

***Korea's Response  
to COVID-19***

***K-Prevention 3T  
(Infectious Disease Prevention and Control)***

# Preface

COVID-19 continues to spread throughout the world, threatening the people everywhere. We all must remain vigilant and try our best to slow the pandemic's spread and protect ourselves from infection of the disease. Different countries are using different ways and means to prevent it from spreading, but it has been known that Korea's way of minimizing diffusion of the disease is one of the most effective ways. Since Rotary International has long worked for improving the health level of the people in the world, it should be meaningful and logical to share the best ways of preventing COVID-19 that may be available in some member countries. RI District 3650 has decided to take that noble cause and collect the relevant data and information from the Korean medical society and local governments.

This booklet was designed to provide those who are working at various places to prevent the disease with guidelines for 3Ts (testing, tracing and treating). This is, however, by no means, an only and complete guideline or manual. There could be many different complementary patterns of 3Ts. We only hope that this Korean way will be used as a reference by Rotarians in various countries in making their own ways and means for the disease prevention.

In the process of finalizing this booklet, we, the Rotarians of 3650 District, would like to acknowledge the kind support and help that Dr. Dong Han Lee, Chief of Korean Disease Control and Prevention Agency (KDCA) has provided for us.

**Jang-Hee Yoo, Ph.D.**

**Governor of RI 3650**

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# I . Introduction of 'K-Prevention 3T' (Testing, Tracing, Treatment)

- **Three Major Pre-conditions for Successful Disease Prevention and Control**

- (1) Nation's highest form of civic virtues
- (2) Accessibility of mobile IT for the whole nation
- (3) Capacity of medical facilities and healthcare professionals

- **Three Basic Personal Protective Rules**

- (1) Wear mask all the time.
- (2) Wash hands frequently.
- (3) Keep the social distance.



## ■ Essential Infrastructures at Testing Site

- 1. Advance screening station set up (acrylic screen divider)**
  - Thermal testing camera
  - Thermometer
  - Examine fever, respiratory symptoms (coughing, sore throat, etc)
- 2. Disinfect acrylic screen dividers daily more than 2 times.**
  - Keep distance 1 meter minimum away between people waiting in line to get tested.
  - Limit the number of daily tests by 100.
- 3. Secure doctors for the test.**
  - Horizontal cooperation with surrounding health care institutions
  - In case of shortage of the doctors, request help to a local government.
- 4. Confirm the case as quickly as possible.**
  - The whole nation's mobile IT usage
  - Upgrade diagnosis kits frequently (Approved SD Biosensor and OSANG Healthcare, for example)
  - Inform quickly the confirmed case → action for immediate hospitalization

## Testing Kit Illustration



[ ↑ OSANG Healthcare ]

# II. Testing (continues)

## ■ Partial Operation Procedures

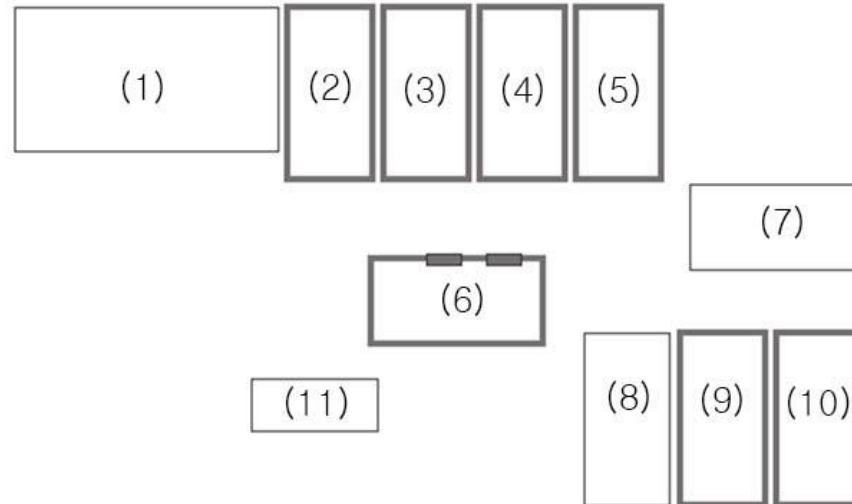
### 1. Screening Clinic and Safety Clinic Operation

- 1) Work Time (an example)  
(Working round the clock is not recommended for the health of medical professionals and disinfection of the site.)

