COVID-19 Response Measures in South Korea and Implications for Future Pandemic

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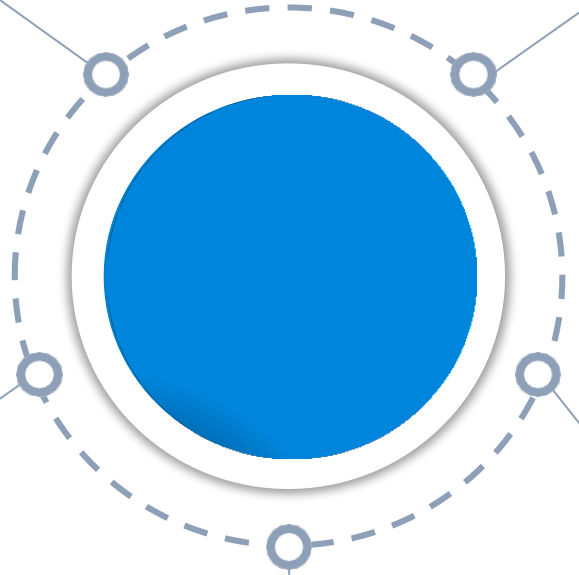
Public Health Response for COVID-19 in Korea



Response to Cases

- Fast and accurate epidemiological investigation
- Disclosure of whereabouts of confirmed cases (utilizing technology)
- (utilizing technology)
- Self-quarantine of all contacts

Quarantine at the point of entry

- Special entry procedure
- Recommend minimizing travel plans
- Provision of travel history to healthcare providers

Early Detection

- Expansion of diagnostic testing
- Expansion of local screening center
- Specimen collection via screening station including drive-thru screening stations
- Aggressive testing on all high-risk groups

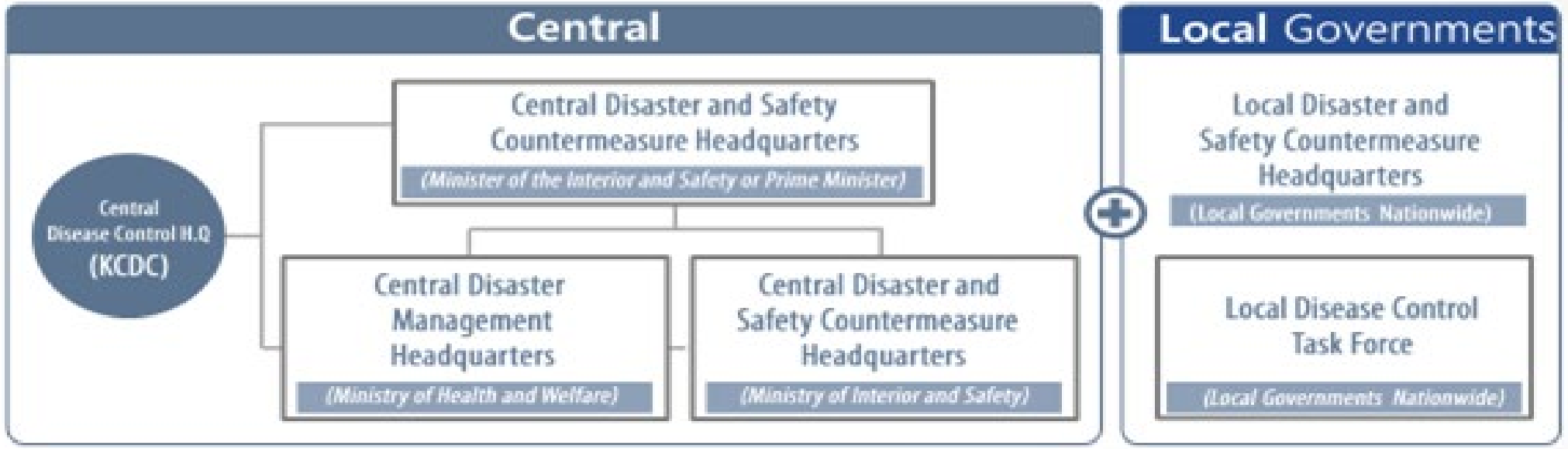
Treatment of Non COVID-19 Patients

- Operation of National Safe Hospitals
- Allow receiving prescriptions over the phone and by proxy

