of medical materials. This process was repeated daily.

2. Alert Period for the Spread of Infection (February 25th to April 6th 2020)

On February 24th, an expert meeting of the government recognized that the next week or two will be the critical time when we will have to decide whether the infection will spread rapidly or whether it can be contained, and on February 25th, the government announced the basic policy for COVID-19 control (19). In addition to general policies such as telework, staggered work hours, and vacation days, refraining from school events, and cancelling or postponing in principle all unnecessary events, meetings, and trainings. Medical institutions are requested to establish a system to prevent the spread of infection by separating infected patients from other patients, and to issue prescriptions to patients at high risk of infection by re-consulting them by phone so that they do not need to be

examined, establishing an appropriate system for providing inpatient care to prepare for an increase in the number of infected patients by securing hospital beds and ventilators and sharing the roles of local medical institutions, and securing supplies necessary for infection control through more thorough nosocomial infection control.

(1) Efforts to prevent nosocomial infection in our hospital

1) Changes in the medical system

As part of the "two weeks on the brink" indicated by the government on February 25th (until March 9th), the following measures were initiated at our hospital on February 27th. Various events, conferences, and workshops with outside participants were cancelled or postponed, masks were worn by outpatients and inpatients, non-emergency hospitalization was postponed, in principle, inpatients were prohibited from going out of the wards, staying overnight, and visiting the hospital. Patients in the open wards were asked to confirm their consent to the new restrictions in a written consent form, and patients in the voluntary wards whose consent could not be obtained were asked to leave the hospital, resulting in a number of discharges, especially from the addiction ward. Occupational therapy and psychological testing were conducted in the wards, and there were restrictions

on visits to other hospitals except in emergency situations. At the outpatient clinic, staff members took the temperatures of all outpatients and their companions and interviewed them about their health conditions before they entered the clinic. Patients with fever or common cold symptoms were examined in the emergency room, which was separated from other outpatients, and sent home after being guided to the Returnees and Contacts Consultation Center if necessary. The change in the treatment system was communicated to patients and their families through posters and a website from February 26th, asking for their understanding and cooperation in infection prevention measures. These measures were initially scheduled to last for two weeks, but as the infection spread, they were continued until the declaration of the state of emergency was lifted. Outpatients who were mentally stable and compliant with their medications were offered longer intervals between visits, and from March 31st, when the spread of infection became more pronounced, we began to provide telephone consultations and mailed prescriptions to patients.

During this period, five patients were admitted to the hospital for observation based on symptoms such as fever and CT findings of the chest, but in all cases, their symptoms improved before

reaching the time frame for PCR testing.

2) Response to staff

Staff were instructed to take their body temperature before going to work (if the temperature was 37.5°C or higher, they were to be treated at home, and the information was relayed to the Medical Safety Promotion Office through their supervisors), to disinfect their hands when entering the building and before and after treatment, and to wear masks in the hospital. However, surgical masks are difficult to obtain at this time of the year, and a shortage of masks was anticipated when the infection spread, so masks were distributed only to staff in the outpatient clinic and emergency ward who were at higher risk of infection. We also made efforts to secure N95 masks, gowns, and face shields, which were in short supply because they were not normally used, but they remained in short supply until mid-May. In early March, the hospital began to run out of rubbing alcohol, so we purchased a 1-dozen can of 99.9% ethanol, diluted it to 80%, and installed it in each department.

Since late March, when the infection began to spread, measures were taken to avoid the "three C's" (closed spaces, crowded places, and close-contact settings) (e.g., holding meetings in the widest possible space, widening the interval of chairs in the ward cafeteria), and to thoroughly disinfect areas (door

knobs, elevator open/close buttons, mice, keyboards) where unspecified numbers of people come into contact with each other.

During this period, three nurses and two cooks were treated at home for fever, and three nurses were monitored at home as close contacts, but none of them were subjected to PCR testing. Except for those whose symptoms took 19 days to be confirmed as being due to other physical illnesses, all of them returned to work after two-to-nine days of home treatment, so there was no shortage of manpower in their departments.

3) Preparing for an epidemic

Since the number of suspected cases has continued to increase in the emergency system since late March, we prepared a flow chart for handling suspected cases at the time of admission and informed the relevant departments. In addition to PPE, patients with suspected cases should have their blood oxygen levels measured on admission, and active CT imaging of the chest should be performed. As a rule, patients should be observed in isolation rooms for at least one day before being transferred to another room. In addition, the stockpile of psychotropic drugs was doubled from mid-March, considering the possibility of supply shortages in the event of a declared emergency.

(2) COVID-19 Healthcare Provision System in Kanagawa Prefecture – The

"Kanagawa Model"

In response to the basic policy of the national government, the prefecture established the COVID-19 Task Force on March 2nd (which was transferred to the task force based on the Special Measures Law on March 16th) and began to survey the status of normal medical treatment at medical institutions in the prefecture, as well as the status of medical personnel and medical materials. When the special measures law went into effect on March 14th, the development of medical care delivery systems in each municipality was entrusted to the authority of prefectural governors, and on March 25th, the governor of Kanagawa Prefecture announced his own "Kanagawa Model" (Figure 2) 3) as the COVID-19 medical care delivery system.

Under this model, (1) PCR-positive patients who are "asymptomatic or mildly ill" are monitored at home or in accommodations; (2) "moderately ill" patients who require oxygen inhalation and elderly patients who are asymptomatic or mildly ill but have underlying diseases are treated at "priority medical institutions"; (3) "severe" patients who require treatment with a ventilator or extracorporeal membrane oxygenation (ECMO) will be treated at "advanced medical institutions" such as emergency medical centers; and (4) suspected cases are accepted at "Cooperating Hospitals

of Priority Medical Institutions". The prefectural coordination headquarters was to be in charge of coordinating the reception and transport of each patient.

The MHLW requested local governments to set up priority medical institutions to receive infected patients, in preparation for the peak of infections, in the administrative notices of March 6th, March 19th, and March 26th ²⁰⁾. The "Kanagawa Model" is characterized by the fact that the receiving institutions for patients with moderate illnesses, which were the most numerous when responding to cruise ships, were designated as "priority medical institutions" and were separated from "advanced medical institutions" to clarify roles of various institutions. On April 1st, the prefecture designated three hospitals (Ashigara-kami Hospital, Kanagawa Cardiovascular and Respiratory Disease Center, and National Hospital Organization Sagamihara Hospital) as priority medical institutions ⁴⁾. On April 8th and 10th, the prefecture decided on two overnight care facilities for asymptomatic and mildly ill patients ⁵⁾⁶⁾. On April 13th, a temporary medical facility with 180 beds was constructed in the Shonan Health Innovation Park in Fujisawa City under the Special Measures Law as one of the priority medical institutions, and its operation was entrusted to the adjacent Shonan Kamakura General Hospital ⁷⁾. As of

June 20th, 22 high-acute and acute-care hospitals have been certified as high-level medical institutions, 18 hospitals, mainly those designated as Type 2 infectious disease-treating hospitals, have been certified as priority medical institutions. Forty-nine hospitals have been certified as co-operative hospitals for priority medical institutions by the prefecture.