Category	AM	PM
Screening Clinic	09:00~12:00	13:30~16:30
Safety Clinic	09:00~12:00	13:00~16:00
	09:00~12:00	13:30~16:30

### 2) Map of Testing Site (an example)\*

- Safety Clinic Waiting Room (1)
- Screening Examination Room (2)
- MRI/CT (3)
- Screening (Child) (4)
- Screening (Adult) (5)
- Administration for Registration (6)
- Screening Waiting Tent (7)
- Specimen Collection Tent (8)
- Specimen Collection Room (9)
- Changing Room for Healthcare Personnel (10)
- Toilet (11)



\* If a drive-through testing site is used, the facility plan should also follow the above map.

# II. Testing (continues)

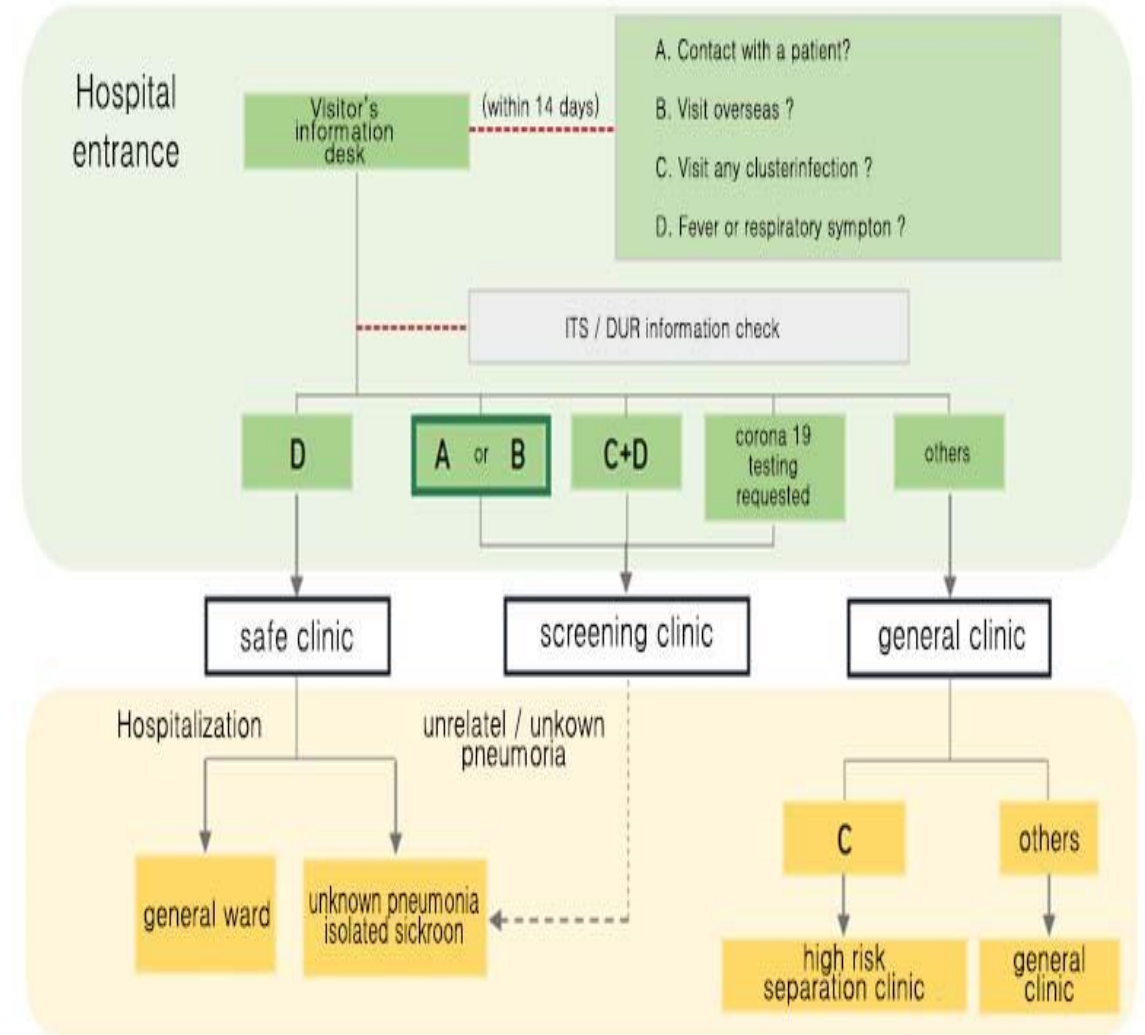
## 2. Collect Information and Data of Overseas Arrivals and Contacts with Infected Individuals