Treatment of COVID-19 cases

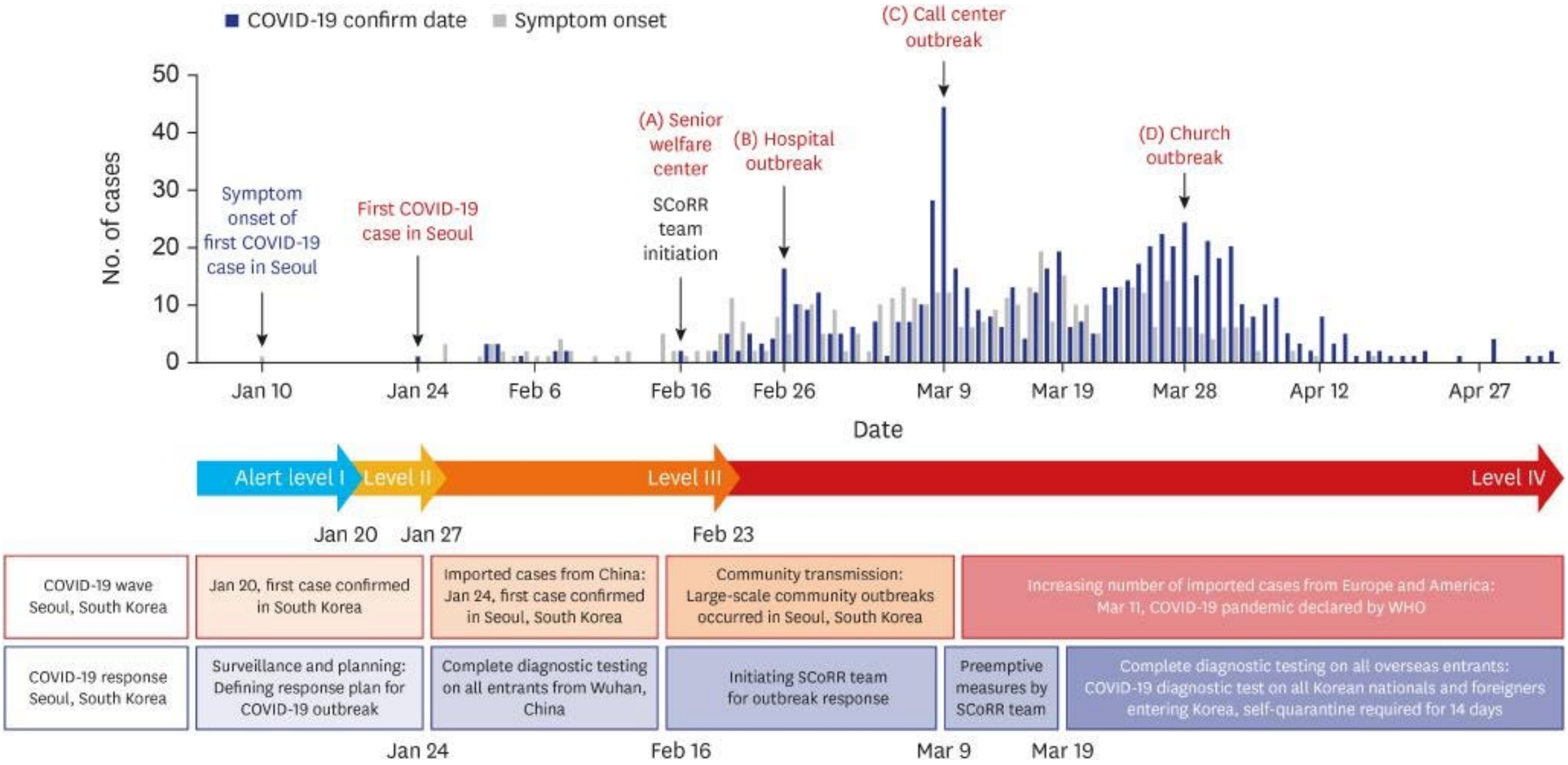
- Patient classification and bed allocation by severity
- Severe cases are treated at hospitals while mild cases are treated at facilities
- Set up Living and Treatment Centers (Mild cases)

Public Health Response - Governance



- **Cooperation** among the Central Government and Local Governments
- **Risk communication, campaign, and disclosure of information** in a prompt and transparent manner; provision of counseling for the public via **1339 and public health centers**
- **Reinforcement of government measures** such as the adherence to the code of conduct

Pandemic curve and COVID-19 response, Seoul, Korea



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The Stage of Laboratory Testing

Feb-7

Feb-4

Jan-31

Jan-29

Jan-28

Jan-27

Jan-26

Jan-24

Jan-22

Jan-13

Jan-11

Dec 2019

Virus isolation (Feb.4)

- Transfer new technique to 18 local public health lab
- Transfer technique to 11 local public health lab(2nd)
- Transfer technique to 7 local public health lab(1st)

Educate and operate EQA program

- Establish SARS CoV-2 specific- **real time RT-PCR**
- Start to develop SARS CoV-2 specific- **real time RT-PCR**
- Establish **Pan-corona** virus lab testing

- Expand to the medical lab

Educate and operate EQA program with related society

- Release the first EUA product
- Disclose the KCDC protocol(real time RT-PCR) to related society
- Start to recruit and evaluate potential EUA products

