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KOREA'S PUBLIC HEALTH RESPONSES TO THE COVID-19 OUTBREAK

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Outline

- Spanish flu and COVID-19, SARS and MERS
- Global COVID-19 cases
- WHO International Health Regulations (IHR) and Recommendations of WHO COVID-19 Emergency Committee (EC)
- Actions taken after the 2015 MERS Outbreak
- Timeline of the Early Stage of Public Health Responses in Korea
- South Korea’s Agile Responses to COVID-19: Testing, Tracing, Treatment
- Social Distancing : Ministry of Education-Online class, Simulation exercise for COVID19 at school
- Risk Communication
- Strategic Preparedness & Response Plan and Research Roadmap (WHO)
- Lessons from COVID-19 Outbreak Responses, and Ways Forward

Coronavirus: How they tried to curb Spanish flu Pandemic in 1919

EDICT OF MAYOR MAY ORDER TOWN CLOSED

Notice of One Day Is Probable Plan to Prepare Public for Precaution Against Spanish Influenza

SEVERAL CASES OF DISEASE IN SALEM

LABOR BOARD'S POLICY IS ONE OF ESSENTIALS

Lead People Into Industr and Not Drive Them Out

TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE

INFLUENZA

Spread by Droplets sprayed from Nose and Throat

Cover each COUGH and SNEEZE with handkerchief.

Spread by contact.

AVOID CROWDS.

If possible, WALK TO WORK.

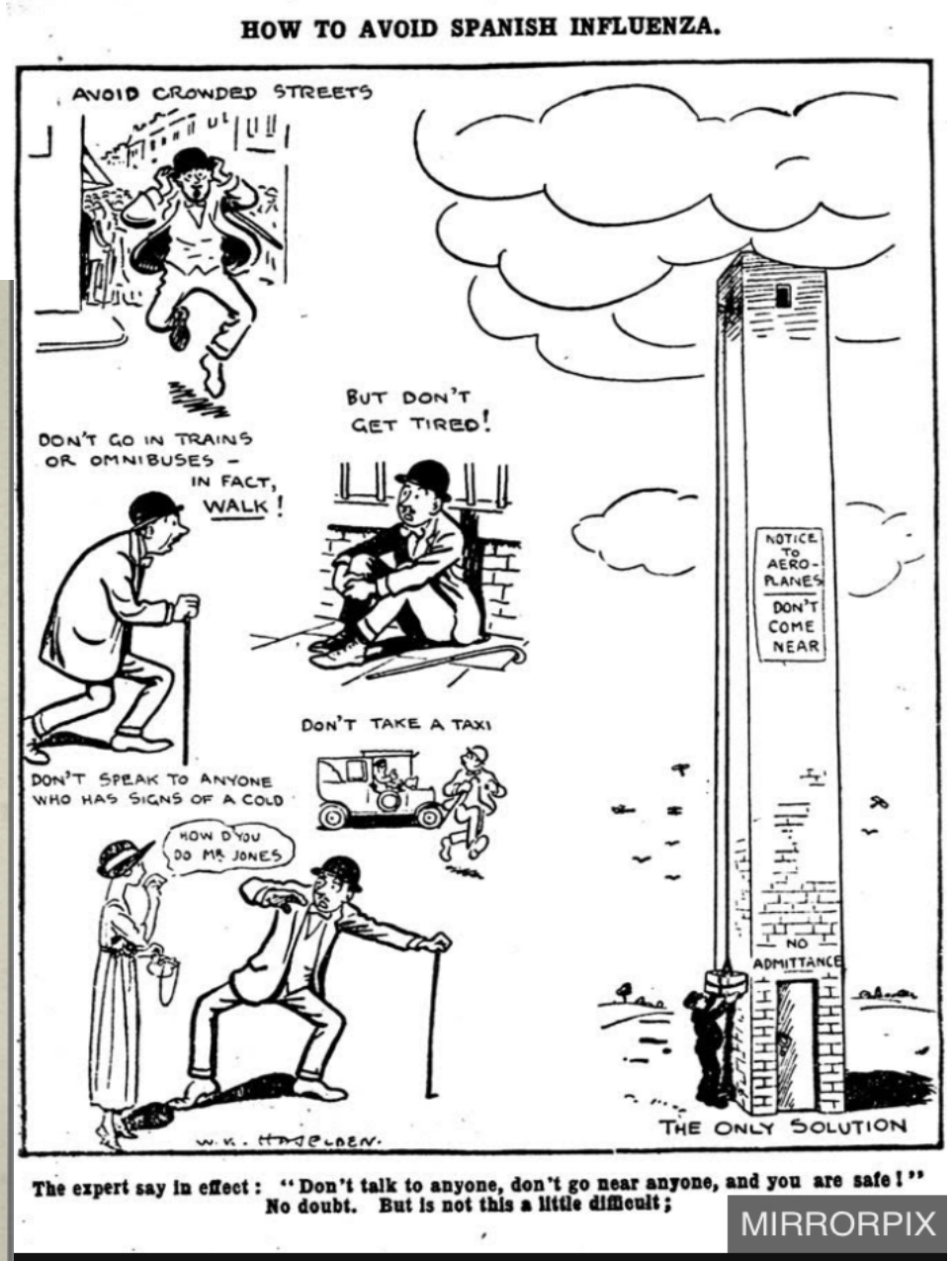
Do not spit on floor or sidewalk.