- 1) Information Search
  - Information on overseas travel during the last 14 days before one's entry to Korea
  - Information on contact of confirmed cases during the last 14 days before the date of examination
- 2) Procedures
  - When there is a verification need for the above cases, a further examination should be done by using DUR/ITS, etc.  
 DUR=Drug Utilization Review  
 ITS=International Traveler Information System
  - ✓ If 14 days passed after the examination of possible symptoms (fever or respiratory symptoms), and the patient is found normal, release him.
  - ✓ If the symptoms continue, guide the patient to a screening station again.

## 3. Procedures for the patient to be released from quarantine

- 1) If a patient satisfies all of the following four conditions, he should be released from quarantine.
  - 14 days passed with no further symptoms at all.
  - No record of contact with a confirmed patient within the last 14 days
  - No outings from the designated place during the quarantine period.
  - Has worn a mask all the time

## 2) Procedures diagram



# II. Testing (continues)

## 4. Emergency Patient

- ✓ Conduct COVID-19 examination at the regional emergency medical center (applying to the day emergency operation)
- ✓ In case of inevitable operation, block the passage before moving to the operating theatre for the operation (secure isolated operating room: tracheal intubation and extubation)
- ✓ Position the patient into an isolated room until the COVID-19 examination results confirmed.

Category	Isolation Room Type	Sickroom
High Risk Group	Negative-Pressure Isolation Room	1 Patient Disposition
Low Risk Group (Absence of epidemiological association, possible symptoms)	General Isolation Room	1 Patient Disposition

## 5. A patient who moved from other hospital;

- 1) Outpatient department requests the cooperation from Infectious Diseases Department.
- 2) Infectious Diseases Department checks any possible COVID-19 symptoms and examines the patient.
- 3) Outpatient department collects specimen in an isolated space.
- 4) Disinfect the specimen collecting area and the surface in the hospital ward and the intensive care unit.
  - Use only isolated areas such as a single room, a treatment room but, if necessary, can use a room structurally divided.



# II. Testing (continues)

## 6. Healthcare Personnel Infection Control to prevent COVID-19

### 1) Corrective Measures by Situation

Healthcare Personnel Situation	Corrective Measures
Contacted with overseas visitors or a confirmed case within 14 days	14 days of quarantine required after a visit or a contact
A family of quarantined person (Contacted with overseas visitors or a confirmed case)	-A separation from a family of quarantine -14 days of quarantine if inevitably living with a family of quarantine
A family of active monitoring person	Self monitor (report to Infectious Diseases Dept.) for the same period with a family of active monitoring
Has fever or respiratory symptoms	Report immediately to the head of the division and visit the Screening Station for a test
Has scheduled to have an operation	Working will be prohibited until the test result comes out as negative when receiving Corona 19 test before the operation

- 2) Comply Social Distancing;
- Refrain from leaving home to attend academic workshop, education, events, etc.
  - Refrain from eating out, social gathering, events, trip and unnecessary outings (especially, visiting the areas where the number of confirmed cases increased).
  - Return home straight after work.
  - Make a daily routine to wear a facial mask.
  - Minimize meeting people face to face and make two meter social distance.
  - Have a meal sitting in parallel not facing each other.
  - Keep personal hygiene to wash hands and follow cough etiquette.