Evaluate test performance with medical Lab. Specialist

- Decide to operate EUA

Conducted in cooperation with the Korean Society for Laboratory Medicine

Pre-stage

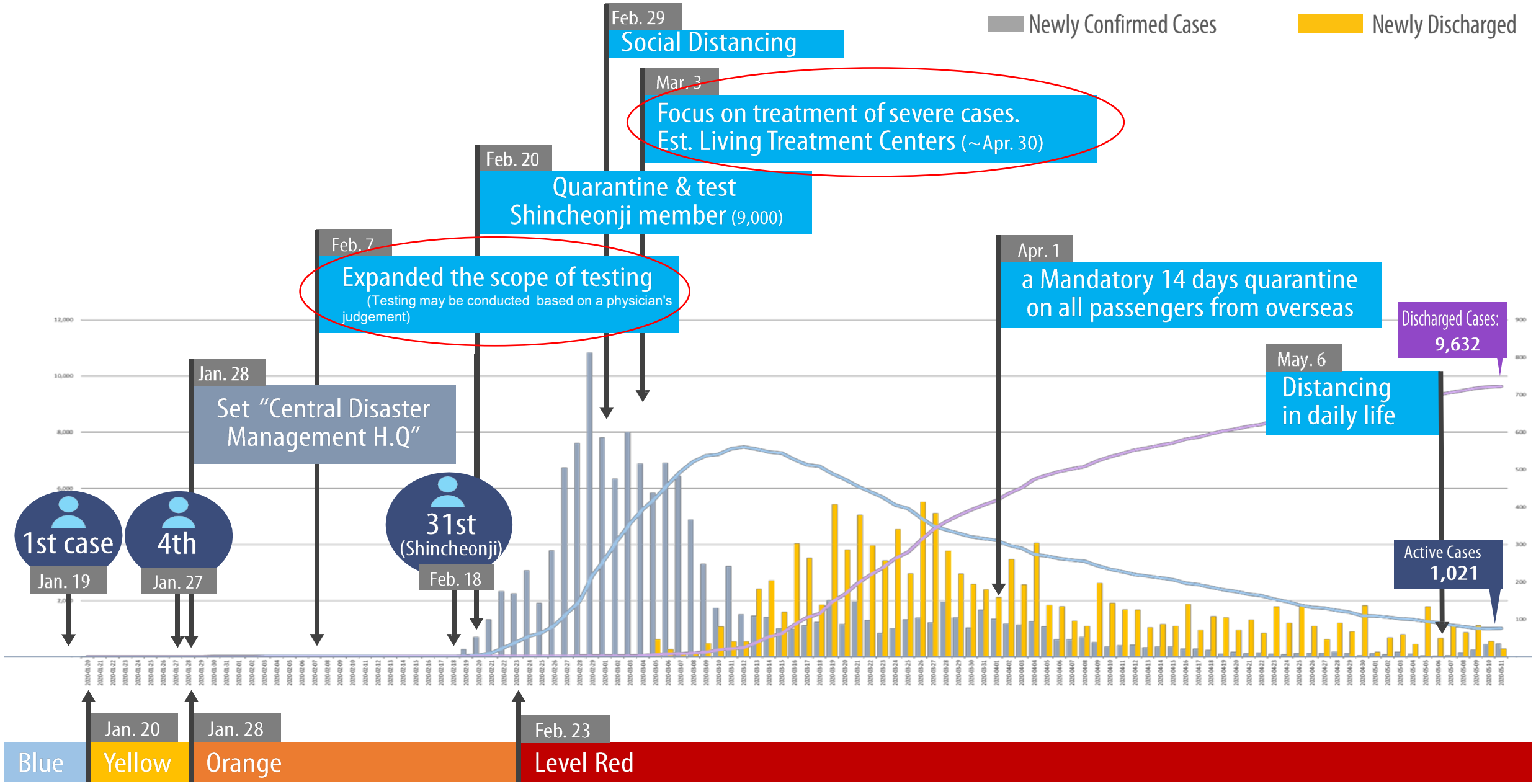
TTX(Table Top Exercise) for Disease X

1 stage

2 stage

3 stage

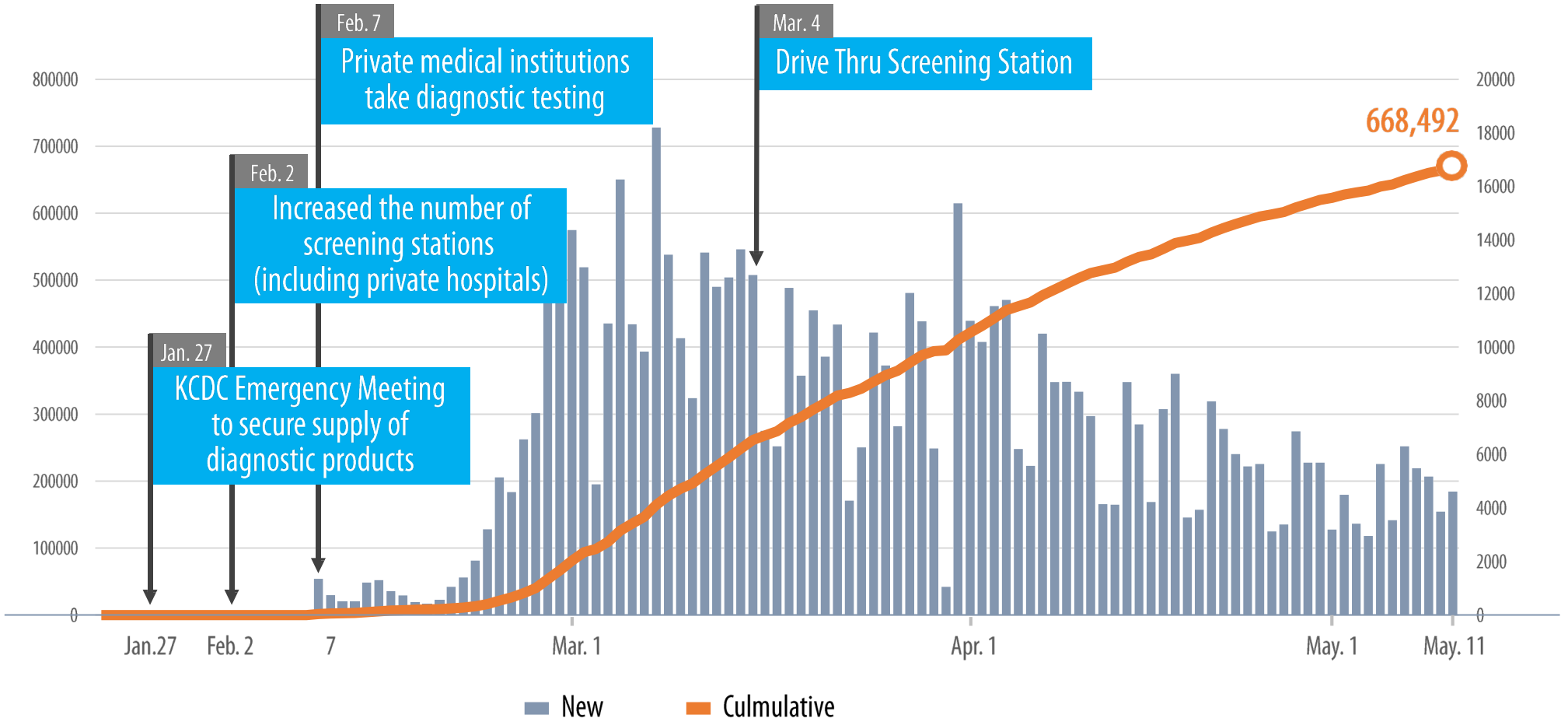
COVID-19 Response in Korea



COVID-19 Response in Korea - Testing

- **Daily Capacity :** Average 15,000 ~ Max. 20,000
- **Turn Around Time:** 6 ~ 24hrs
- **Testing Institutions:** Total 118
- **668,492 tests have been conducted** (As of May 11)