Shonan Kamakura General Hospital, which was commissioned by the prefecture to operate a temporary medical facility, is a highly acute care hospital with 658 beds, and its philosophy is to accept all requests for ambulance care 24 hours/ 7 days a week. The Shonan ER plays the role of a "fortress of last resort" for emergency patients in the community, including patients with complex backgrounds who are refused admission by other hospitals. Shonan Kamakura General Hospital was entrusted with the operation and management of a temporary medical facility to respond to requests for transport of COVID-19 patients in the same manner, and to safely continue emergency medical care for non-infected patients while accepting infected and suspected cases ²⁾. On April 23rd, 31 temporary beds for COVID-19 patients began operating at the hospital site, followed by the establishment of the Shonan Health Center adjacent to the hospital. Subsequently, temporary

medical facilities were constructed sequentially in the adjacent Shonan Health Innovation Park. By June 29th, a total of 180 beds will be in operation, and the hospital will serve as a major source of care for patients with moderate COVID-19 disease in the prefecture.

During this period, the number of new infections per day in the prefecture remained between 0 and 6 even after the two weeks that were "on the brink", and there were no signs of the spread of infection for a while (average of 2.7 per day from February 25th to March 26th). However, new cases were reported every day from March 27th after the three-day national holiday, and the number rapidly increased to 31 on April 3rd, bringing the total number of cases to 273 by April 6th (daily average of 16.2 between March 27th and April 6th)¹²⁾.

3. Spread period (April 7th to May 24th, 2020)

On April 7th, the government declared a state of emergency based on the Special Measures Law in seven prefectures including Kanagawa Prefecture. Since then, the number of new infections per day in the prefecture ranged from 14 to 76 (daily average 34.2) from April 7th to April 26th (peak on April 11th), and from 1 to 36 (daily average 13.4) from April 27th to May 24th, with a cumulative total of 1,332 infections by

May 24th¹²⁾. During this period, the PCR testing system was strengthened, with prefectural and municipal governments setting up collective testing sites and private laboratories beginning to offer contract testing. As outbreaks of clusters continued to occur at medical institutions, on May 12th, the prefectural government announced the formation of a corona cluster attack team (C-CAT) led by the infectious disease control guidance team of the task force and public health nurses. This C-CAT would be dispatched to investigate suspected cluster outbreaks at medical institutions and health and welfare facilities, provide guidance to prevent the spread of infection, support the transfer of patients, and arrange necessary equipment and materials⁹⁾.

(1) History of the development of "psychiatric corona priority medical institutions"

1) Where to treat patients with moderate COVID-19?

In mid-April, a cluster of eight patients and two staff members occurred in a psychiatric hospital in the prefecture. Two patients were transported to an advanced medical institution, but a priority medical institution could not be found to accept a moderately ill patient (female in her 40s, schizoaffective disorder) who required oxygen inhalation. The prefectural government's program for transferring patients with psychiat-

ric emergencies and physical complications excludes patients with infectious diseases that may be airborne, such as tuberculosis, and COVID-19, the latter of which still had unknown routes of infection and was not included in the program, so the designated beds could not be used. On April 17th, a request was made to transfer the patient to our hospital, but we judged that we could not accept the patient until we could make arrangements to secure a place to transport her in case her infectious disease symptoms worsened, because we did not have a system that could adequately handle her physical symptoms. Fortunately, her respiratory symptoms became milder, and the patient was transferred to our hospital on April 22nd as a PCR-positive patient, where treatment was continued in a negative pressure room. This case prompted the recognition of the urgent need to establish a system to provide concurrent treatment of infectious diseases and psychiatric disorders in psychiatric patients with moderate COVID-19 symptoms who have been infected and require intensive psychiatric treatment, and discussions began among the prefectural government, the Organization, and our hospital.

Initially, the prefectural government proposed that our hospital accept psychiatric patients with moderate COVID-19 as a priority medical institu-

tion. However, we had neither a full-time internist nor nurses skilled in dealing with infectious diseases, most of our staff were not familiar with the use of PPE or infection prevention measures, and we had only two negative pressure rooms and no ventilators. Therefore, there was a strong concern that it might not be possible to protect patients' lives or prevent nosocomial infection. In addition, if the protection room area of the emergency ward was diverted to accommodate the third and subsequent COVID-19 infected patients, this would put a strain on the beds in the psychiatric emergency system, which could interfere with the overall psychiatric care in the prefecture. We were also concerned that if a psychiatric hospital took over the treatment of patients with moderate COVID-19, it would mean that psychiatric patients would not be able to receive the treatment by infectious disease specialists that the general non-psychiatric patients could receive in well-equipped hospitals. We had no choice but to carefully consider the proposal from the prefecture and find the way to provide appropriate treatment for psychiatric patients with moderate COVID-19 symptoms. Nevertheless, under the circumstances, where the number of infected medical personnel is increasing and general hospitals are short of doctors and nurses, it is impossible to secure physicians and

nurses who can deal with infectious diseases for our hospital, and even after repeated discussions among the prefecture, the Organization, and our hospital, we were unable to find an effective solution.

2) Building cooperation between general hospitals and psychiatric hospitals

The situation changed when the Shonan Kamakura General Hospital, which was designated by the Prefecture to operate a temporary medical facility for COVID-19 treatment, agreed to cooperate in the treatment of psychiatric patients with COVID-19. In the temporary medical facility, which was at that time under construction, some facility specifications were changed, including the removal of potentially hazardous materials around the hospital beds, to accommodate COVID-positive psychiatric patients with suicidal ideation. Ten beds for psychiatric patients were set up, and a scheme for treating psychiatric patients with moderate COVID-19 was prepared in cooperation between Shonan Kamakura General Hospital and our hospital. This temporary medical facility is equipped with the latest IT technology, including avatar robots and a telemedicine system, and thorough infection prevention measures are in place. The facility is staffed by experienced physicians and skilled nurses, so that not only psychiatric patients, but also

those of us psychiatrists referring them, could feel reassured. The collaboration scheme is as follows. In the early stage of the COVID infection with minimum or mild psychiatric symptoms, patients are admitted to the temporary medical facility for respiratory monitoring. Psychiatric treatment is simultaneously provided by sending psychiatrists and nurses from our hospital (note: the distance between the temporary medical facility and the hospital is 14.3 km, around 40 minutes by car). However, COVID-positive patients with severe psychiatric symptoms upon initial assessment will be admitted to the negative pressure room of our hospital, while physical treatment, if necessary, will be provided with the help of physicians on duty at Shonan Kamakura General Hospital, who would be available for online consultation 24/7. Patients whose acute infectious symptoms are relieved at the temporary medical facility will be transferred to our hospital for further medical observation and psychiatric treatment until they test negative by PCR. Multiple iPads have been prepared to enable real-time information sharing and bilateral consultation between the two hospitals. In addition to the two negative pressure rooms, a part of the Addiction unit with 8 beds, that could be strictly zoned, was converted for the follow-up of PCR-positive patients

whose infectious disease and psychiatric symptoms had abated, making a total of 10 beds available for COVID-positive psychiatric patients to facilitate the transfer flow from temporary medical facilities to our hospital.

