

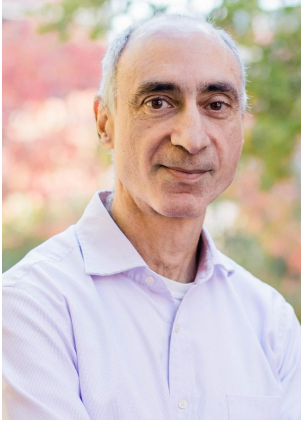
# South Korea's Experience with COVID-19 and Lessons Learned

Eunkyong Ko

Soonman Kwon

April 28, 2020

# Speakers



Host

**Kamiar Khajavi, MD  
JD MPH**

Executive Director  
Joint Learning Network  
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Discussant

**Soonman Kwon**  
Professor, Health  
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Discussant

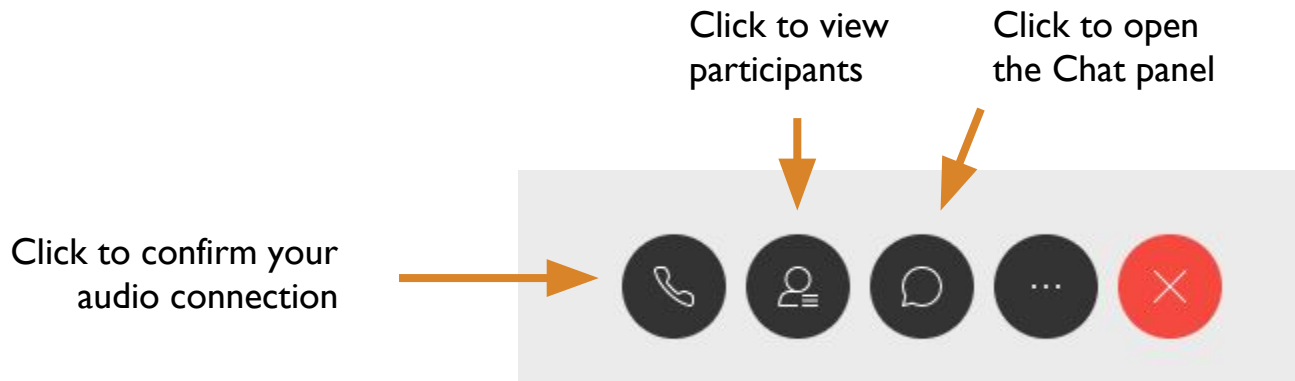
**Eunkyong Ko**  
Deputy Director  
International  
Cooperation Division  
Health Insurance Review  
& Assessment Service

# Agenda

- Introductions
- Welcome & Announcements
- Presentations
  - Professor Kwon
  - Deputy Director Ko
- Discussion
- Closing

# Welcome & Announcements

- Thank you for joining this discussion.
- Use the buttons at the bottom of your screen to interact during this session.
- Please use the **CHAT** function to introduce yourself to other participants and to share your questions or comments during today's discussion.



# Welcome & Announcements

- Today's discussion is the second in a series:
  - China on April 23
  - **South Korea today April 28**
  - Liberia on May 13
- We encourage everyone to register on the JLN website for a virtual discussion following these sessions
- The JLN is actively adapting work in response to the COVID-19 pandemic, and we look forward to sharing more information soon

# Professor Kwon's remarks

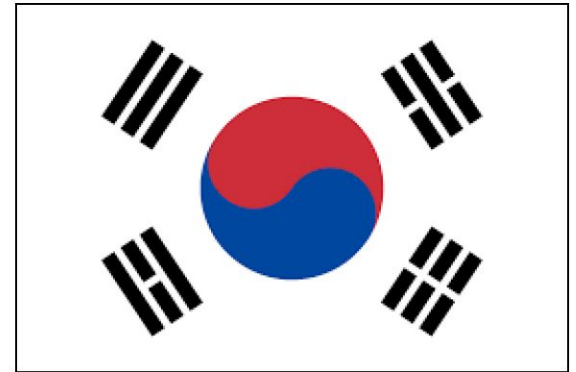


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# Republic of Korea

Health Insurance Review and Assessment Services (HIRA)



Presenter name: Eunkyong Ko

Date: April 28, 2020

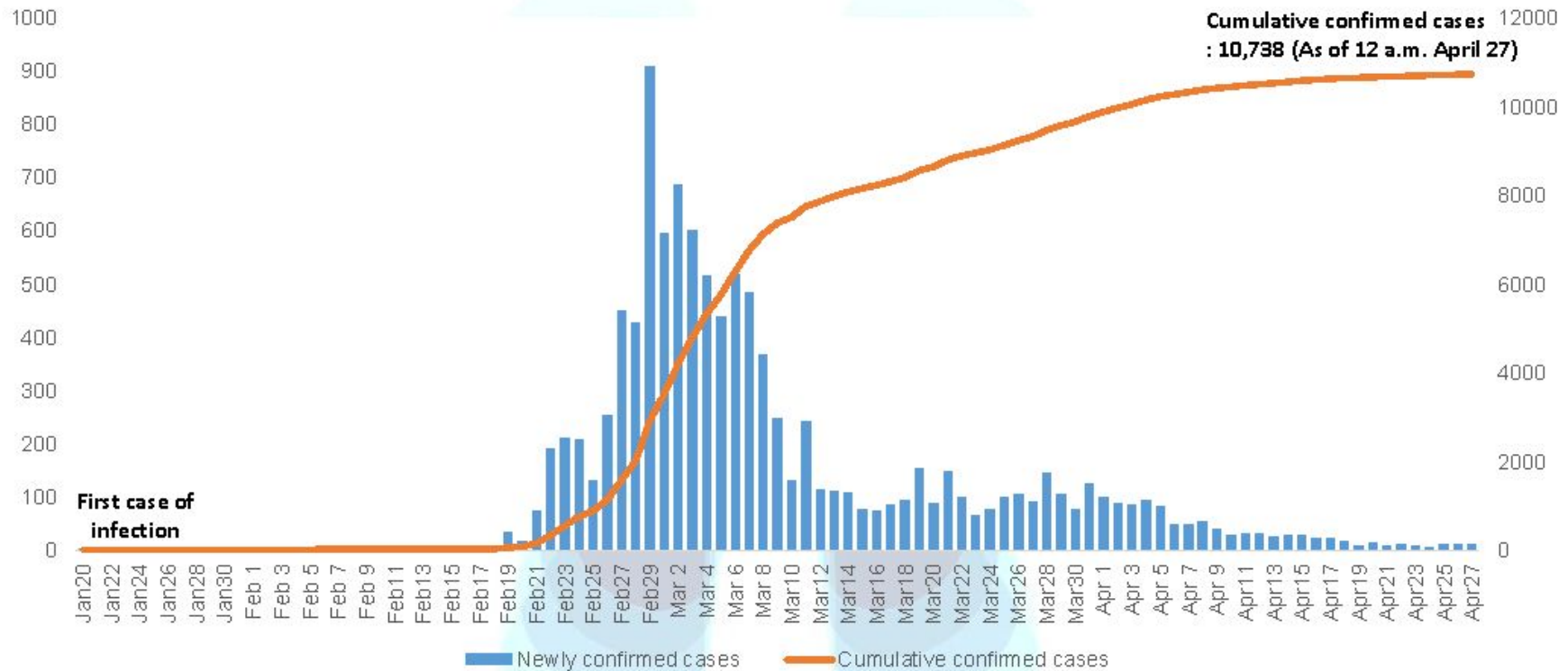
# Characteristics of NHI in Korea

- **Single payer system since 2000**
  - Independent commissioning organization
- **Covers entire population with all essential services**
- **Co-payments (20%)**
  - In case of COVID-19, the government pays the OOP instead
- **Dominant health service provider is the private sector**
  - **All the providers are mandatorily enrolled in NHI**
  - 94% of hospitals and 90% of beds are owned by private sector
    - \* The number of provider: 96,231 (as of 2020)
- **Patients have right to choose any healthcare institution**
  - Referral system for tertiary hospital (no referrals are needed for COVID-19 case)
- **Depends largely on Fee-For-Service payment system**
- **Adopted high end ICT**
  - 99.9% (Web 98%, EDI 1.8%, CD-Diskette 0.1%) of claims are interchanged electronically
  - 89% of claims are processed electronically