KCDC, National Quarantine Station 4, Research Institutes of Public Health and Environment(RIPHEs) 18, Private medical Labs and hospitals 95



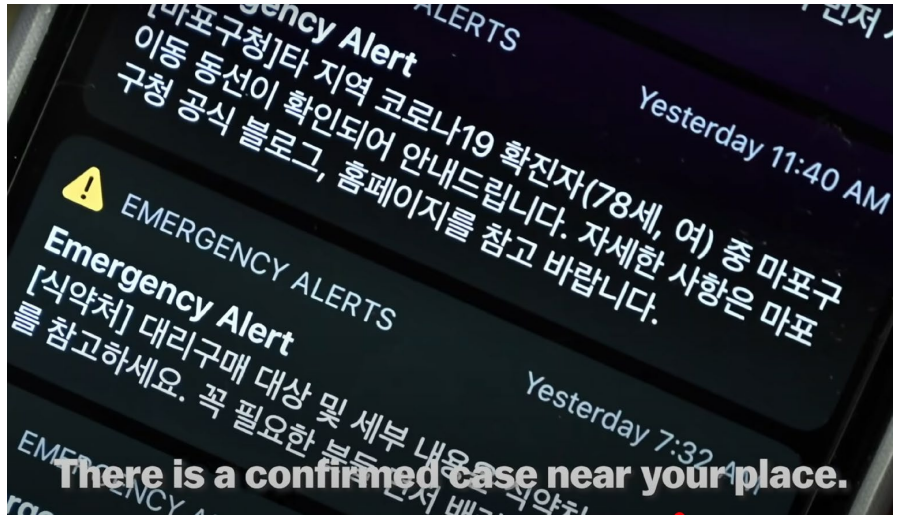
Contact tracing strategy
Mobile Data Utilization

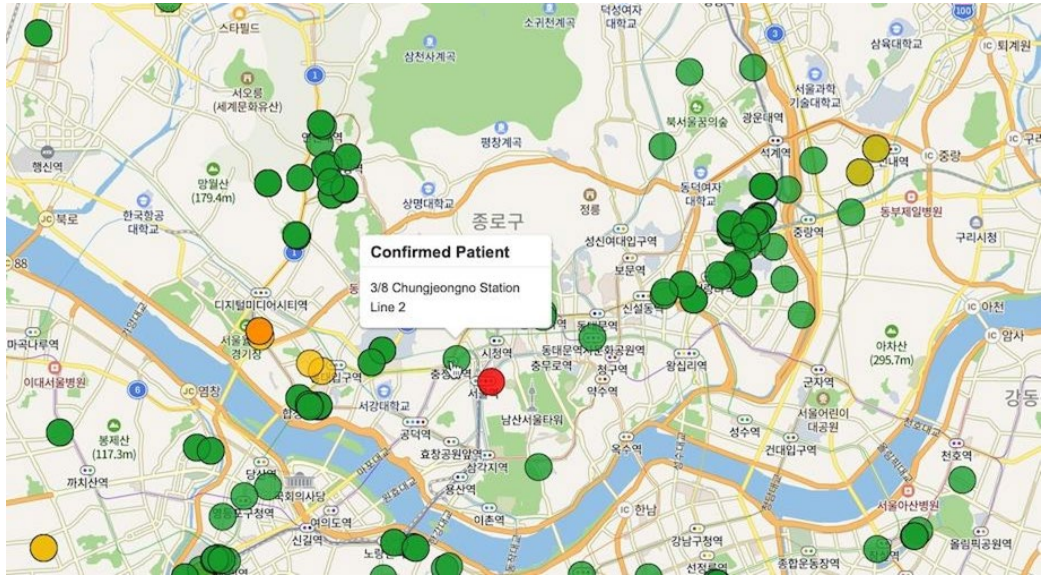
Location data of base transceiver stations are being used to identify the confirmed cases

Base Station Information	
Time	**Address**
02:09~10:49	176 Heojun-ro, Gangseo-gu, Seoul
14:22~15:27	54 Bukchon5-ro Jongno-gu, Seoul
16:40~18:17	204 Daebang-ro Dongjak-gu, Seoul

Time	Place	Transportation
11:00~	Jonggak stn.	Subway
12:00~	Insa Avenue	On foot
13:00~	Samcheong Avenue	On foot
14:00~	Noryangjin stn.	Bus

- KT provides past location history of confirmed cases including the location of base station.
- KCDC can extract the location trace of the confirmed cases based on information provided by KT
- KCDC can identify the potential risk by contact tracing (technically possible), and this is an effective measure to prevent epidemic spread.





Sharing of Location and Movement Information of the Confirmed Case

COVID-19 Epidemiological Investigation Support System

Figure 17 COVID-19 Data Collection Procedure Before & After COVID-19 Epidemiological Investigation Support System