# III. Tracing

## ■ Epidemiological Investigation Responding Process

### 1. Tracking the movements of confirmed cases

- Upon identifying a confirmed case, the public health center(PHC) must immediately report it to its respective city or province administration and the Central Disease Control Headquarters(CDCH).
- Personal information for epidemiological investigation is collected according to the Infectious Disease Control and Prevention Act. An epidemic service officer will notify this to a patient and close contacts (institutions) verbally or in writing.
- Securing the mobile phone numbers of the patient and the close contacts is essential.

### 2. Contact tracing and operation

- PHC initiates investigations of the patient under the direction of its respective city or province team. PHC with initial case confirmed will carry out the main investigation to collect data needed for contact-tracing of infected individuals. But, if there are more than 2 city/county/districts involved in investigations, they will share the information on the contacts with the administrative agencies of city/county/district.
- PHC with initial case confirmed registers the list of the contacts on the system and move the data to a health center where the contacts reside for control and inform the self quarantine by phone.

- PHC with initial case confirmed firstly analyze the network of the transmission such as family members (including housemates) on a day of case confirmed (within 24 hours) and give out the self quarantine notice. A testing will be given to the close contact at the point of notification and extra testing before the release of the quarantine. A self quarantine notification letter delivers in the shortest time possible.
- PHC with initial case confirmed on a day of diagnosis (within 24 hours) will analyze the time and length of exposure at a medical center or a group cluster.
  - ✓ Since COVID-19 virus is quickly transmitted even with mild symptoms at early stage with short incubation period and spreads in a close contact, early tracking of people who came into close contact with the confirmed cases is essential.
  - ✓ When there is an exposure of transmission at hospital facilities and community group (such as elderly home, social welfare center) during infectious period (2 days before their illness onset), the immediate provincial/city supports are extremely important for tracking the movements of confirmed cases.
  - ✓ PHC can investigate the detailed movement paths of the confirmed case, if necessary. After analyzing the transmission exposure at its relevant facilities and sites, PHC can investigate the whole contacts where the confirmed cases might have visited or stayed with the whole investigation capacity.

# III. Tracing

## 3. What group facilities or hospitals should prepare :

### 1) Early Preparation

- Secure mobile phone numbers of all the people concerned.
- Prepare COVID-19 information desk within the facility
  - ✓ QR code apparatus to check the visitors in and out.
  - ✓ travel history of the people concerned
  - ✓ scope of contacts of the people concerned
- Find isolated places (rooms) in advance just in case of a confirmed person found.
- Forward the relevant information of preparation to PHC if necessary.

### 2) Action at the Site

- Disinfect throughout the facility.
- Set up the epidemiological investigation channel.
- Name the epidemic service officers.
- Find a horizontal system for cooperation among related facilities.
- When a patient is found, report to PHC quickly and send his COVID-19 information already available from the information desk.

# III. Tracing (continues)

## 3) When a confirmed person is found :

- Close down the facility immediately.
- Check again the condition of the facility.
- Find the exposure situation and the person's condition.
- Epidemic service officers & city/province officers work together.
- When necessary, discuss with Rapid Response Team(RRT) at CDCH for solutions.
- Deliver a notice of self-quarantine to the patient.
- Report personal information to Disease Health Integrated Management System(DH IMS).
- Finish activities if no further confirmed case is reported for 14 days.
- The facility can be re-opened afterwards when RRT issues the approval. (See Summary Table below)