# Quick summary of Korea (COVID-19)

<Status of daily new & cumulative confirmed case>



## • COVID-19 characteristics

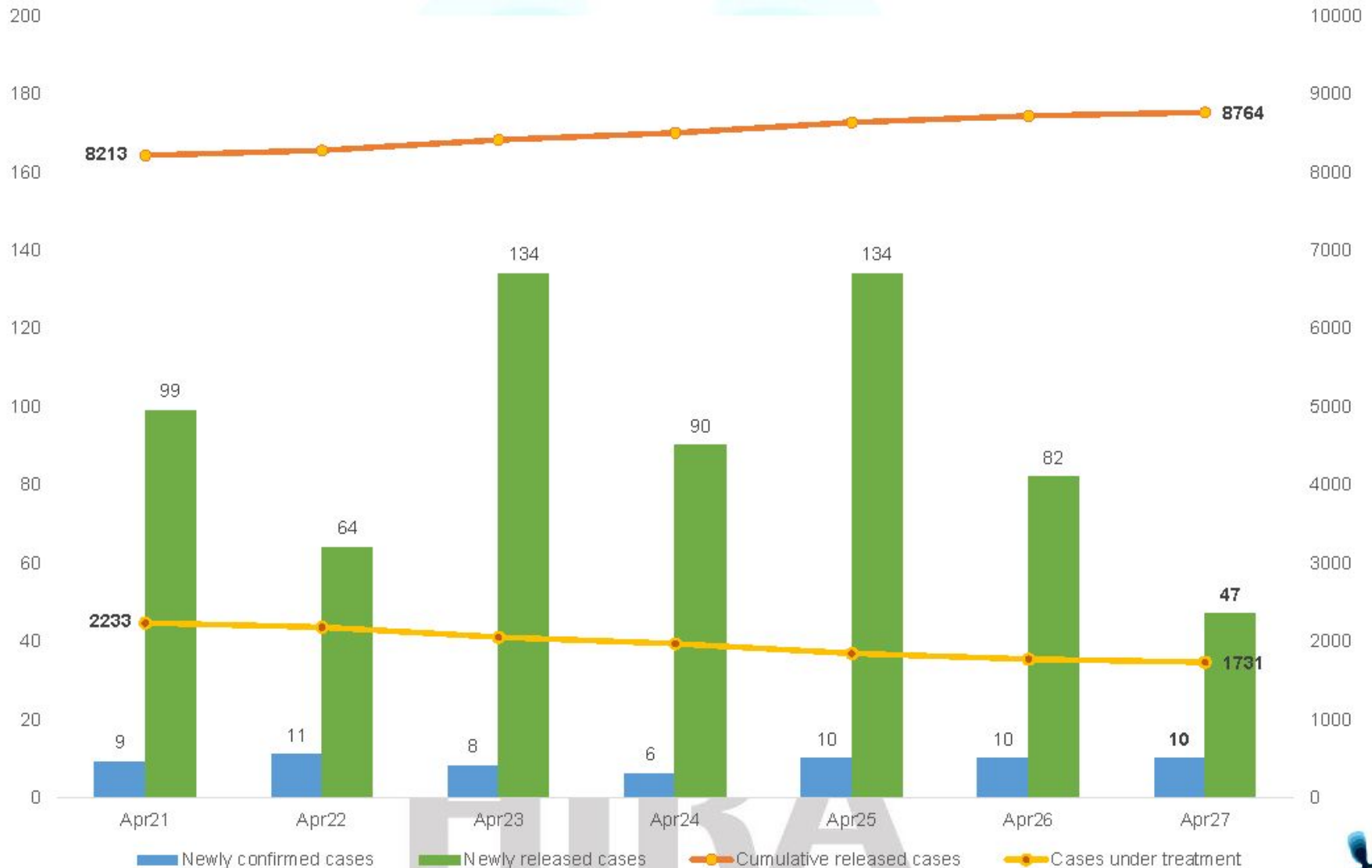
While early symptoms are not serious, large amount of virus shedding may lead to **quick spread in community** and severe result to the **vulnerable groups** such as elderly and chronic disease patients

## • Characteristics of COVID-19 outbreak in Korea

*Sporadic cluster infection outbreak in community & 82.6% of infected cases are relevant with group infection*

# Quick summary of Korea (COVID-19)

<Status of confirmed and released cases>



# Quick summary of Korea (COVID-19)

## ■ Status of gender-specific confirmed case (As of 12 a.m. April 27)

Classification	Confirmed case(%)	Deceased(%)	Fatality rate(%)
Male	4,337(40.39)	127(52.26)	2.93
Female	6,401(59.61)	116(47.74)	1.81

## ■ Age-specific confirmed case (As of 12 a.m. April 27)

Classification	Confirmed case(%)	Deceased(%)	Fatality rate(%)
80≤	485(4.52)	116(47.74)	23.92
70-79	708(6.59)	72(29.63)	10.17
60-69	1,347(12.54)	35(14.40)	2.6
50-59	1,953(18.19)	15(6.17)	0.77
40-49	1,422(13.24)	3(1.23)	0.21
30-39	1,152(10.73)	2(0.82)	0.17
20-29	2,943(27.41)	0(0.00)	-
10-19	588(5.48)	0(0.00)	-
0-9	140(1.3)	0(0.00)	-