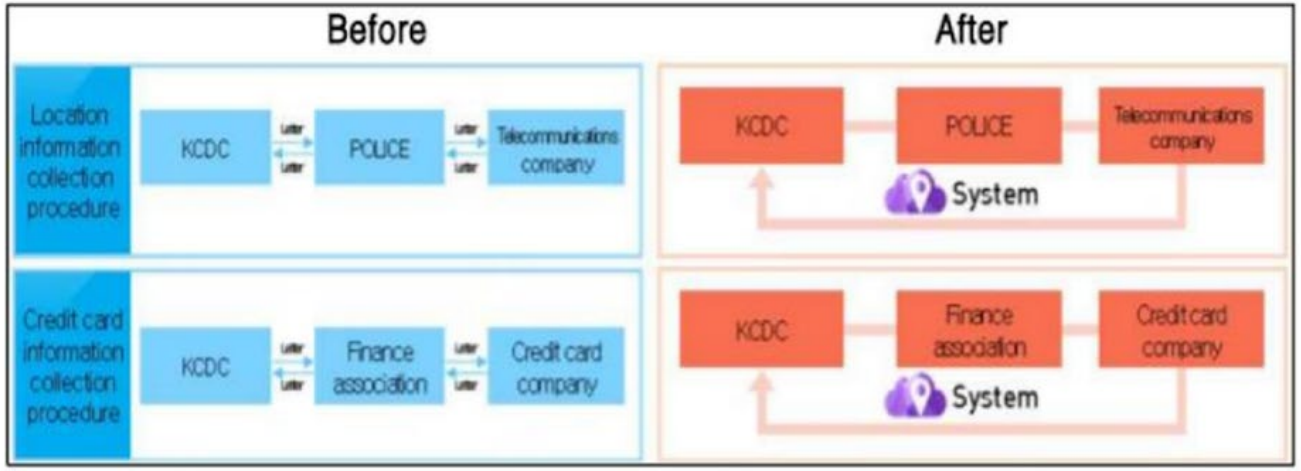
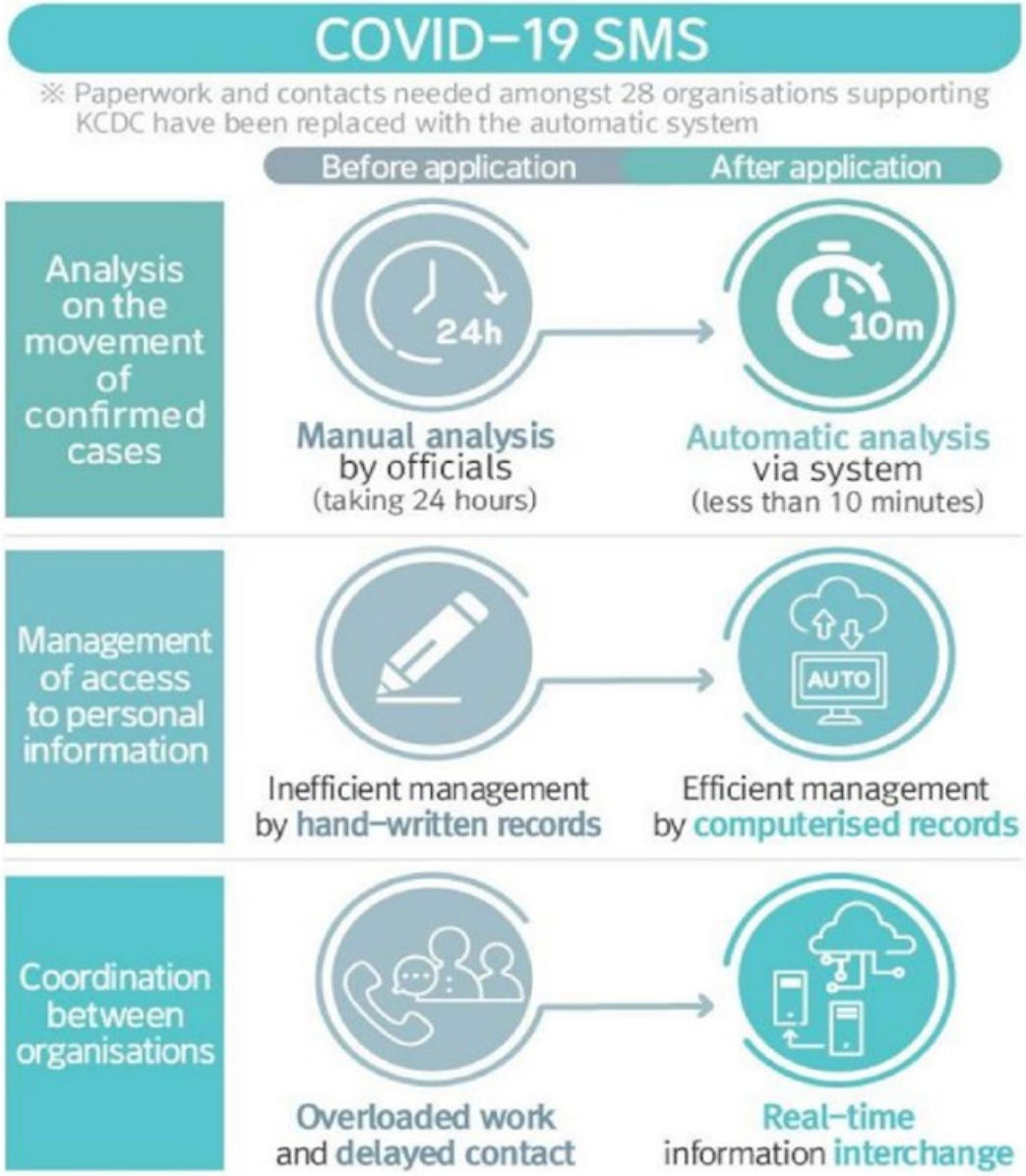