Category	Facility/On-site inspection	Management of the Contacts	Management of Personnel
Hospital	<ul style="list-style-type: none"> <li>• Temporary close down of the hospital ward</li> <li>• On-site inspection and investigation</li> <li>• Disinfect and ventilate the surroundings or re-opening</li> </ul>	<ul style="list-style-type: none"> <li>• A single room or cohort isolations</li> <li>• Self-isolation for the medical personnel</li> </ul>	Working shift Manpower re-composition
Group Facilities	<ul style="list-style-type: none"> <li>• Temporarily shut down of the facility</li> <li>• On-site inspection and investigation</li> <li>• Disinfection or re-opening</li> </ul>	<ul style="list-style-type: none"> <li>• Transport the severe case</li> <li>• Self-isolation of the contacted in principle</li> </ul>	Working shift Manpower re-composition
Large exposure	<ul style="list-style-type: none"> <li>• Analyze the exposure by facilities</li> <li>• Disinfection and control</li> </ul>	<ul style="list-style-type: none"> <li>• Take prompt response measure with inter-ministerial cooperation to track down the contacts and to manage them. (with police officers and fire station)</li> </ul>	-

# III. Tracing (continues)

## 4) Case Report

- A city and provincial Rapid Response Team (RRT) should report the result of the survey and the management of the group facilities or medical institutes to the Disease Management Headquarters(DMH) on a daily basis.

## 5) Cooperation

- City and provincial support team should cooperate with each other :
  - ✓ (Basic guideline) Upon receipt of on-spot evaluation status from city and provincial response team, city and provincial RDSCH organizes a support team by tasks (Disinfection/Medical support/Living support/On-spot control)
  - ✓ Until the case is closed, city and the team should share the result of the status and manage anything unusual
- If there are major corrective measures by city and provincial RDSCH, city and the team should share the information.

Category	Actions
Management of facility and surrounding	<ul style="list-style-type: none"> <li>• Restriction on movement, Closure of specific places, Disinfection of the surrounding</li> </ul>
Management of the contact	<ul style="list-style-type: none"> <li>• Basic food supplies for isolated person and self-quarantine person</li> <li>• Transfer the person who shows the symptoms to a screening clinic</li> </ul>
Management of waste	<ul style="list-style-type: none"> <li>• Patient-used linen, medical tools and infectious wastes</li> </ul>
Misc	<ul style="list-style-type: none"> <li>• Maintain the cooperation system with interagency partners such as fire station, police and medical center</li> </ul>

# III. Tracing (continues)

## 6) Management of Data and Statistics

- Basic guidelines
  - ✓ (Basic Guideline) Until the end of managing the contacts of the confirmed by case, city and provincial epidemiological investigator who first operated the case and city and provincial data-base(DB) officer who manage the contacts should continue to conduct verification of the information.
  - ✓ (Appoint Assigned Official) An epidemic control commissioner is in charge of allocating the work and organize matters for the contacts to DB officer in city/county/district or city/province.
  - ✓ (Connection Management) A DB officer maintains the cooperation to follow up measures with an assigned officer in city/county/district or city/province until the situation is over.
- On-site Measurement Stages
  - ✓ (Taskforce) An epidemic control commissioner appoints a 'Contacts DB officer' who will manage the contact information and report the case status to the regional governments and city/county/district where outbreak of COVID-19 case started.
  - ✓ (Handover the Case) An epidemic control commissioner submits 'A daily status report until the situation is over and a Contacts DB officer should follow the same under management by the local government and report it to central government.