Through the coordination of the Organization, several nurses from Ashigarakami Hospital, which has already treated many COVID-19 patients, were dispatched as well to our hospital to provide support.

3) Establishment of "Priority Medical Institutions for Psychiatric Patients with Coronavirus Infection"

On May 1st, the prefectural governor announced the establishment of the "Priority Medical Institution for COVID-positive Psychiatric Patients" as a Kanagawa Model for psychiatric care. This institution was created in collaboration with the prefectural government, the Organization, and Shonan Kamakura General Hospital, Kanagawa Model was operated by Shonan Kamakura General Hospital and our hospital ⁸⁾. According to the Kanagawa model, for treatment of respiratory and other physical symptoms, patients are admitted to different hospitals according to the severity of their COVID symptoms. However, for psychiatric symptoms, patients with asymptomatic or mild respiratory symptoms and mild psychiatric symptoms are to be treated at the local psychiatric hospital, while

those with severe psychiatric symptoms are transferred to our hospital for intensive treatment. Some private psychiatric hospitals are also designated to accept suspected cases (Figure 3). As indicated by the three arrows in the flow chart, prefectural government officials worked to coordinate the complexities of transporting patients between hospitals, because the laws controlling infectious diseases and psychiatric emergencies were different, and each of the prefecture and three cities had its own department in charge of both, and the vehicles and ambulances used for patient transport were different as well.

The COVID care unit for psychiatric patient care started operation on May 18th, when the building containing 10 beds for psychiatric use was completed. The number of newly infected patients has already been decreasing, and as of June 20th, only one patient (a male in his 20s with schizophrenia) has been admitted. After being admitted to a psychiatric hospital in the prefecture on May 5th, the patient had an intermittent fever, and on May 15th, bilateral ground-glass opacities were found on a chest CT. A PCR test was conducted on May 19th, and the result was positive for COVID-19. The patient was admitted to the temporary medical facility on May 20th, and doctors and nurses dispatched from our hospital were engaged in psychiat-

ric treatment. His pneumonia improved and two PCR tests returned negative results, so he was transferred to our hospital on May 26th and continued psychiatric treatment in the emergency ward before being transferred to another hospital on June 8th. The patient that was transferred from the hospital where the cluster occurred to our hospital on April 22nd continued to test positive by PCR for five consecutive weeks, even after the physical symptoms had disappeared. By the end of May, the PCR test finally returned a negative result twice in a row, and the patient was discharged to their home on June 2nd.

(2) Efforts to prevent nosocomial infection in our hospital

1) Changes in the medical services

After the declaration of the state of emergency, the number of outpatient visits was reduced, because an increasing number of patients were seen by telephone and the prescription was mailed to the patients' houses.

Efforts were also made to shorten outpatient clinic hours. The day care center was closed, and staff regularly called patients to check on their health status. Visiting nursing services considered essential for monitoring patients in the community and preventing deterioration of their condition were continued with infection prevention measures such as reducing the number of visits,

confirming the health status of patients by telephone beforehand, and keeping the physical distance by meeting patients at the door whenever possible. As the prohibition of inpatient outings and visits was extended and the number of patients whose preparations for reintegration into community were delayed increased, the necessity and urgency of each patient's interviews with staff of residential facilities and facility visits were individually reviewed at infection control meetings. Limited permission was granted if sufficient infection prevention measures were taken.

2) Control measures of nosocomial infection outbreaks

In early April, certified infection control nurses gave practical guidance to doctors and nurses on how to put on and take off PPE. In addition, from April 30th to May 22nd, signs concerning COVID-19 countermeasures and PPE donning and doffing methods were displayed in the hospital. Additionally, an all-round training program was conducted in which participants were asked to respond to questionnaires to familiarize themselves with infection prevention measures. On April 22nd, we received guidance on zoning from an infectious disease specialist dispatched by the prefectural government's task force.

As the number of suspected cases

increased among newly admitted patients, including emergency patients, one bed in the safe room area of the psychiatric emergency ward (up to a maximum of four beds in the entire area) was set aside for suspected cases in late April. As the frequency of PPE use increased during this period of widespread infection, the staff in charge made increasing efforts to obtain PPE from various sources and received supplies from the prefectural and municipal governments, as well as donations from several organizations and individuals, resulting in the required amount of PPE procured by mid-May. In addition, since our hospital was designated as a priority medical institution for psychiatric COVID-19 patients, we were allowed preferentially to outsource PCR testing from our hospital to a private laboratory by May 7th. During this period, it was a general rule that newly admitted patients, including suspected cases, were monitored in isolation rooms and other private rooms for 14 days after admission. However, as PCR tests could now be performed quickly, and the presence or absence of infection could be determined by the next evening, earlier transfer of patients was made possible according to the PCR results. Considering the possibility of false-negative results, even if the PCR results were negative, patients were kept in private rooms for seven

days after admission. The shortened observation period not only facilitated bed control, but also reduced the psychological burden on physicians and nurses who dealt with suspected cases. Since May 14th, antibody testing has also been used as an adjunctive measure. During the epidemic period, eight patients were admitted to the hospital with fever, respiratory distress, decreased blood oxygen level, or CT findings in the chest, and five of them were subjected to PCR testing, but all were negative for COVID-19. In addition, in anticipation of an outbreak of nosocomial infection, the pharmacy department set up two separate work shifts, and the nutrition department made a contract with a vendor that could arrange for boxed lunches and set up a system in which cooks could be dispatched within the prefectural hospital organization to ensure that work could be continued in the event of an outbreak.