Table 3 Benefits of COVID-19 Epidemiological Investigation Support System

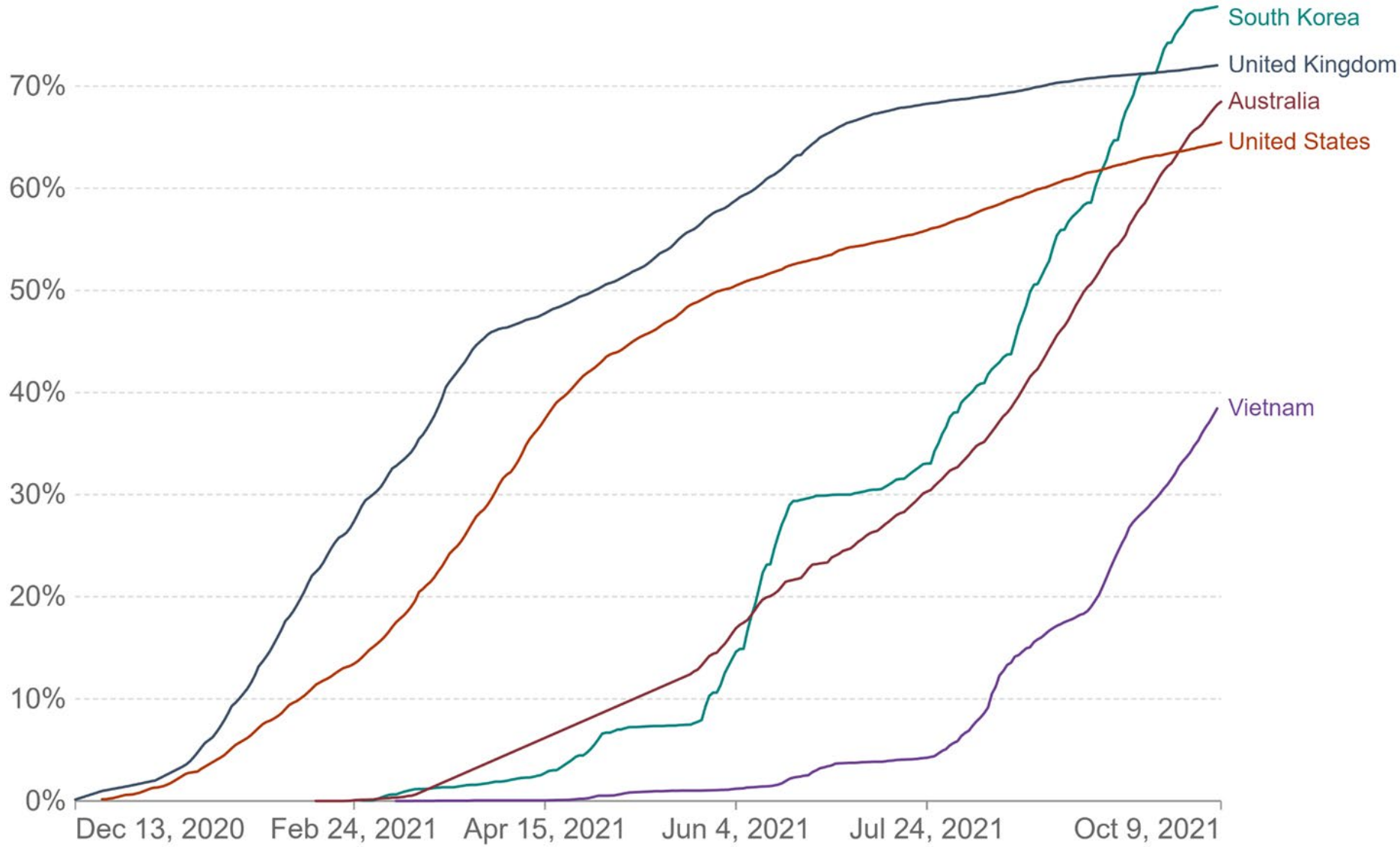
	Before	After
Contact tracing method (time per case)	Manually tracked by health workers (one day per case)	Automated tracing (ten minutes per case)
Management of access record	Writing into a paper ledger	Automated tracking of log-in records
Coordination among agencies	Fragmented coordination by phone, e-mail	Multi-agency coordination under a central platform



Share of people who received at least one dose of COVID-19 vaccine

Total number of people who received at least one vaccine dose, divided by the total population of the country.

Our World in Data



Source: Official data collated by Our World in Data.

Free immunization systems for all population

1st quarter	2nd quarter	3rd quarter	4th quarter
• Employees and patients in long-term care facilities, welfare facilities for the elderly, or high-risk medical institutions • Field epidemiologist • Emergency medical service	• Over 65 years old • Employees and patients in medical institution or home-based long-term care facilities for elderly • Persons with disabilities	• Patients with chronic disease • Adults (19-64 years old) • Police, soldiers, fire fighters, educators or child-care workers	• 2nd vaccination • Unvaccinated persons
1.3 million people	9 million people	33.3 million people	

COVID-19 Immunization system

01 Introduction of vaccine

Overall management
- Korea Disease Control and Prevention Agency (KDCA)

Negotiation
- Ministry of Trade, Industry and Energy (MOTIE)

Permission and national lot release
- Ministry of Food and Drug Safety (MFDS)

02 Distribution and supply

Overall management
- Korea Disease Control and Prevention Agency (KDCA)

Transport management
- Ministry of National Defense

Distribution standards
- Ministry of Food and Drug Safety (MFDS)

Air transport
- Ministry of Land, Infrastructure and Transport

03 Vaccination

Overall management
- Korea Disease Control and Prevention Agency (KDCA)

Human resource management
- Ministry of Health and Welfare (MOHW)

Local Governments
- Ministry of the Interior and Safety (MOIS)

Human resource
- Ministry of National Defense

Security
- Korea National Police Agency (KNPA)

Ambulance service
- National Fire Agency (NFT)