## 4. Strengthened surveillance for regional epidemic

- When cases are soaring due to the unidentified transmission routes in a regional community, an epidemic control commissioner should conduct pandemic situation analysis by using city/county/district and execute strengthened surveillance based on the result by reflecting the following points;
  - ✓ Create a priority group for surveillance activity
  - ✓ Decide surveillance method (entire investigation, sample investigation, supervise the possible case with COVID-19 symptoms).
  - ✓ Declare the appropriate stage of surveillance, for example :
    - 1.0 stage : watch-careful status
    - 1.5 stage : risk status
    - 2.0 stage : high risk status
    - 2.5 stage : dangerous situation
    - 3.0 stage : extremely dangerous situation

# III. Tracing (continues)

## (1) Who should be examined?

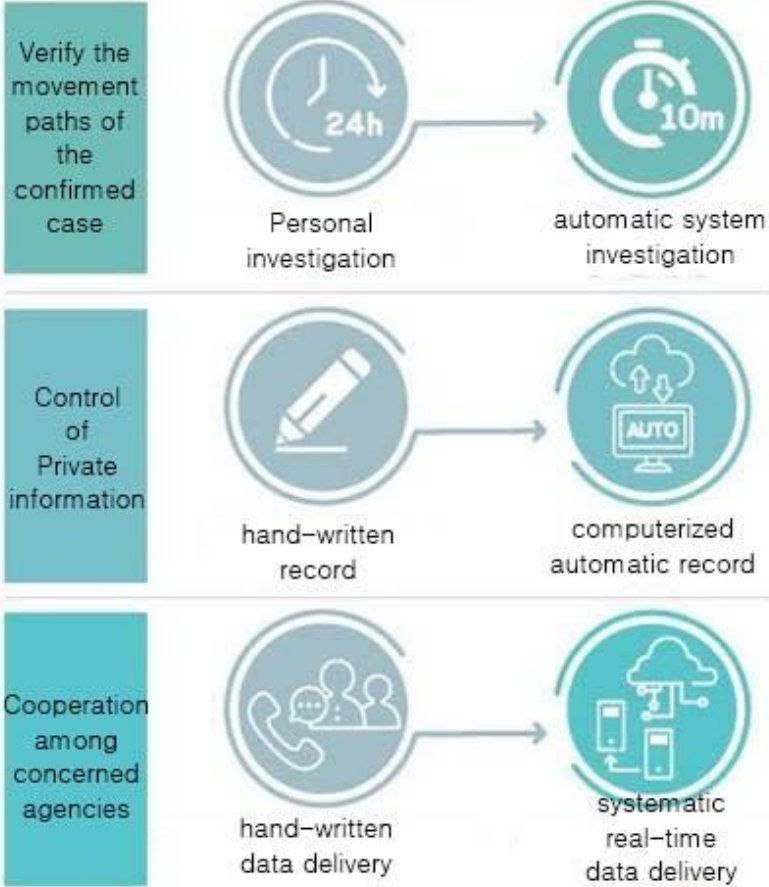
- ✓ Those who had face-to-face contact within 1m with the confirmed case.
- ✓ Those who have closely cared the confirmed case without PPE.
- ✓ Those who have spent significant time in a closed space with the confirmed case within 2m without PPE.
- ✓ Those who have spent significant time in the same living or working space with the confirmed case.
- ✓ Those who travelled together with the confirmed case in any mode of transport, sitting closely.
- ✓ Health case workers or laboratory workers handling specimens from the confirmed case without proper PPE.

# III. Tracing (continues)

## (2) How to track movements?

- ✓ interviewing the patient in quick self-quarantine.
- ✓ Investigation the patient's bank card records, cell-phone GPS, in addition to DUR/ITS, subject to the approval of government
- ✓ To get the government authority approval, the COVID-19 support system should instal closed automatic investigation system, closed computerized data-sending system, and public-only line system to keep the data in security.

COVID-19 Epidemiological Investigation Support System





# III. Tracing (continues)

## (3) Which data can be disclosed?

- ✓ Time data : from 2days before the onset of symptoms to the date of isolation
- ✓ Place data : a place of outbreak of the contacts of the confirmed case.
- ✓ Transportation data : Various transportation means that were used by the confirmed case
- ✓ Scope data : the scope of the contacts of the confirmed case obtained by DUR/ITS or cell-phone check.
- ✓ Clearance data : when suspicious places and individuals turned out negative, PHC and public offices may declare no further danger exists.