Do not use common drinking cups and common towels.

Avoid excessive fatigue.

If taken ill, go to bed and send for a doctor.

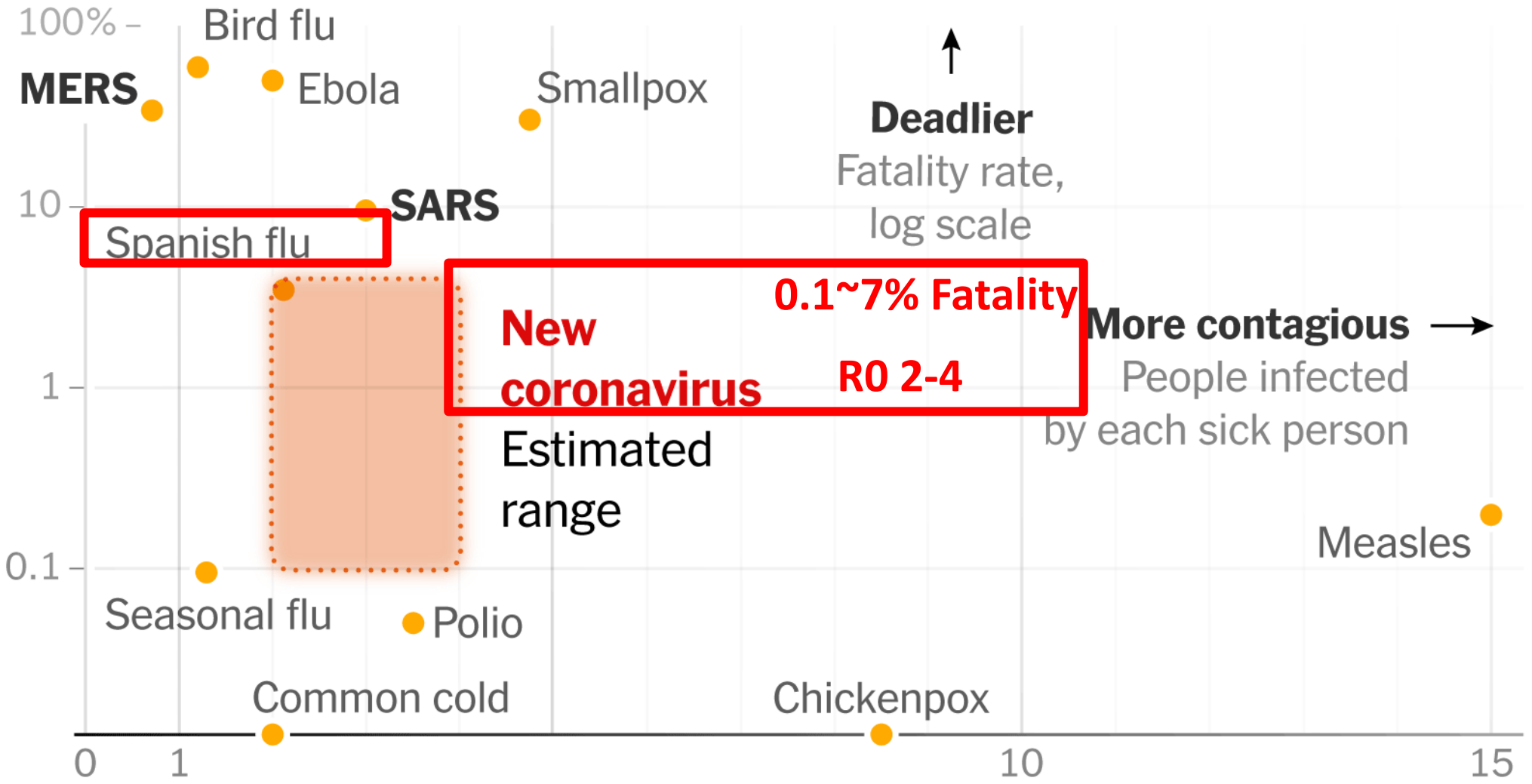
The above applies also to colds, bronchitis, pneumonia, and tuberculosis.