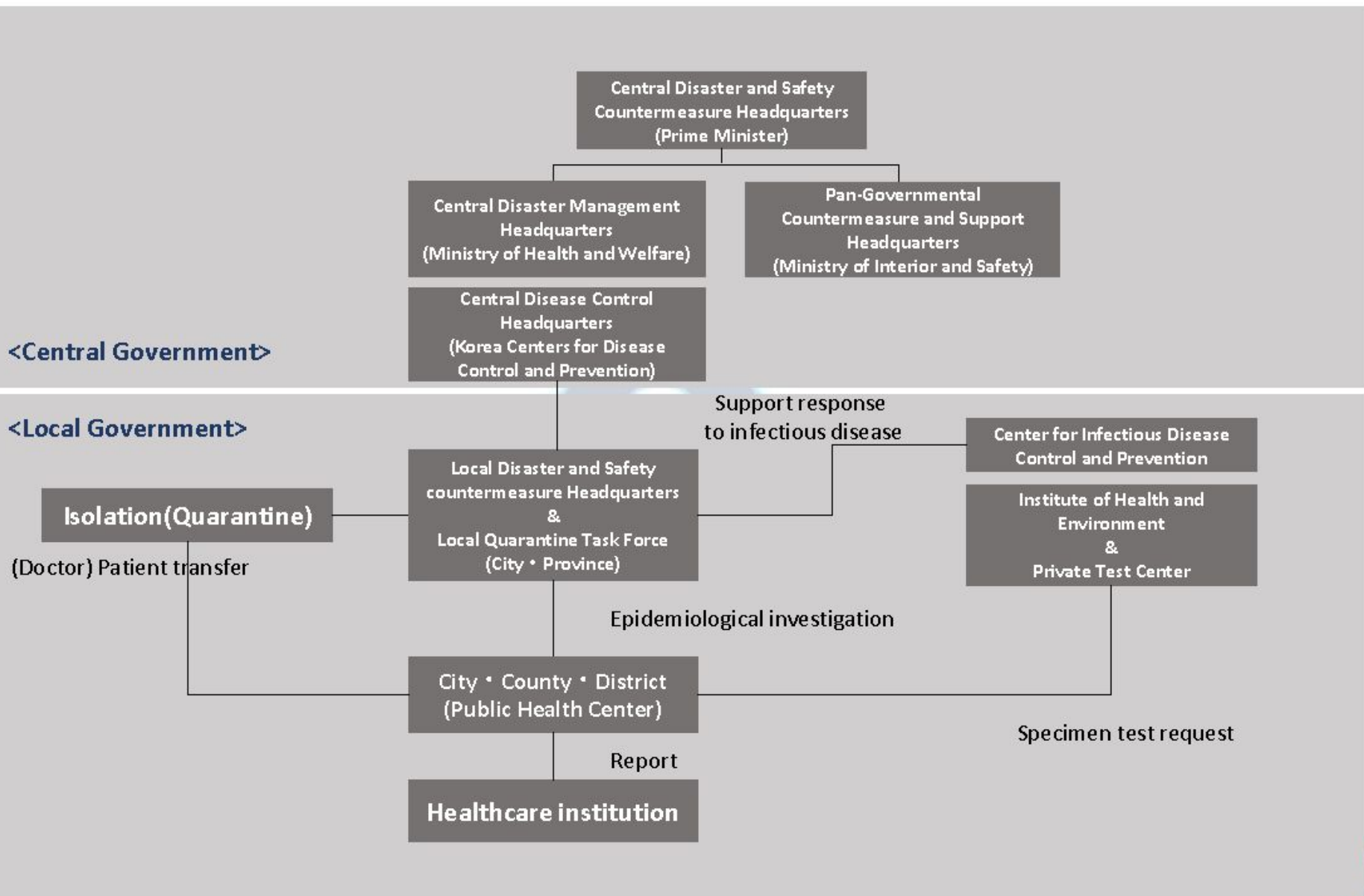
\* fatality rate= no. of deceased/no. of confirmed case x 100

# Quick summary of Korea (MERS & COVID-19)

Classification	MERS	COVID-19
First occurrence	April, 2012	December, 2019
Prevalence in Korea	May, 2015 ~ Dec, 2015	Jan, 2019 ~ Current
Occurrence region	Middle East, Korea	Over the world
Infected cases(fatality rate) over the world	1,167 (41%)	2,904,632 (7.08%)
Infected cases(fatality rate) in Korea	<b>186 (20.4%)</b>	<b>10,738 (2.26%)</b>
Major infection route	Hospital	Community
Initial response Since the first case	<b>After 2 weeks</b>	<b>Before</b>
Information Disclosure Since the first case	<b>After 3 weeks</b>	<b>At the day</b>
Developed ICT After MERS	-	<ul style="list-style-type: none"> <li>• ITS</li> <li>• COVID-19 patient management information portal system, etc.</li> </ul>
Developed Legislation After MERS	-	<ul style="list-style-type: none"> <li>• Emergent approval of use</li> <li>• Mandatory negative pressure isolation room for 300≤ beds hospital</li> <li>• Public relief hospital, etc.</li> </ul>



# Coordination of Covid-19 response



# Coordination of Covid-19 response

## INFECTION CONTROL SYSTEM

### Entry Prevention

- Entry ban on travelers from Hubei
- Special entry procedures
- Travel restrictions
- Provision of travel history to healthcare providers

### Response to Confirmed Cases

- Epidemiological investigations
- Disclosure of each patient's whereabouts
- Self-isolation of all contacts
- On-site quarantines

### Early Patient Detection

- Expansion of diagnostic testing
- Expansion of screening clinics
- Specimen collection via drive-thru and mobile facilities and door-to-door visits
- Diagnostic testing for patients with pneumonia, etc.

### Treatment of COVID-19 Patients

- Patient classification and bed allocation by severity
- Supply management of empirical therapies
- Clinical testing and R&D of therapies

### Treatment of Non-COVID Patients

- Operation of government-designated COVID-19 protection hospitals
- Permission for receiving prescriptions by phone and by proxy

### Resource-Securing and Support

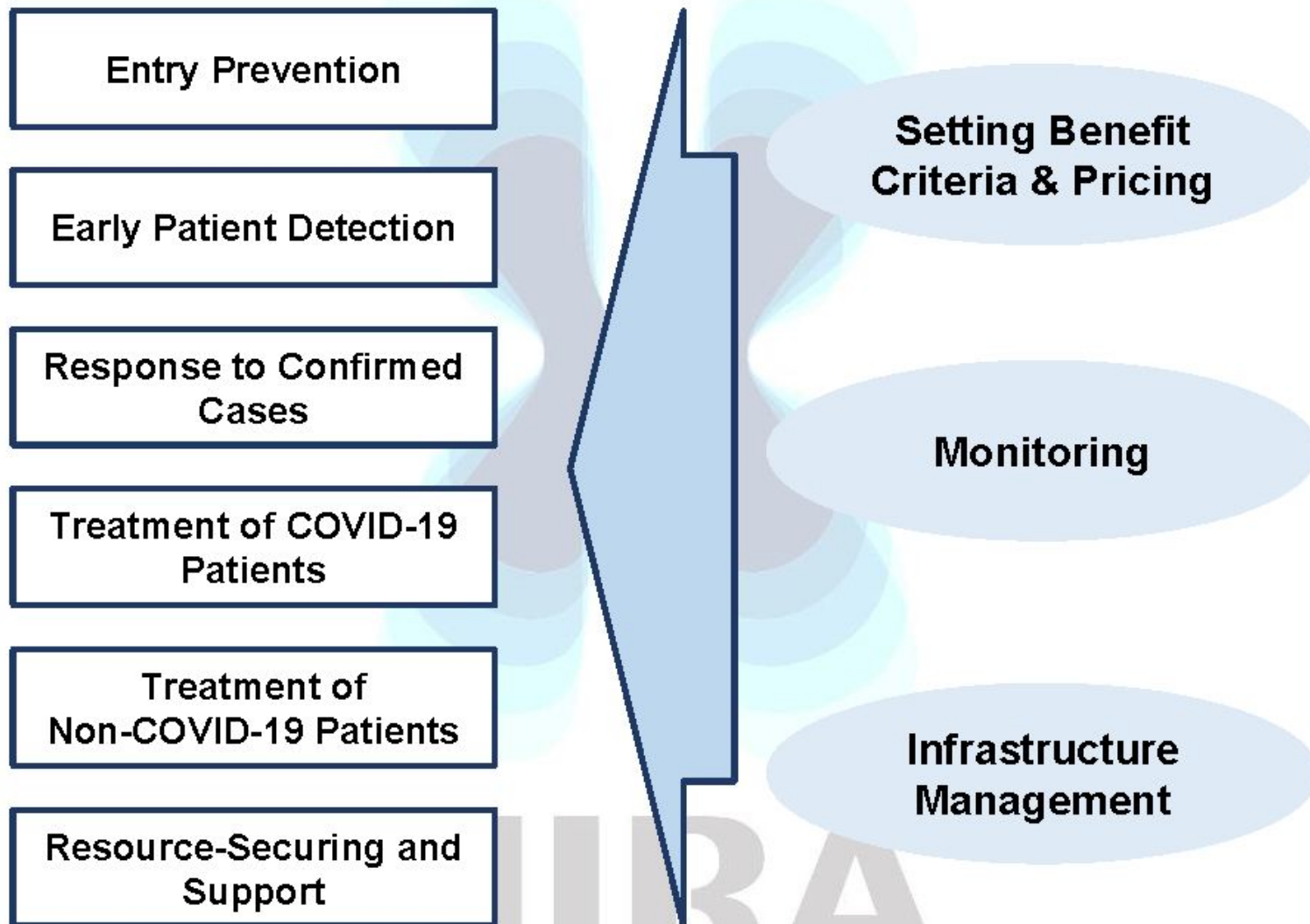
- "Living and treatment support centers" and patient beds
- Healthcare staff
- Protective gear and supplies