3) Mental health status of employees

During this period, there was a high level of anxiety and tension in all departments of our hospital due to the inadequate availability of masks and PPE. After a first patient with moderate COVID-19 symptoms was transferred to the hospital on April 22nd, the anxiety of nurses, especially those in the wards that receive infected patients, increased. In response to the increased anxiety of

the nurses in the wards where the infected patients were admitted, the following measures were taken: the "Corona newsletter" was posted on the bulletin board of the electronic medical record system every day from April 24th, through which a short report on countermeasures and new information in the hospital was sent out. Also, materials on the mental care of medical personnel involved in COVID-19¹⁵⁾ were distributed. The hospital administrator and the president of the Organization made efforts to alleviate the anxiety of the staff by explaining the current situation, answering their questions, and creating opportunities to offer words of encouragement.

During this period, five nurses and two cooks were treated at home for fever. Two of them were tested by PCR but returned negative results. One nurse was followed up at home as a close contact. All of them returned to work after 1-to-7 days of home observation, so there was no substantial shortage of manpower in their departments.

4. Lull period (May 25th to June 20th, 2020 (present))

(1) Situation in the prefecture

In Kanagawa Prefecture, the declaration of a state of emergency was lifted on May 25th, and the number of new infections per day had already fallen below 10 since May 22nd, reaching 0 on June 8th for the first time in 77 days ¹²⁾. On

June 1st, the prefectural government announced a policy of resuming normal medical care at each medical institution, while preventing the spread of infection ¹¹⁾. At the same time, based on a request from the national government ²¹⁾, the prefecture took measures to prepare for the reemergence of infection by designating medical institutions to provide inpatient care for perinatal COVID-19 patients, dialysis COVID 19 patients, and elderly, disabled, and patients with intractable diseases if their caregivers were infected.

(2) Future Policy: Aiming for a Balance between Infectious Disease Control and Normal Medical Care

During the lull, nine suspected cases were admitted to our hospital, and seven of them were subjected to PCR testing, all of which were negative.

Since mid-May, our hospital had already prepared a detailed roadmap in advance, with the Medical Safety Promotion Office and the Department of Nursing playing a central role in discussing the steps to be taken to ease restrictions after the emergency declaration was lifted (Table). Starting in June, the first stage includes easing restrictions on in-hospital activities (e.g., inpatients walking around the hospital grounds, interviews and meetings with community members to promote discharge, and resumption of group programs). In the second stage, restric-

tions on entry into the hospital from outside the hospital were eased (e.g., family visits, resumption of inpatient and outpatient joint programs), and in the third stage, we relaxed the restrictions on going out of the hospital (e.g., day trip and overnight training), at the same time continued to check the infection status every two weeks. In July, the eight beds prepared for patients with mild COVID-19 symptoms and psychiatric symptoms are to be returned to addiction unit and shifted to regular inpatient treatment.

In the early phase of the pandemic, some private psychiatric hospitals accepted suspected cases when they were admitted to the emergency system, but it has been difficult to coordinate the admission of suspected cases during the later period. There is a new concern that the number of patients with fever that is difficult to distinguish COVID-19 from heat stroke will increase as the temperature rises in summer. We have accepted two suspected cases in the psychiatric emergency ward since June 9th. If they are found to be PCR-positive, we are prepared to treat them according to the severity of their physical and psychiatric symptoms.

III. Discussion

On April 27th 2020, the Disaster Support Committee of the Japanese Society of Psychiatry and Neurology

published a proposal for COVID-19 countermeasures in psychiatry²⁵). The proposal expressed concern about unacceptable situations, i.e., "stagnation of local psychiatric care due to inappropriate fear of infection and avoidance of hospitalization for treatment or acceptance of emergency psychiatric cases", and "a situation in which patients are unable to receive necessary infection treatment just because they are mentally ill". However, since psychiatric hospitals and general hospitals have strong concerns about the handling of infectious diseases in psychiatric patients, such a situation is fully expected to occur, and in fact, in Kanagawa Prefecture, a case of a psychiatric patient with moderate COVID-19 symptoms who could not find a place to receive treatment occurred.

In considering the treatment of psychiatric patients with COVID-19, it is important to take measures to reduce the anxiety of both psychiatric hospitals and general hospitals. To achieve this, it is essential for psychiatric hospitals to make efforts to thoroughly implement infection prevention measures and, at the same time, to establish a close collaboration system with infectious disease specialists working at local general hospitals in advance so that consultation and transfer of infected psychiatric patients can proceed smoothly. The local government is

always involved in the handling of patients with COVID-19, which is a designated infectious disease, so it is desirable to actively request coordination and cooperation from the task force and other prefectural government departments in charge of COVID-19, in order to establish infection prevention measures in psychiatric patients and cooperation among hospitals. The following is a discussion of the direction and challenges of COVID-19 measures required of psychiatric hospitals in the future, based on the experience of our hospital in Kanagawa Prefecture.

1. How should the COVID-19 treatment system for psychiatric patients be implemented?

1) COVID-19 nosocomial infection prevention measures in psychiatric hospitals

In psychiatric hospitals, there are many factors that make it difficult to prevent nosocomial transmission of COVID-19. First, unlike general hospitals, psychiatric hospitals do not have many opportunities to treat patients at high risk of infection on a daily basis, and therefore, their staff lack knowledge and experience in infection control measures. As a result, most doctors and nurses have never used PPE before, and the stockpile of PPE is scarce due to its infrequent use. In addition, the ward structure unique to psychiatry (many

shared spaces, which create many opportunities for contact infections, difficulty in zoning for infection control purposes, difficulty in regular ventilation in protection rooms) and the crowded environment where patients eat and watch TV together in the day room are hurdles to infection control. In addition, there are aspects of psychiatric treatment that are difficult to balance with physical distancing, which is important in COVID-19, such as the close physical proximity between patients and medical personnel when intervening in case of symptom exacerbation. There are many situations in which multiple patients are treated together, such as occupational therapy, recreation, and group therapy. It has been reported that psychiatric hospitals in China ²⁸⁾²⁹⁾, the United States ¹⁾²³⁾, and the United Kingdom ²⁷⁾, where COVID-19 had spread earlier, have faced the same difficulties. In addition, psychiatric patients have difficulty in controlling their behavior and are unable to take protective measures against infection due to insufficient self-care and comprehension ²⁸⁾. Many psychiatric emergency patients have underlying diseases such as diabetes, hypertension, obesity, and smoking that can worsen COVID-19 infection ²⁷⁾²⁹⁾. Patients taking clozapine have a particularly high risk of physical complications ²⁷⁾. Addicts with high

rates of cigarette and marijuana smoking are more likely to develop respiratory tract infections and to become severely ill if infected with COVID-19¹⁾.

Thus, once an outbreak of COVID-19 infection occurs in a psychiatric hospital, the infection can easily spread, and some patients are more likely to become seriously ill. We need to take all of these various difficulties into account, and therefore, it is necessary to consider them all as challenges, and to take measures one by one to prevent nosocomial infections.