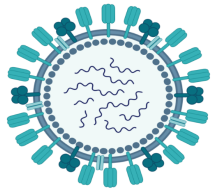
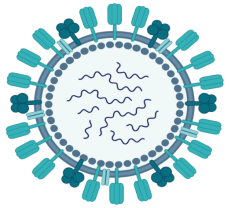
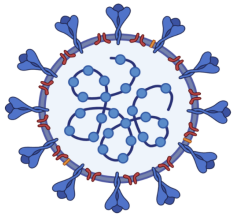
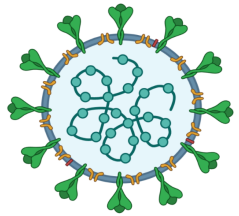
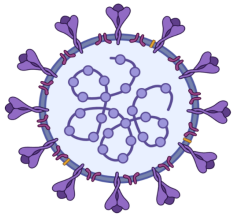
MIRRORPIX

A Daily Mirror cartoonist captures the confusion over public health messages

Infectivity and Fatality



COVID-19 is less fatal than SARS or MERS but more infectious (R0) than MERS and seasonal flu

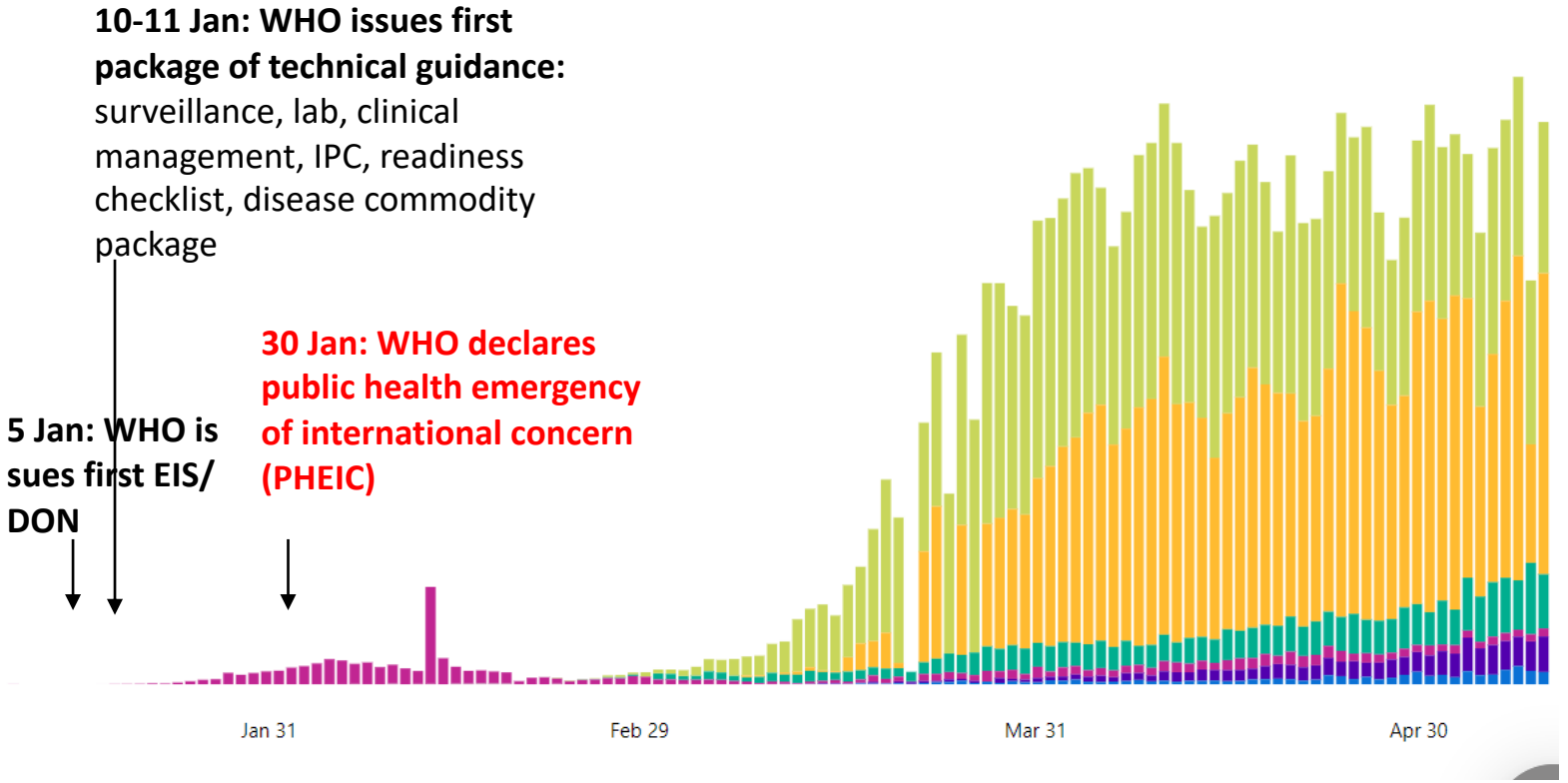
	Spanish flu	Seasonal flu	COVID-19	SARS	MERS
Pathogen	 Influenza virus	 Influenza virus	 SARS-CoV-2	 SARS-CoV	 MERS-CoV
R0 (basic reproduction)	1.5-2.8 (Est)	1.3	2-4 (?)	2-4	0.3-0.8
Hospitalization rate	-	2%	~20%	Most	Most
Community attack rate	-	10-20%	30-40% (household)	10-60%	4-13%
Annual Infected (Global)		~1billion			
Annual Infected (US)		10~45million			
Annual deaths(US)		10,000~61,000			
Total Infected	500million (Est)		4million (as of May 10)	8098	2521
Total death	50-100million		280,000	774	866
Case fatality rate	10-20%	0.05~0.1%	~6.9%(?)	10%	20~35%
Characteristics		Vaccines &therapeutics	Asx cases & transmission from Asx preSx	Hospital &community	Hospital