- Seamless cooperation among the Central Disease Control Headquarters, Central Disaster and Safety Countermeasure Headquarters, and Local Disaster and Safety Countermeasure HQs.
- Disclosure of information in a prompt and transparent manner and provision of counseling for the Hot-line(1339) and public health centers
- Reinforcement of government measures such as the adherence to the code of conduct
- Compensation for infection prevention efforts by those put under isolation, their employers, and healthcare institutions

# Coordination of Covid-19 response

Main response to COVID-19 spread prevention and HIRA's role





# Key actions we will share today:

## 1. Setting Benefit criteria & Pricing

- 1.1. Diagnostic test
- 1.2. Medicine
- 1.3. Infection prevention · management

## 2. Monitoring

- 2.1. COVID-19 patient management
- 2.2. COVID-19 Infection risk management
- 2.3. Claims status of COVID-19 review

## 3. Healthcare resources management

- 3.1. Managing healthcare resources (Staff · Facility · Device)
- 3.2. COVID-19 medicine distribution management
- 3.3. 'Public Mask' distribution management
- 3.4. Healthcare institutions Support

## 4. Disclosure of Information

- 4.1. Provision of open API relevant with COVID-19
- 4.2. Disclosure of claims data for COVID-19
- 4.3. Provision of COVID-19 statistics



# I. Setting Benefit criteria & Pricing

**1.1. Diagnostic test**

**1.2. Medicine**

**1.3. Infection prevention/management**

# I.I. Diagnostic test

## □ Immediate listing & pricing for COVID-19 diagnostic test reagents and test method

- **(Purpose)** Promptly include COVID-19 diagnostic testing reagents into NHI to conduct COVID-19 test
- **(Method)** Paper-based meeting by subcommittee under expert assessment committee

- **(Legal Basis)** MoHWP Notification no. 2020-31 (Feb 6)
- **(Applied period)** Feb 7, 2020 ~ end of pandemic
- **(Approval testing)** the COVID-19 gene detection test using RT-PCR (Determined as the existing technology)
- **(Approval reagent)** Reagents from 5 companies, Kogene biotech, Seegene, Solgent, SDbiosensor, Biosewoom (Mar16.)
  - ※ **Emergent approval of use** (If the reagents are emergently required in pandemic, the system immediately assesses diagnostic testing kit invented by private companies)
- **(Targeted patient)** Confirmed case, Probable case & Suspect case with symptoms
  - ※ KCDC 「COVID-19 response guideline」 Case definition
- **(Targeted institution)** 95 designated institutions for conducting diagnostic test (As of Mar 12)
  - ※ KCDC 「Regulation for emergent use of in-vitro infectious disease diagnostic medical devices」

⇒ Prior to outbreak of the first confirmed case in Korea (Jan 20), **Early preparation** for the COVID-19 was already set so that be available for **prompt large volume of diagnostic test**

- Self development of RT-PCR testing reagent (KCDC Jan 31)
- Emergent use application (Private company, Jan 28 ~ Feb 28) → Approval of use (MFDS, Feb 4)  
→ Review (HIRA, Feb 4 ~ Feb 5) → Notification (MoHWP, Feb 6)
  - ※ Reduced listing period from 140 days to 10 days

# 1.2. Medicine

## □ Immediate amendment of benefit criteria for COVID-19 medicine

- **(Purpose)** Promptly expand NHI criteria of medicine to treat the COVID-19
- **(Method)** Review expert opinion(Korean association of infectious diseases)

→ **Skip administrative pre-announcement** → Notification

※ In accordance of Administrative Procedures 41-5, allow to skip administrative notification in the case of concerns for damage public safety and welfare

- **(Legal Basis)** MoHW notification no. 2020-25 (Feb 3)
- **(Applied period)** Apply from the treatment at Jan 4, 2020
- **(Approval drug)**
  - Interferon(Include peg Interferon) (Not recommend to inject independently)
  - lopinavir+ritonavir
  - hydroxychloroquine
  - ribavirin (Not recommend to give independently and first-line monotherapy)
  - human immunoglobulin G(In the case of septicemia or acute respiratory distress syndrome)
  - oseltamivir(Oral), zanamivir(external application)(In the case of combination of influenza infection or strongly suspected case)
  - Antibiotics (suspected case with bacterial infection)
- **(Targeted patient)** COVID-19 infected cases with symptoms or suspected case

➡ **By omitting the pre-announcement & the shortest review, be available to deliver prompt medical service and pay for medicine**

- Review (HIRA, Jan 28 ~ Feb 3) → Notification (MoHW, Feb 3)
- ※ Reduced amending period from 100 days to 7 days



# 1.3. Infection prevention / management

## □ Setting price and benefit criteria of infection prevention · management

- **(Purpose)** To strongly manage patient's infection, temporarily indemnify the expense of infection prevention and management
- **(Method)** 6~100% upgrade compared to existing fee schedule

- **(Applied period)** Jan 4, 2020~ until further notice
- **(New fee schedule)**
  - COVID-19 infection prevention·management fee
  - COVID-19 inpatient fee : Intensive Care Unit(ICU) fee, Negative pressure isolation management fee in ICU & inpatient fee in negative pressure isolation room  
e.g.) Management fee of negative pressure isolation room in ICU: (Existing) 163,780 won→ (COVID-19) 327,560 won
  - COVID-19 protection hospital (Public relief hospital): Infection prevention management fee, isolation room management fee in screening center
  - Living and treatment support center: Patient management fee(I/II)
  - Severe emergency medical center: Isolation zone monitoring fee (Geographical/Regional), management fee for isolation zone(General/Negative pressure)