Since the infectivity of COVID-19 patients peaks from 2 or 3 days before to the day of onset of infection, any omissions in routine preventative care increase the risk of subclinical infection, so nosocomial infection control measures must be thoroughly implemented by all staff members. It is important to repeat such efforts as training in PPE donning and doffing methods to ensure that staff members acquire knowledge and techniques for infection prevention, identifying potential infection risks in each department of the hospital and taking the best possible measures for each. Changing the medical treatment system according to the emergency phase decreed by local government with constant awareness of infection prevention is also important, along with seeking understanding and cooperation from patients, families, and other con-

cerned parties. The national and local governments should ensure that psychiatric hospitals also have a sufficient supply of medical equipment essential for the prevention of nosocomial infections, because this provides strong support to hospital staff in terms of both physical and psychological safety and security. Continued efforts to raise the awareness of all staff members and to establish a system that ensures the implementation of infection control will reduce excessive anxiety and allow for the smooth acceptance of patients at high risk of COVID-19 while preventing nosocomial infections.

2) Building a system of cooperation with general hospitals

The biggest problem in psychiatric hospitals, especially those with no full-time internist, is the inability to provide necessary physical treatment when symptoms of COVID-19 worsen. Asymptomatic or mildly ill patients can be treated by psychiatrists in isolation rooms, but there are cases of rapid deterioration of respiratory symptoms in COVID-19 patients. There is great concern that appropriate treatment may not be available in such cases, or that patients may not be easily transported to an appropriate general hospital in a timely manner. Kuzman et al.²²⁾ stated that the first principle in the COVID-19 treatment of psychiatric patients is that the patients should

receive the same physical treatment and care for their safety as all other members of society, that psychiatric personnel should be provided with the same medical materials as other medical personnel, and that there should be no difference in COVID-19 treatment between psychiatric and non-psychiatric patients. We believe that this is an important point in terms of medical ethics. Psychiatric patients with moderate or early-onset COVID-19 should ideally be monitored and treated in medical institutions where respiratory and infectious disease specialists are always available and strict infection control measures are possible. In addition, psychiatrists and nurses should work closely with those medical institutions admitting COVID-positive psychiatric patients to provide treatment for psychiatric disorders at the same time, so that physicians could concentrate on the treatment of physical complications of COVID-19.

In Kanagawa Prefecture, Shonan Kamakura General Hospital, which operates a temporary medical facility for COVID-19 treatment under the Special Measures Law, cooperated with us in accepting psychiatric patients, and beds for psychiatric patients were set up in the temporary medical facility. At our hospital, we set up a psychiatrist shift to assist the temporary medical facility, so that patients could be treated from

the day of admission. Before this implementation, a certified psychiatric nurse gave a lecture on psychiatric nursing at Shonan Kamakura General Hospital and trained nurses from Ashigara-kami Hospital who were sent to our hospital for COVID-19 treatment assistance, thus establishing a system of responsible collaboration.

For the transport of patients, as mentioned above, the prefectural government staff coordinated with the public health centers and many other related organizations, to set up a system. In this way, the establishment of temporary medical facilities under the Special Measures Law and the cooperative relationship between the local government, general hospitals, and psychiatric hospitals contributed greatly to the realization of the "psychiatric corona priority medical institutions". The resulting psychiatric corona-focused medical institution allows patients to choose the place of treatment according to the severity of their physical and mental symptoms. We were able to receive online advice from infectious disease specialists, when necessary, even when treating patients with active mental symptoms in our hospital, and immediately transfer patients to the temporary medical facility when their physical symptoms worsen. Psychiatric hospitals other than our hospital also admitted COVID-positive patients with

minor physical symptoms or suspected cases of COVID-19, thus sharing the role and dispersing the burden on regular medical care, such as psychiatric emergencies. This cooperative system is very desirable and reassuring for both patients and psychiatrists.

In Kanagawa Prefecture, there were fortunately only nine psychiatric inpatients infected with COVID-19 during the "first wave". There may not be an increase in COVID-positive psychiatric patients in the future to warrant such a system - that would be preferable although unlikely! – but it is very important for psychiatric institutions in the prefecture to have a "safe system" in place to deal with the risk of unknown infections for a long time to come. With the establishment of this system, we hope to extend a system of collaboration, so that cooperation between general hospitals and psychiatric hospitals, and the sharing of roles among psychiatric hospitals can be maintained even after COVID-19 is resolved.

2. Review of the hospital's efforts

From May 7th, when PCR testing could be outsourced to private laboratories, to June 20th, we have performed PCR tests on 12 suspected cases, all of which have been negative, and there have been no positive cases in the antibody tests that

have been performed since May 14th. We believe that the fact that no new cases of COVID-19 infection have occurred among both hospitalized patients and staff is due to the efforts of our staff in preventing nosocomial infection and the understanding and cooperation of patients, their families, and many other concerned parties. The following are some of the lessons we have learned and issues we have recognized from our efforts during the period of alert and spread of infection.

(1) Prompt decision-making and hospital-wide information sharing

In a situation where infection is spreading and new measures must be decided on a daily basis, it is necessary for hospital executives to take a top-down approach to make decisions quickly and decisively, and to promote countermeasures. The infection control meeting held every morning since February 19th has been functioning effectively as a place to gather and share information, review countermeasures and their progress, and make decisions. It is also important to report decisions promptly to all staff members and share information throughout the hospital. To prevent nosocomial infections, it is essential to inform all staff members of the necessary countermeasures. This is because the anxiety of staff members increases if they do not know what is happening in the hospital

and what countermeasures are being taken. In our hospital, the sense of tension became even higher after April 22nd, when we admitted an infected patient for treatment, so from April 24th, decisions made at the infection control meeting were sent through electronic bulletin board to every staff in a daily short report. When the hospital was designated as a priority medical institution for psychiatric COVID-19 patients, the hospital administrator and the president of the prefectural hospital organization explained the situation directly to the staff, and efforts were made to pay close attention to the staff most exposed to the risk of infection. Through these efforts, we believe that we were able to create an environment in which all staff members worked together to take measures against COVID-19.

2) Patient services

The same speed and clarity are required in the provision of information to patients and their families. Whenever there was an important change in regulations and rules, we publicized it as soon as possible through posters and websites, and repeatedly requested cooperation in advance, so that the epidemic period passed without major confusion. To thoroughly implement nosocomial infection control measures, we prohibited inpatients from going out, or staying overnight for an initial period

of two weeks from the early stage (February 27th), before the full-scale spread of the infection. However, as a result, the prohibition was extended so that patients were forced to live in the hospital with severe restrictions for a long period of time until the emergency declaration was lifted (May 25th). By taking measures in advance of the situation in the community, patients and staff became accustomed to complying with standard precautions and strict restrictions by the time the full-scale epidemic began to spread, and the state of emergency was declared, which was beneficial from the viewpoint of nosocomial infection prevention. However, there were also negative aspects, such as a heavy physical and psychological burden on patients and their families, as well as prolonged interruption of interviews with community supporters, which delayed their efforts to reintegrate patients into society. In particular, the curfew measure deprived patients in addiction unit of the opportunities of attending self-help groups. As a result, their motivation for inpatient treatment declined, and since March, a number of them have chosen to be discharged from the hospital.