04 Management of adverse events

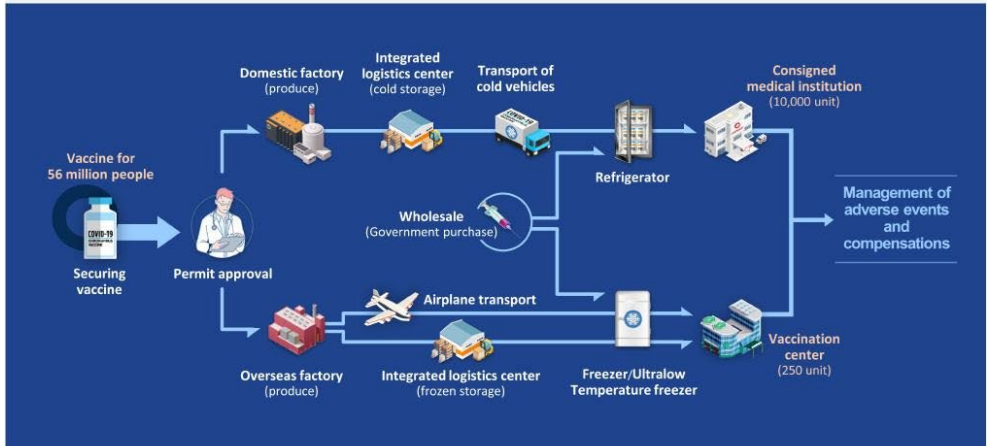
Overall management
- Korea Disease Control and Prevention Agency (KDCA)

Evaluation for vaccine
- Ministry of Food and Drug Safety (MFDS)

Local Governments
- Ministry of the Interior and Safety (MOIS)

Autopsy
- National Forensic Service (NFS)

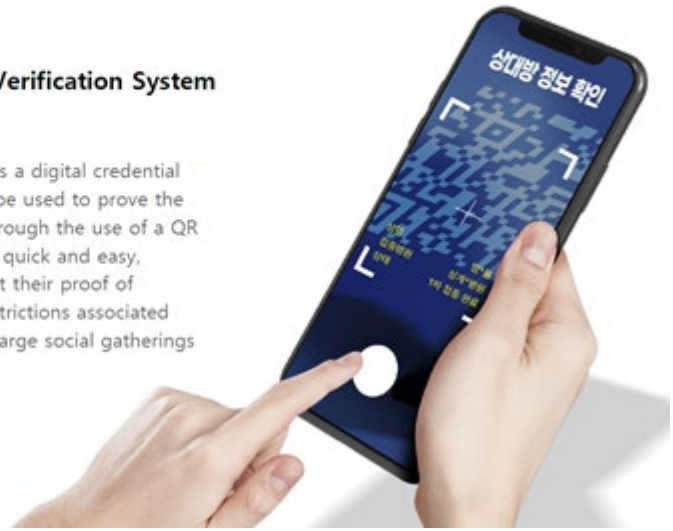
Adverse investigation support
- Korea National Police Agency (KNPA)
- Ministry of Justice (MOJ)



COVID-19 Vaccination verification system

Digital COVID-19 Vaccination Verification System

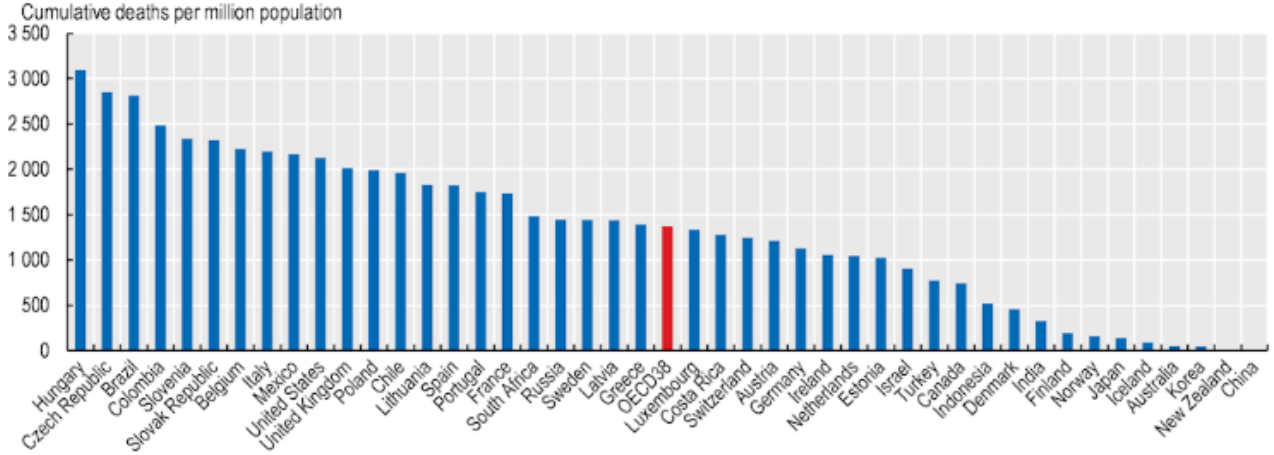
A digital vaccination verification system is a digital credential stored on the mobile device, which can be used to prove the owner's COVID-19 vaccination status. Through the use of a QR code that makes the verification process quick and easy, vaccinated individuals are able to present their proof of vaccination to be exempt from social restrictions associated with international travels and attending large social gatherings