➡ By compensating the fee for infection prevention·management, be available for **making strong infection management** of healthcare institutions & **securing healthcare institutions'** participations

## 2. Monitoring

**2.1. COVID-19 patient management**

**2.2. COVID-19 Infection risk management**

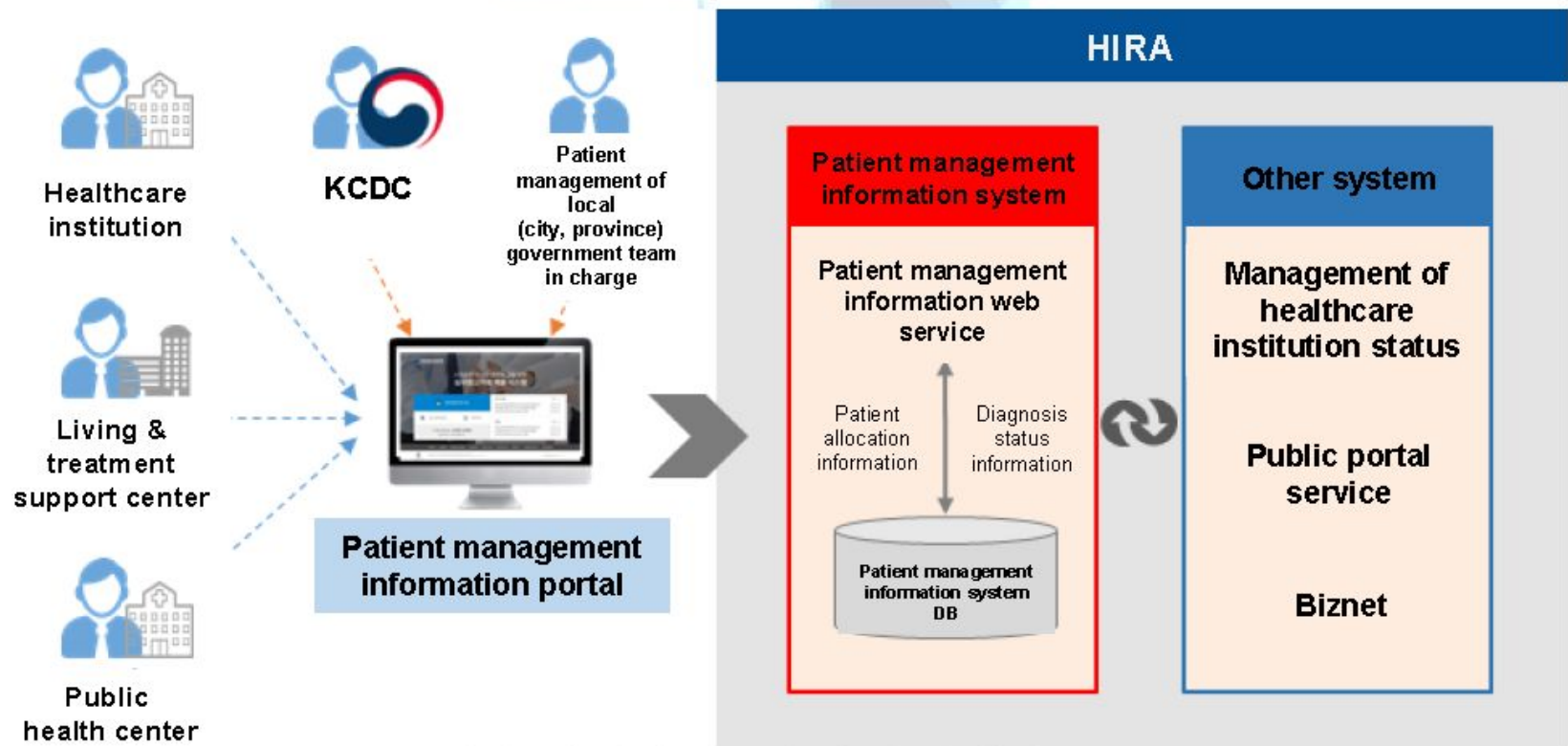
**2.3. Claims status of COVID-19 review**

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# 2.1. COVID-19 patient management

## □ Information sharing of COVID-19 patient condition & healthcare facility status

- **(Purpose)** Integrated management of national-regional COVID-patient history-condition and facility status
- **(Method)** With COVID-19 patient management information system, each 17 cities-provinces, isolation facility manage information of the confirmed patients institution allocation, severity, admission-transfer-released from isolation/quarantine-deceased



➡ With **unified system**, be available for providing immediate and adequate treatment and taking measures by patient and healthcare institution management



## 2.2. COVID-19 Infection risk management

### □ Share COVID-19 relevant patient information to healthcare institution

- **(Purpose)** Stop the spread of COVID-19 (into healthcare institutions)
- **(Method)** Check patient's history of overseas travel and status of contacting the confirmed case or not at the step of reception (ITS, system for checking eligibility of patient ), consultation (ITS), prescription and dispensing drug (DUR)

- **DUR:** Real-time information linkage system among HIRA and providers for providing drug safety information when prescribing and dispensing drugs
- **ITS:** Linked with KDCD, healthcare institutions use the system for checking the patient's travel history to overseas (Functions were added within DUR system in 2016, and separate ITS system also could be installed)

### ○ **(Legal Basis)** Infectious disease prevention and management Act 72-2

- ※ Propose bills of mandatory information sharing and checking about trans-boarder travel history relevant with infectious disease utilizing DUR (ITS) (Feb 6) → amendment (March 4)
- ※ Due to insufficient penalty clauses and fines, there are institutions uninstalled DUR (ITS)

### ○ **(Current status)** Current status of institutions participation for checking patient's overseas travel history (Unit: institution, %)

Classification	Targeted institution (Overall)	1.25.(Sat)		2.18.(Tue)	
		Institution using the system	Rate of use	Institution using the system	Rate of use
Sum	72,667	39,278	54.1	70,820	97.5