In May, a part of the addiction unit was converted to treat COVID-19 patients, which hindered the hospital's function as a prefectural center for addiction treatment. In fact, the decline in the

utilization rate of hospital beds, which was only around 80% for the entire hospital, was more pronounced in the addiction unit, which was in the 90% range in January, but dropped to the 40% range in April (Fig. 5). It can be said that addicts were the most affected by the COVID-19 measures in our hospital.

Based on the lessons learned from the "first wave" countermeasures, the hospital has begun preparations to improve its response to any future re-spread of infection, such as implementing stepwise restrictive measures depending on the situation of infection in community to minimize therapeutic disadvantages, and allowing visits, interviews, and self-help group attendance online using smartphones and tablets.

(3) Mental health of the hospital staff

Regarding the mental health of the staff, all we could do was to provide relevant information to enable each staff member to take care of him or herself. The reasons for this are as follows: during an epidemic, many hospital executives, section heads, and other staff are so busy dealing with the infection that they have little time to spare; therefore, even if a staff member feels the need for mental care, it is difficult to consult with others. Additionally, unlike a localized disaster such as an earthquake, entire society is

a "disaster victim", and therefore support from "outside" cannot be expected. To reduce anxiety and stress, practical measures such as adequate infection control measures and procurement of materials such as masks and PPE were more urgent than individual psychological support. One of the major challenges for the future is to reexamine how effective countermeasures can be provided to prevent exacerbation of anxiety and burnout among staff members under these circumstances.

Of the materials collected, the Support Guide ²⁶⁾ prepared by the Japanese Red Cross Society specifically describes the stress reactions unique to COVID-19 responders and the support that can be given to them from colleagues, supervisors, and facility administrators, which is very useful for self-understanding and mutual support among staff.

Conclusion.

As a result of the nationwide recognition of the difficulty of dealing with COVID-19 in psychiatric hospitals, on June 2nd 2020, the MHLW issued an administrative communication ¹⁸⁾ requesting local governments to prepare for the re-spread of infection by securing and coordinating cooperating medical institutions, deploying necessary supplies, dispatching medical personnel to psychiatric hospitals in case of a shor-

tage of specialists and nurses to deal with infectious diseases, and providing mental care for medical personnel. The efforts of Kanagawa Prefecture and our hospital cannot be generalized, since the situation of the spread of infection, the medical care delivery system (including psychiatric care), and the cooperative relationship among various institutions (psychiatric hospitals and general hospitals in particular) may differ among municipalities and regions. However, we hope that the experiences reported in this paper would be of some help to other local governments and psychiatric hospitals.

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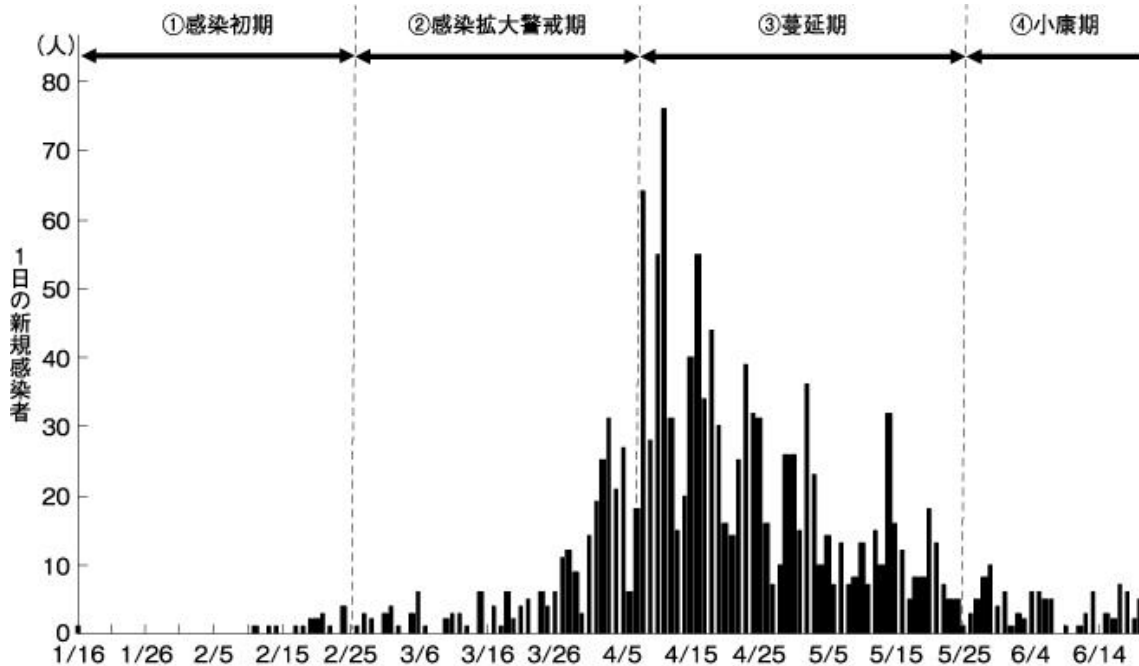


図1 神奈川県における感染状況の推移 (2020年)
(文献12より著者らが作成)

Figure 1: Trends in infection status in Kanagawa Prefecture (2020)

(Prepared by the authors from reference 12)