# IV. Treatment

## 1. Current Status

- To date, there are no medicines to cure for COVID-19.
- But, Remdesivir known as an antiviral drug, which was originally developed to treat Ebola can be given to severe cases.
- In Korea's case, for example, high medical standards and well qualified medical teams are available.
- The medical teams in Korea are known to have high level sense of sacrifice and responsibilities.
- Well designed health insurance system is also available in Korea, to give an example.
- The data collected throughout Testing → Tracing → Treatment are accurate and the data transfer system is reliable and transparent.

## 2. Medical Facility

- Well disposition and proper share of medical facilities even though they may not be enough.
- Emergency wards should be added on quick response
- Mass procurement of ventilators and PPE

## 3. Treatment Cases

- For asymptomatic and mild cases
  - ✓ Confirm the asymptomatic or mild case with chest X-ray result
  - ✓ About 75% of the total confirmed as mild cases so far.
  - ✓ General use of acetaminophen, pain killer, and antihistamine to relieve symptoms such as fever, sore throat, runny nose, loss of smell
  - ✓ Discharge from a hospital without PCR test if 10 days have passed and no symptoms for 3 days afterwards.
- For severe cases
  - ✓ Check the severity of the case by chest X-ray
  - ✓ About 20~40% of the total confirmed as severe cases so far.
  - ✓ Elderly over 65 years old are the majority.
  - ✓ Those with underlying illness of diabetes, high blood pressure, heart disease, autoimmune disease, etc. should be watched carefully.
  - ✓ Supply oxygen if necessary after oxygen saturation is measured.
  - ✓ Inject medical fluids or provide acetaminophen for high fever.
  - ✓ To prevent pneumonia, provide antibiotics such as azisromycin (500mg po) or banan (200mg #2 po) for 7 to 10 days.

## IV. Treatment (continues)

- ✓ Retake of chest X-ray on 10<sup>th</sup> day
- ✓ If there is a problem, provide extra oxygen and antibiotic injection
- ✓ Usually, patients make a progress on 25<sup>th</sup> day and discharge on 30<sup>th</sup> day
- Serious patient (critically ill patient)
  - ✓ Judge on the severity by chest X-ray
  - ✓ Serious pneumonia or septicemia possibility
  - ✓ About 1~5% of total case confirmed as serious.
  - ✓ The elderly or a person who has underlying illness can become seriously ill.
  - ✓ High fever (over 38°C) on a day of hospital visit
  - ✓ Admission at the hospital Intensive care unit recommended,
  - ✓ If pneumonia, check the penetration percentage
  - ✓ Medical liquids, acetaminophen or antibiotics injection
  - ✓ Usage of treatment medication considering the underlying illness
  - ✓ Ventilators or Extracorporeal membrane oxygenation (Ecmo)
  - ✓ Transfer to a larger hospital if there is no progress of recovery



# V. Legal Provisions

## 1. Status

- A Korean parliament has quickly created 3 legal provisions on February 26<sup>th</sup> 2020.
  - ✓ Disease control and prevention act
  - ✓ Overseas visits management law
  - ✓ Medical Service law

## 2. Disease Control and Prevention Act

- Make it duty to disclose data or the Information related to disease management.
- Make it duty to supply first medical equipments or medicines.
- Punishment law for those who violate self-quarantine.

## 3. Overseas Visitors Management Law

- Health and Welfare department has been given a right to refuse the entry of the overseas arrivals who have travelled the infected countries.

## 4. Medical Service Law

- Medical centers are given a duty to secure digital facilities to investigate corona virus transmission
- Medical centers should report the case if they find anything unusual.

## 5. Upgrading the level of Korean Disease Control & Prevention Agency (KDCA)

- KDCA was upgraded from the Agency level to the Administration level on September 11, 2020 considering the importance of its functions and responsibility.

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