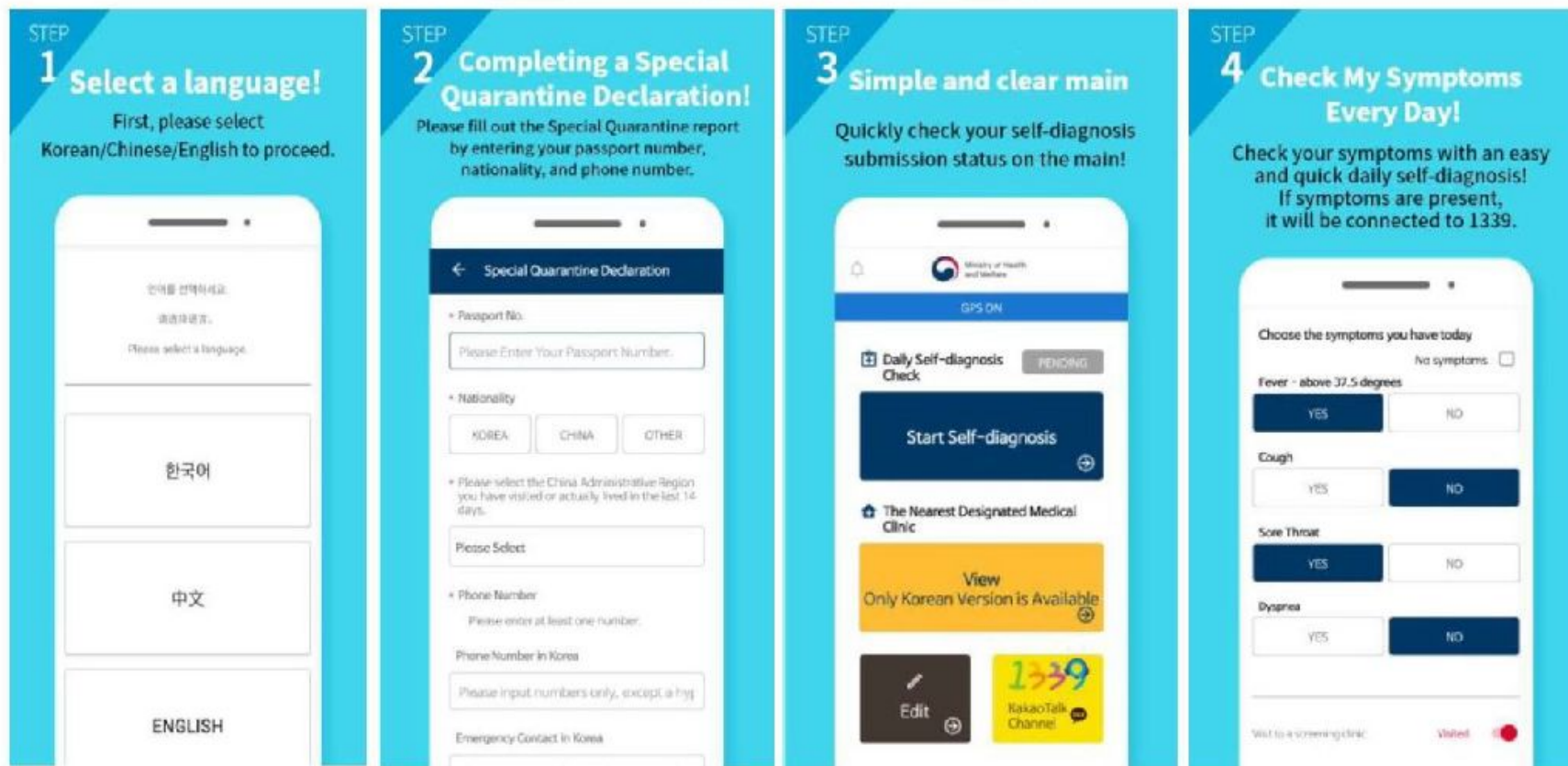
- ※ Check status of institution uninstalled the system and expand the use of it recommending through phone call, remote assistance and door-to-door consultation (54.1% → 97.5%)
- ※ DUR installation rate : 99.8%

➡ **With preventing COVID-19 spread into healthcare institution, be available to sustain continuous medical service provision**

## 2.2. Risk exposure to COVID-19 management

### □ Use of self-diagnosis Application for the Inbound travelers (led by MoHW)

- **(Purpose)** Prevention of COVID-19 overseas inflow and spread in community
- **(Method)** With using self-diagnosis application, inbound travelers report COVID-19 relevant symptoms (fever, cough) during 14 days (self-isolation period) after arrivals



⇒ Stop the spread of COVID-19 from overseas and within community



## 2.3. Claims status of COVID-19 review

### □ Review the claims status of COVID-19

- **(Purpose)** Review claims volume for responding COVID-19 and estimate financial spending
- **(Target)** infection prevention · managing fee, fee relevant with COVID-19 protection hospital, fee for phone consultation · prescription by proxy, fee for diagnostic test, benefit criteria expansion for isolation room, emergent medical fee schedule relevant with screening center
  - ※ Case of the claims with specific serial number code MT043"3/02", which means the type of target for medical fee support in national disaster supported
- **(Status)** From 457 institutions, 151,323 claims, worth 35.2 million dollars (Feb 3 ~ April 23, 2020)

(Unit: Institution, case, won)

Classification	Cumulative reception (April 23)			Cumulative reception (April 22)			Increase rate from the previous day(%)		
	No. of Institution	Claims		No. of Institution	Claims		No. of Institution	Claims	
		No. of case	Amount		No. of case	Amount		No. of case	Amount
Sum	457	151,323	43,177,535,180	451	147,139	42,311,976,050	6(1.3)	4,184(2.8)	865,559,130(2.0)
Tertiary hospital	42	50,661	13,633,088,590	42	49,754	13,393,738,730	0(0.0)	907(1.8)	239,349,860(1.8)
General hospital	252	93,147	25,493,075,260	249	89,973	24,968,443,640	3(1.2)	3,174(3.5)	524,631,620(2.1)
Hospital	104	6,592	3,723,709,150	103	6,858	3,623,182,970	1(1.0)	94(1.4)	100,526,180(2.8)
Longterm care hospital	44	492	319,970,180	43	491	319,901,840	1(2.3)	1(0.2)	68,340(0.0)
Clinic	12	59	6,018,360	12	59	6,018,360	0(0.0)	0(0.0)	0(0.0)

➡ With COVID-19 claims status review and financial spending estimation, be available to **build response measures**

# 3. Healthcare resources management

**3.1. Managing healthcare resources  
(Staff • Facility • Device)**

**3.2. COVID-19 medicine distribution management**

**3.3. 'Public Mask' distribution management**

**3.4. Healthcare institutions support**

## 3.1. Managing healthcare resources (Staff • Facility • Device)

### ☐ Managing healthcare resources (Staff • Facility • Device)

- **(Purpose)** Check current critical healthcare resources status & prepare immediate response by estimation of supply
- **(Management item)**

Classification	Management item	Countermeasure
staff	Infectious control medical staff Medical specialist by each specialty Department of infectious diseases: pulmonology dept. Infectious control specialist nurse & general duty nurse, etc	Management of medical staff dispatch to Special care zone, etc
Facility	COVID-19 protection hospital (Public relief hospital)* Screening clinic (COVID-19 testing booth)** Hospitalization for serious cases (negative pressure isolation room**, Intensive care unit, isolation room, single room ward) <b>Living and treatment support center***</b> Overall regional healthcare institutions & no. of approved beds, etc	Quickly check for beds available & swiftly allocate proper beds to serious cases, etc
device	Respirator, ECMO, PCR, Facial mask, etc	Preferred supply of mask to healthcare institutions, etc

\* COVID-19 protection hospital(Public relief hospital): From respiratory patient's visiting hospital to hospitalization, the hospital provides separate services

\*\* Screening center (COVID-19 testing booth): Center for those with suspected symptoms(fever, cough) to receive treatment separately before entering healthcare institution

\*\*\* **Living and treatment support center**: Center for supporting living and treatment to isolated infected patient with mild symptoms

⇒ **With checking current status of necessary **healthcare resources** needed for COVID-19 treatment & estimation of demand, be available for **effective distribution****