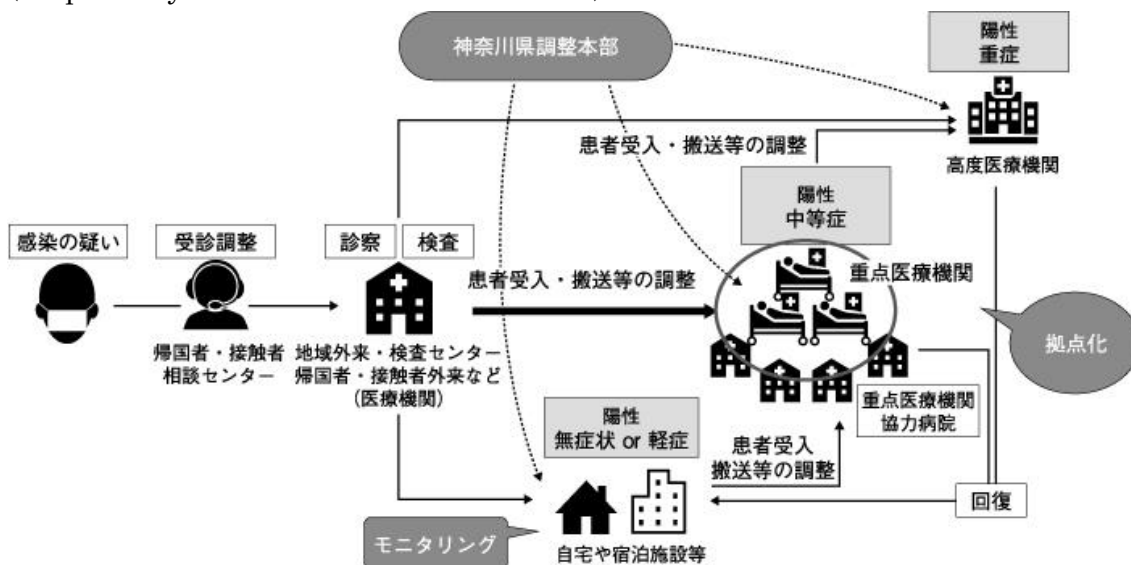


図2 COVID-19 医療提供体制「神奈川モデル」
(新型コロナウイルス感染症神奈川県対策本部作成資料より引用)

Figure 2: COVID-19 medical care delivery system “Kanagawa Model”

(Adapted from materials prepared by the Kanagawa Prefecture Task Force on Novel Coronavirus Infections)

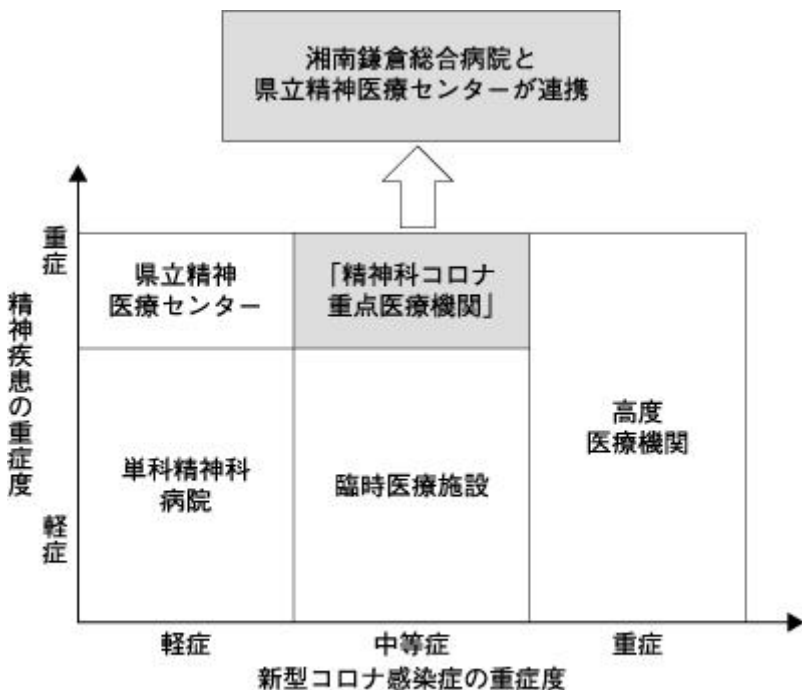


図3 精神医療における「神奈川モデル」
(新型コロナウイルス感染症神奈川県対策本部作成資料より引用)

Figure 3: The "Kanagawa Model" in psychiatry
(Adapted from materials prepared by the Kanagawa Prefecture Task Force on Novel Coronavirus Infections)

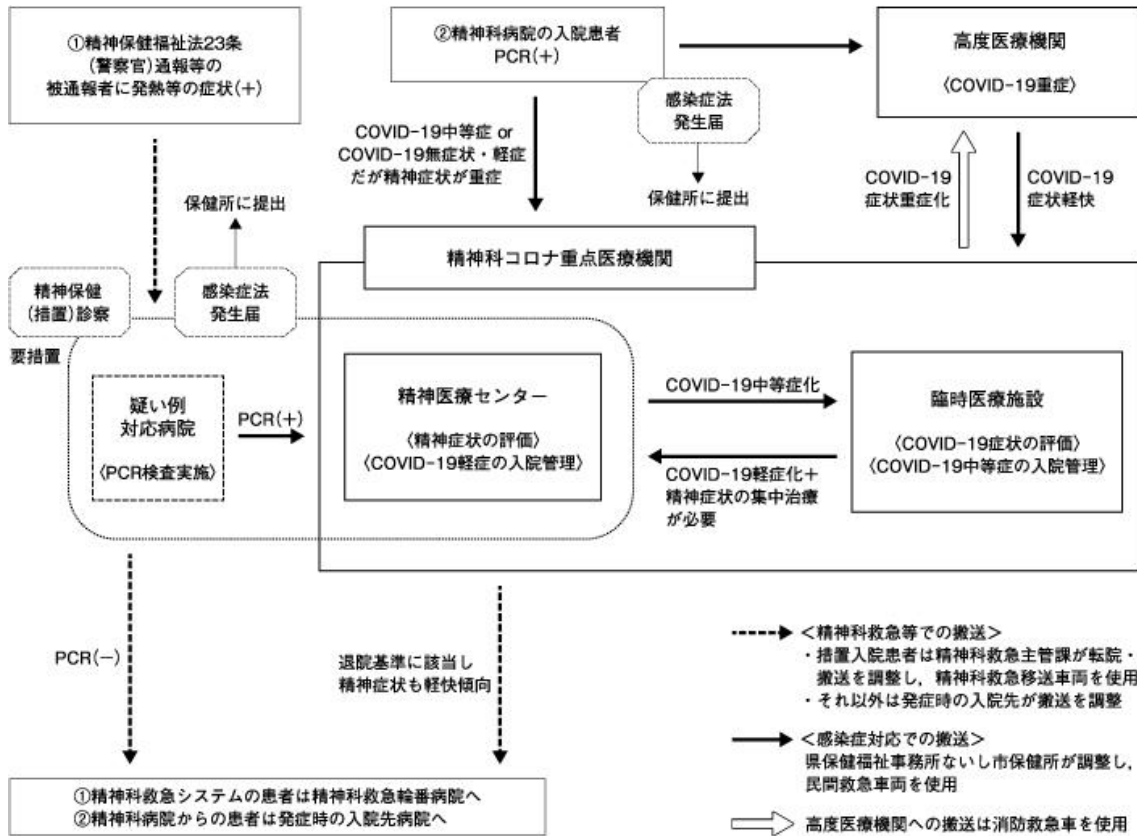


図4 精神科コロナ重点医療機関に関する診療フロー図
(文献10を著者らが一部改変)