❶ 접종 정보 불러오고 QR코드 업그레이드하기

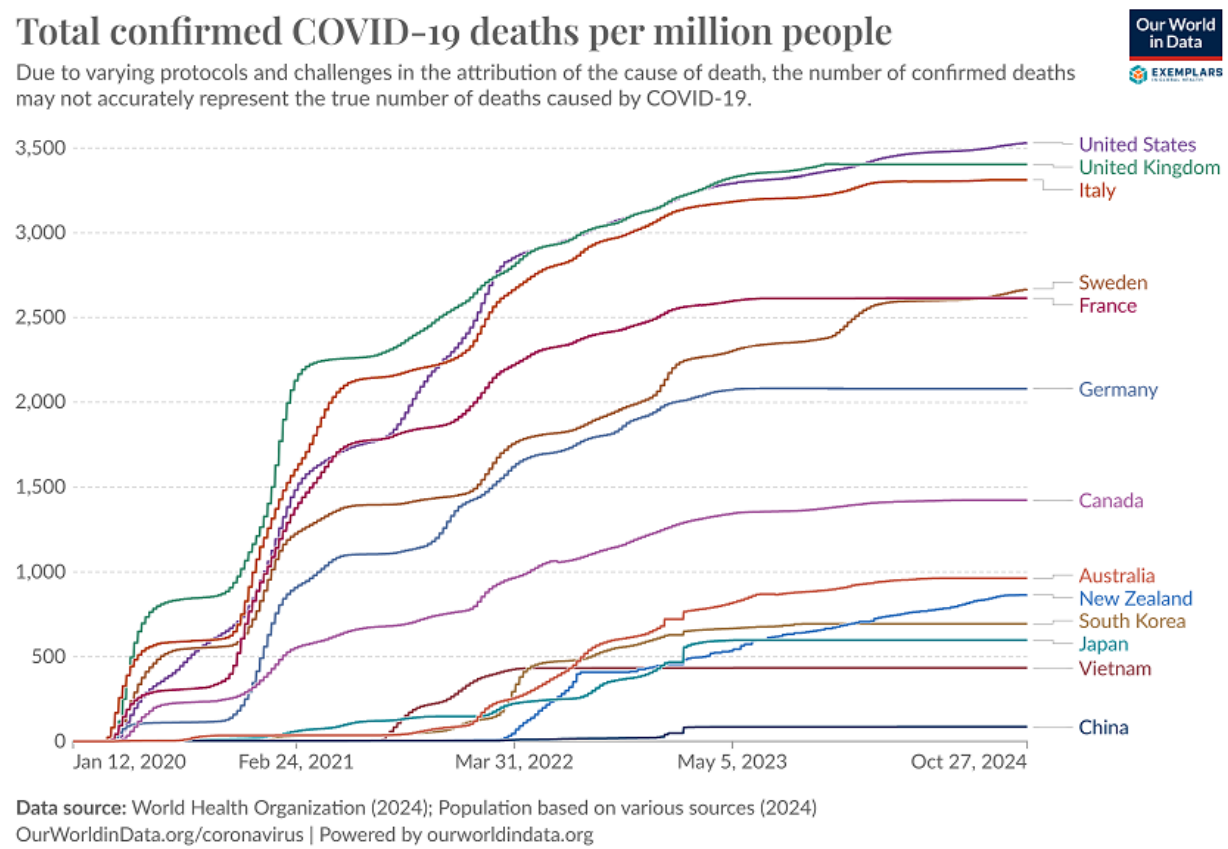
❷ 카카오톡 지갑에서 예방접종증명서 확인하기

Figure 2.2. **Cumulative number of confirmed or suspected COVID-19 deaths per million population, January 2020 to early October 2021**



Note: Depending on the country, data may refer to only confirmed or both confirmed and suspected deaths due to COVID-19. Data are affected by countries' capacity to detect COVID-19 infections and recording, registration and coding practices. Data are included up to calendar week 39/2021. Countries displayed in chart include OECD countries and Key Partner countries Brazil, China, India, Indonesia, Russia and South Africa.

Source: ECDC (2021[7]) "COVID-19 datasets", https://opendata.ecdc.europa.eu/covid19/nationalcasedeath/. ECDC data use national data sources for non-European countries.



Factors for earlier success for responding to COVID-19 in Korea

- Test, Trace/Isolate, Treat
- National Health Insurance: UHC
- Social Distancing / Mask
- Use of Innovative Solution / ICT
- Timely policy decision and rapid/bold execution
- Experience of 2015 MERS outbreak

- No border closure
- No lock-down
- Open & transparent approach

Changes after 2015 MERS Outbreak

- **Reorganization of KCDC (now KDCA)**
  - ✓EOC (Emergency Operation Center)
  - ✓Health Communication Division
- **Expanding the response capacity**
  - ✓EIS Officers: 30s -> 120s
  - ✓City/Province Infectious Disease Support Team
- **Legal and administrative measures in place**
  - ✓Emergency Use Authorization
  - ✓Infectious Disease Control and Prevention Act
  - ✓Personal Information Protection Act (PIPA)

Lessons Learned for DMCs

1. **Having legal and institutional readiness is important.**
2. **The importance of universal health coverage could not be stressed more.**
3. **Countries should invest in public resources to improve efficient and swift mobilization of hospital capacities and workforces.**
4. **Securing domestic production facilities and/or stockpiling of supplies are essential** for early procurement of high-quality PPE.
5. **Local governments should have their own capacity.**
6. **Prompt decision-making and bold execution of disease control policy** are crucial for containing the infection.
7. **Aggressive approach to undertake prompt and large-scale testing, tracing and isolation/quarantine** were instrumental to curbing transmission.
8. **Social distancing including mask policy were important**, especially when there are no vaccines and effective treatments available.
9. **Close partnership and collaboration with academic expert society can be beneficial.**
10. **Daily briefings are a highly effective channel of risk communication.**
11. **The role of CSOs can be crucial to situations with limited government capacities.**

Key take-aways and actional points based upon Korea Case Study for LMICs

1. Establishment of infectious disease management governance and mechanism
2. Whole of Government Approach for All types of Hazard including infectious disease control and response
3. Strengthen UHC for proving testing and treatment without financial burden
4. Maintain essential health services with robust primary health care system
5. Prepare legal and institutional basis for better responding to pandemic situation in advance (such as EUA, PPE/Vaccine Procurement Regulation)
6. Enhance health communication capacity for timely sharing of accurate information with the general public and communities
7. Undertake prompt decision-making and bold execution of disease control and response measures
8. Be open to explore and deploy innovative approach and measures as long as it is evidence based and expert consulted
9. Employ balanced approach between disease control measures (including social distancing and lock down) and socio-economic measures

Thank You