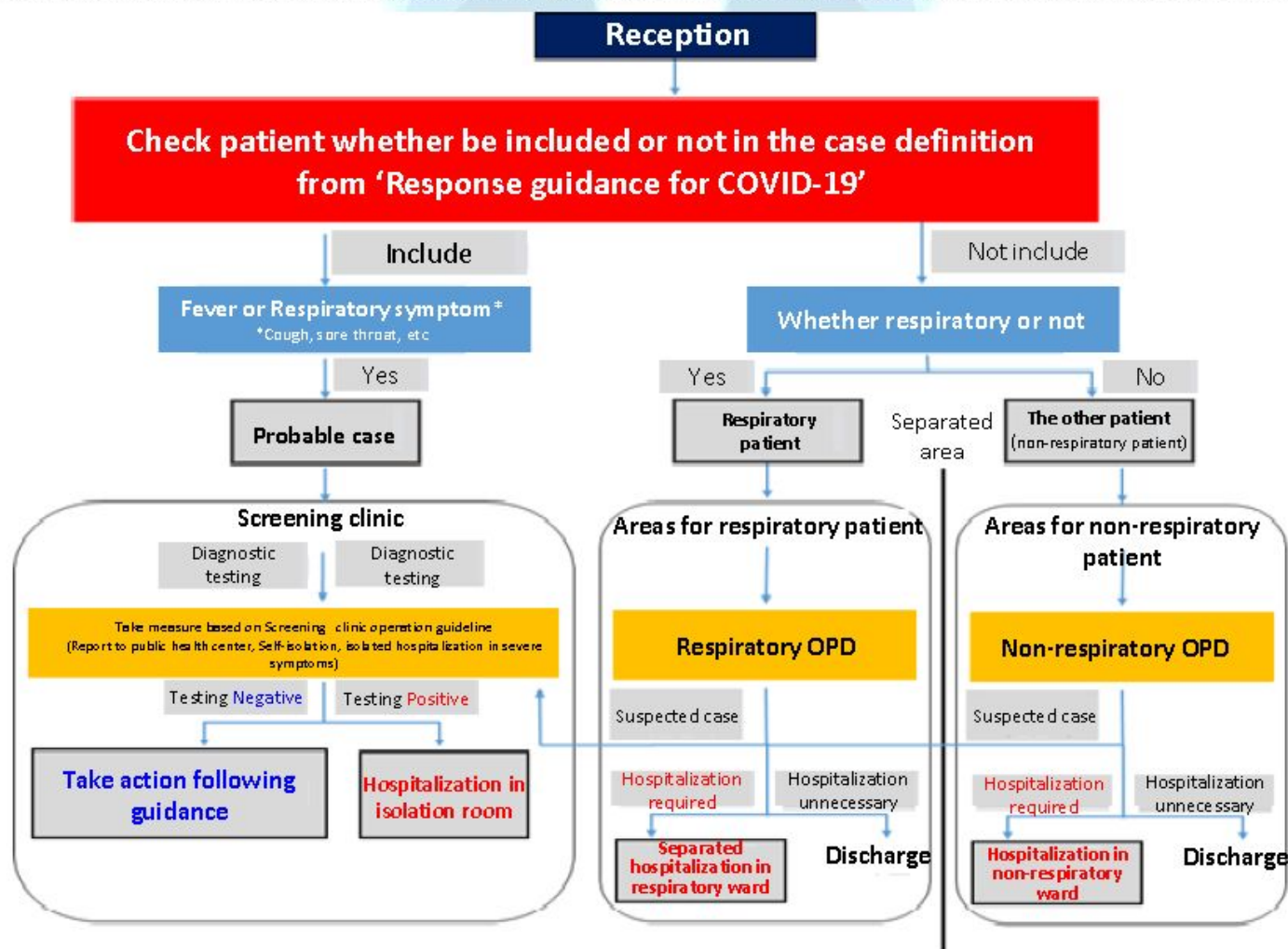
- Sent mild patients to "Living and treatment support center" to allow tertiary hospitals can focus on treating severe patients



## 3.1. Managing healthcare resources (Facility)

### □ COVID-19 protection hospital(Public relief hospital)

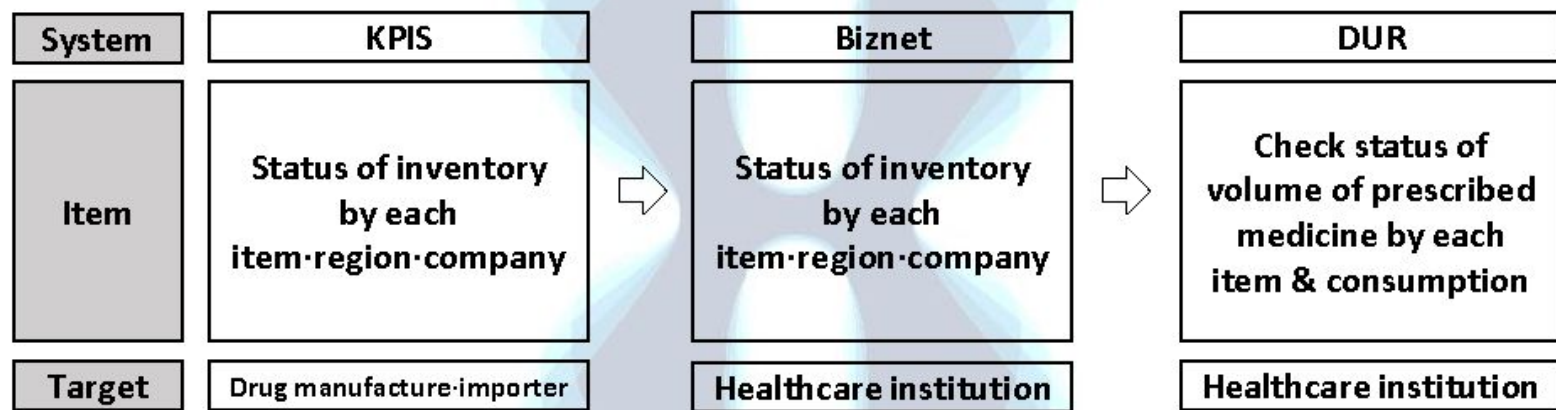
- **(Definition)** Hospital system of providing separate service to respiratory patients during the whole treatment process from visiting to hospital to hospitalization
- **(Purpose)** Secure public safety from COVID-19 infection and provide well-organized service by establishing reliable hospital system
- **(Status)** 343 hospitals(28 tertiary hospitals, 215 general hospitals, 99 hospitals, 2 Korean medicine hospitals)



## 3.2. COVID-19 medicine distribution management

### □ Analysis of status for COVID-19 medicine distribution

- **(Purpose)** Check inventory and management utilizing information on status of claims and distribution of medicine
- **(Targeted medicine)** Entire COVID-19 medicine
- **(Management item)** status of claims, drug company's manufacture, status of supply by each institution type



- **(Utilization)** Estimate no. of treatable patient compared to status of medicine

- **KPIS:** Assigning Korea Drug code to all drugs, collects production, import and distribution information
- **Biznet:** Business portal System for assisting healthcare institution to provide information on healthcare benefit criteria and etc.

➡ With checking current status of **necessary medicine** relevant with COVID-19 treatment & estimation of demand, be available for **effective drug distribution**



### 3.3. 'Public Mask' distribution management

#### □ Public Mask distribution system structure/operation (started from March 11<sup>th</sup>)

- (Purpose) To solve soared demands of mask followed by COVID-19 spread, support stabilization of Public mask supply (5-day rotation system)
- (Target) Mask sellers (Pharmacy, NonyHyup, Post office)
- (How to buy) Designated days based on the last digits of birth year, each person could buy two masks a week
- (How to check) After checking customer's identification card, identify purchase history of mask with putting customer's resident registration number in 'Biznet'

A blue poster with a white outline of a face wearing a mask. The text on the poster is as follows:

**Public Mask Distribution**  
**On Which Day Can I Purchase Masks?**  
You can purchase masks according to the year of your birth! All you need is your alien registration card!