Figure 4: Flow chart of medical treatment for coronary focus institutions for psychiatry
(Ref. 10, partially modified by the authors)

表 COVID-19 対応における制限緩和に向けた当院のロードマップ (概要)

対象	項目	緊急事態宣言中の対応	5月下旬	6月上旬	6月中旬	6月下旬	7月以降
①院内の対応 原則患者はマスク着用	院内散歩	外来患者との接触を避け16~18時で実施	方針確認	敷地内15分売店利用不可	敷地内30分売店利用可		感染対策を行い通常通り
	新規入院患者	2週間は原則自室安静	1週間は原則自室				継続
	作業療法	病棟のみ	病棟のみ	療法棟 午前のみ 配置50%程度		午前・午後 短時間 配置50~70%	継続 院外講師可
	COVID-19 病床	陰圧室確保(2床) 依存床病棟の1ユニット転用(8床)	2床+8床 継続	2床+8床継続 疑い例の病床確保検討	2床+8床継続 疑い例受入(2床)を追加 依存症の相談再開		2床+2床(疑い例)(依存症病棟のユニットは通常診療に戻す)
②院外から院内 来院者はマスク着用	来院者	マスク着用 手指消毒	入館時				継続
	正面入口	2月より職員2名が来院者全員に検温				サーモグラフィー導入 職員1名が声かけを行う	継続
	外来	患者数制限		段階的に元に戻す			通常通り
	電話再診 処方箋郵送	1日/10~40件程度	継続	一部緩和(厚労省の指針による)			継続
	デイケア など	全面中止	緩和に向けた対策	午後のみ 配置50~70%		午前・午後 配置50~70%	継続 院外講師可
	面会	荷物の受け渡しのみ16~20時		家族1名のみ(15分)	家族2名まで(30分)		友人の面会一部再開
	カンファレンス・面接	原則中止 病棟からの申請に対応(最低限のみ)				諸条件を提示 関係職員(短時間)	感染対策を行い通常通り
③院内から院外 帰院後 手洗い遵守	外出・外泊 他院受診 など	中止もしくは最低限 病棟からの申請に対応	退院に向けた 外出のみ(公共交通機関不可)		必要最低限の 外出のみ		必要最低限の 外出・外泊可
	地域連携	中止もしくは最低限 他機関の状況を踏まえ相対的に判断する			感染対策を行い 必要最低限		継続
	訪問看護	個別性に依りて制限	現状維持(患者の意向を考慮しつつ70%程度の再開)		患者の意向を考慮しつつ80%の再開		100%再開

* 基本的な感染対策は継続したうえで、病院機能の復旧に向け感染リスクと入院治療の必要性のバランスを考慮する

Table: Roadmap of our hospital's relaxation of COVID-19 restrictions (summary)

Target:

- (1) In the hospital: as a rule, patients should wear masks.
- (2) Visitors: Hospital visitors should wear masks.

(3) Patients returning to the hospital: hand-washing compliance is requested.

Domains of regulation:

Walking around the hospital

Newly admitted patients

Occupational therapy

COVID-19 hospital bed

Visitor

Main entrance

Outpatient

Telephone re-consultation. Prescription mail

Day care

Interview

Conference/Interview

Going out/staying out overnight. Medical examination at other hospitals

Regional Cooperation

Home nursing

Response during a declared state of emergency:

Walking allowed only from 4pm to 6pm, avoiding contact with outpatients

As a rule, staying in one's own room for 2 weeks after admission

OT is provided in ward only

Negative pressure room secured (2 beds). Conversion of one unit in the dependent care ward (8 beds)

Wearing a mask. Hand sanitizer

Two staff members at the entrance take temperature for all visitors since February

Patient limitations

Approx. 10-14 cases per day

Total suspension

Package delivery from visitors to inpatients allowed only from 4pm to 8pm

suspension (as a rule). Respond minimally to request from wards

Respond to requests for discontinuation or, at a minimum, from the ward.

Cancel or at a minimum, make a relative decision based on the situation at other institutions.

Restrictions based on individuality.

Late May

Policy confirmation

In principle, one week in one's own room

Ward only

2 beds + 8 beds continued

When entering

Continuation

Measures to mitigate

Only outings for discharge (no public transportation)

Maintain status quo (reopen about 70% of the time, taking into account the patient's wishes)

Early June

No 15-minute store available on site

Only approximately 50% of placements in the mornings in the therapy wing

2 beds + 8 beds continued. Consider securing beds for suspected cases

Step-by-step reversal

Partially relaxed (based on MHLW guidelines)

Afternoon only placement 50-70%

Only 1 family member (15 min.)

Mid-June

30 min. onsite retail store available

2 beds + 8 beds continued Add 2 beds for suspected cases Resumption of Consultation for addiction

Up to 2 family members (30 min.)

Only necessary outings

Infection control measures and minimum required

80% reopening while taking into account the patient's wishes

Late June

Morning and afternoon short-time placement 50%-70%

Introduction of thermography. One staff member calls out

Morning and afternoon placement 50%-70%

Terms and conditions offered. Related staff (short time)

July onwards

Normal with infection control measures in place.

Continuation

Continuation. Lecturers outside of the hospital are acceptable

2 beds + 2 beds (suspected cases) (Dependent Care Unit will be returned to normal care)

Continuation

Continuation

As usual

Continuation

Continuation. Lecturers outside of the hospital are acceptable

Partial resumption of interviews with friends

Normal with infection control measures in place

Minimal outings and overnight stays allowed

Continuation

100% Resumption

*Continue basic infection control measures and consider the balance between the risk of infection and the need for inpatient care in order to restore hospital functions.

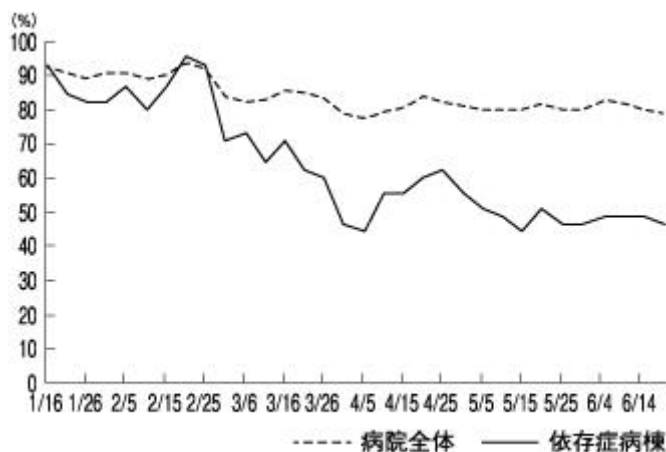


図5 COVID-19 流行の病床利用率への影響

Fig. 5: Effect of COVID-19 epidemic on the utilization rate of hospital beds