<b>Mon</b>	Born in a year that ends 1 or 6
<b>Tue</b>	Born in a year that ends 2 or 7
<b>Wed</b>	Born in a year that ends 3 or 8
<b>Thu</b>	Born in a year that ends 4 or 9
<b>Fri</b>	Born in a year that ends 5 or 0
<b>Sat/Sun</b>	Unable to purchase masks during the week

Ex. Those born in 1964 can buy masks on **Thursdays**.

⇒ Through equitable mask supply, prevent COVID-19 spread

## 3.4. Healthcare institutions support

- ☐ **Financial support for COVID-19 healthcare institution**
  - Calculate breakdown of claimed medical fee for early payment & advanced payment
- ☐ **Guide the way for COVID-19 medical fee claims**
- ☐ **Adjust Quality Assessment(QA) period & allow excepted criteria**
- ☐ **Exempt report to provider's information change about staff-facility relevant with COVID-19 for certain period**
- ☐ **Admit COVID-19 support personnel in grading nursing fee**
- ☐ **Exempt electronic check for medical staff license information, dispatched from other institutions**
- ➡ **With healthcare institution financial support & simplify administration burden, provide **well-organized medical service****

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## 4. Disclosure of Information

**4.1. Provision of open API relevant with COVID-19**

**4.2. Disclosure of claims data for COVID-19**

**4.3. Provision of COVID-19 statistics**

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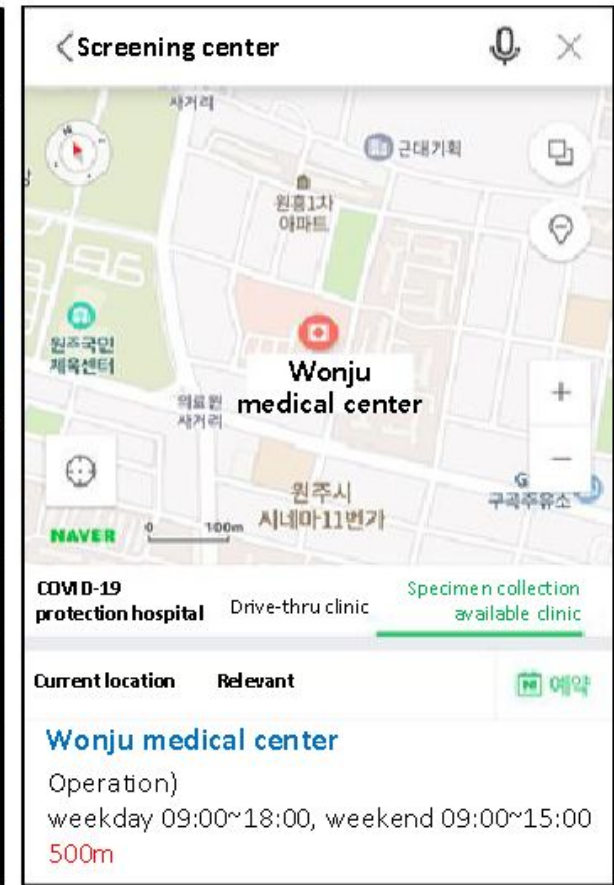
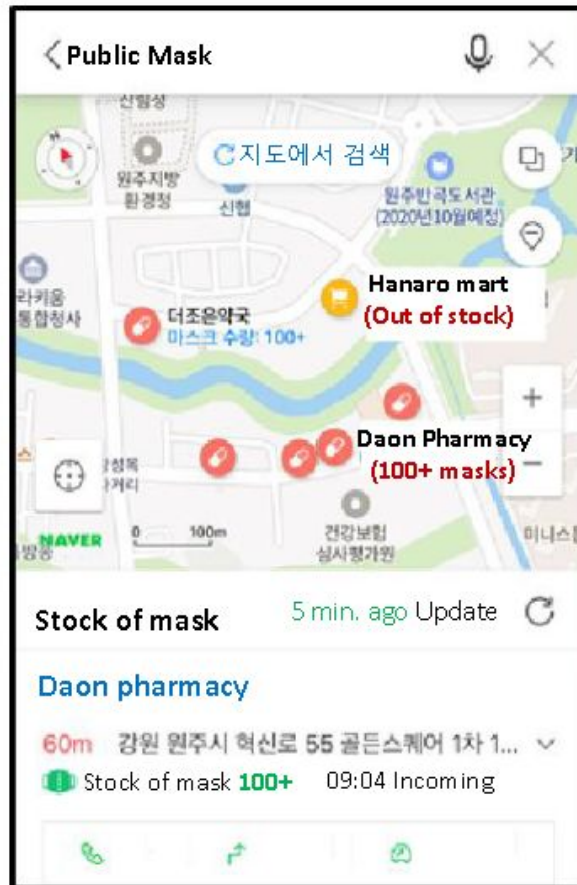


# 4.1. Provision of open API relevant with COVID-19

## □ Provision of open API \* for public safety against COVID-19

\* API: Open to all using interface such as data access, screen design, etc

- (Purpose) Enhance public safety by increasing access to COVID-19 relevant information
- (Item)



➡ With **increasing access** to COVID-19 relevant information, enhance **public safety**

## 4.2. Disclosure of claims data for COVID-19

### ☐ Disclosure of claims data for COVID-19

- **(Purpose)** Based on international cooperation research, find clinical evidence for effective response to COVID-19 & carrying out governmental policy
  - **(Characteristic)** RWD for all citizens, administrative data & detail and time sequential accumulated data based on Fee-For-Service
  - **(Scope)** COVID-19 confirmed patient's claims data during the last 5 years
  - **(Method)** HIRA owns anonymous dataset in closed network and only take out of data schema, sample data and result(statistic) value by conducting analysis code
    - \* For protecting personal information
  - **(Main target)** Clinical researchers & data scientists from home and abroad, etc
  - **(Plan)** 3.27.(Fri) ~ End of situation
- ⇒ With utilizing prepared **clinical & political grounds** based on international cooperative research, overcome **COVID-19 crisis**

## 4.3. Provision of COVID-19 statistics

### □ Provision of COVID-19 statistics

- **(Purpose)** Find evidence for political decision-making
  - **(Item)**
    - Status for available negative pressure isolation bed by each hospitals
    - Status for volume of prescribed COVID-19 medicine & consumption
    - Status for DUR checking to confirmed case and suspected case for epidemiological investigation
    - **Status for prescription by type of healthcare institution**
    - Information relevant with mask selling history system, etc
- ⇒ **Evidence-based political decision-making** available, relevant with COVID-19 necessary healthcare resources, medicine, etc

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- Early response & Cross-departmental cooperation
- Transparent information disclosure
- ICT utilization

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# Q&A and Discussion

# Closing

- Thank you for participating in this discussion
- We will share a recording of this session
- Continue the discussion on the discussion forums on the JLN website
- Visit [www.jointlearningnetwork.org/register](http://www.jointlearningnetwork.org/register) to create an account



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