Report of COVID-19 Cases from 6 WHO regions

4.3 Million infected and 290,000 deaths (May 13)

Globally, as of **6:42pm CEST, 12 May 2020**, there have been **4,098,018 confirmed cases** of COVID-19, including **283,271 deaths,** reported to WHO.

Europe	1,755,790	confirmed cases
Americas	1,743,717	confirmed cases
Eastern Mediterranean	281,744	confirmed cases
Western Pacific	161,872	confirmed cases
South-East Asia	107,354	confirmed cases
Africa	46,829	confirmed cases



WHO International Health Regulations (3rd Edition, 2005)

- **International legal instrument binding all 194 member states of the World Health Organization**
- **IHR is intended to:**
  - help **prevent the spread of disease across borders**
  - outline the minimum requirements for functional public health system that allows **countries to quickly detect & respond to disease outbreaks in their communities**
- **PHEIC**

Revised in 2005 and effective from 2007

2009 Novel (swine) flu pandemic

2014 West Africa Ebola

2018-20 Kivu (DRC) Ebola

2014 Wild polio

2016 Zika

2020 COVID-19

Recommendations of 2nd WHO COVID-19 Emergency Committee (EC)

- **Organizing WHO China Joint Mission** to understand the situation: animal source, clinical characteristics, severity, community or hospital transmission, assessment of China's response

➢ Feb 16-24 2020, 25 experts (Team lead: Dr Bruce Aylward): The mission provided detailed information on the situation in China

- **To WHO**: Provide **support to countries and regions with vulnerable public health infrastructure** and collaborate with them
- **To China** : Conduct **exit screening** to identify infected travelers and to minimize travel restrictions from China to other countries and cooperation with WHO and other agencies
- **To all countries**: **WHO shall not immediately recommend any travel or trade restrictions** based on current information available and be cautious not to promote stigma or discrimination against specific groups in accordance with human rights principles of Article 3 of the IHR
- WHO DG **declared the PHEIC** on Jan 30 2020 based on recommendations from EC according to IHR (2005)

Recommendations of 3rd WHO COVID-19 Emergency Committee (EC)

The Director-General declared that the outbreak of COVID-19 continues to constitute a PHEIC

Advice to WHO

- **Coordination, planning, and monitoring**
  - Continue to lead and coordinate the global response to the COVID-19 pandemic in collaboration with countries, the United Nations (UN), and other partners.
  - **Work with fragile states and vulnerable countries** that require additional technical, logistical and commodity support.
  - Establish mechanisms to compile lessons learned from country and partner experiences and WHO missions and share the best practices and updated recommendations.
  - Provide further **guidance to countries about adjusting public health measures**, taking into account the different epidemiological situations of the pandemic.
  - Promote the **inclusion of all interested countries**, including **low- and middle-income countries** from all regions, in the **Solidarity clinical trials for therapeutics and vaccines**.
  - **One health, Essential Health Services, Risk communications/Community engagement, Surveillance, Travel and trade**

Advice to all member states: Coordination and collaboration, Preparedness, Surveillance, Additional health measures, health workers, food security, one health, risk communications and community engagement, research& development, essential health services

WHO-Korea Joint Mission on MERS 2015

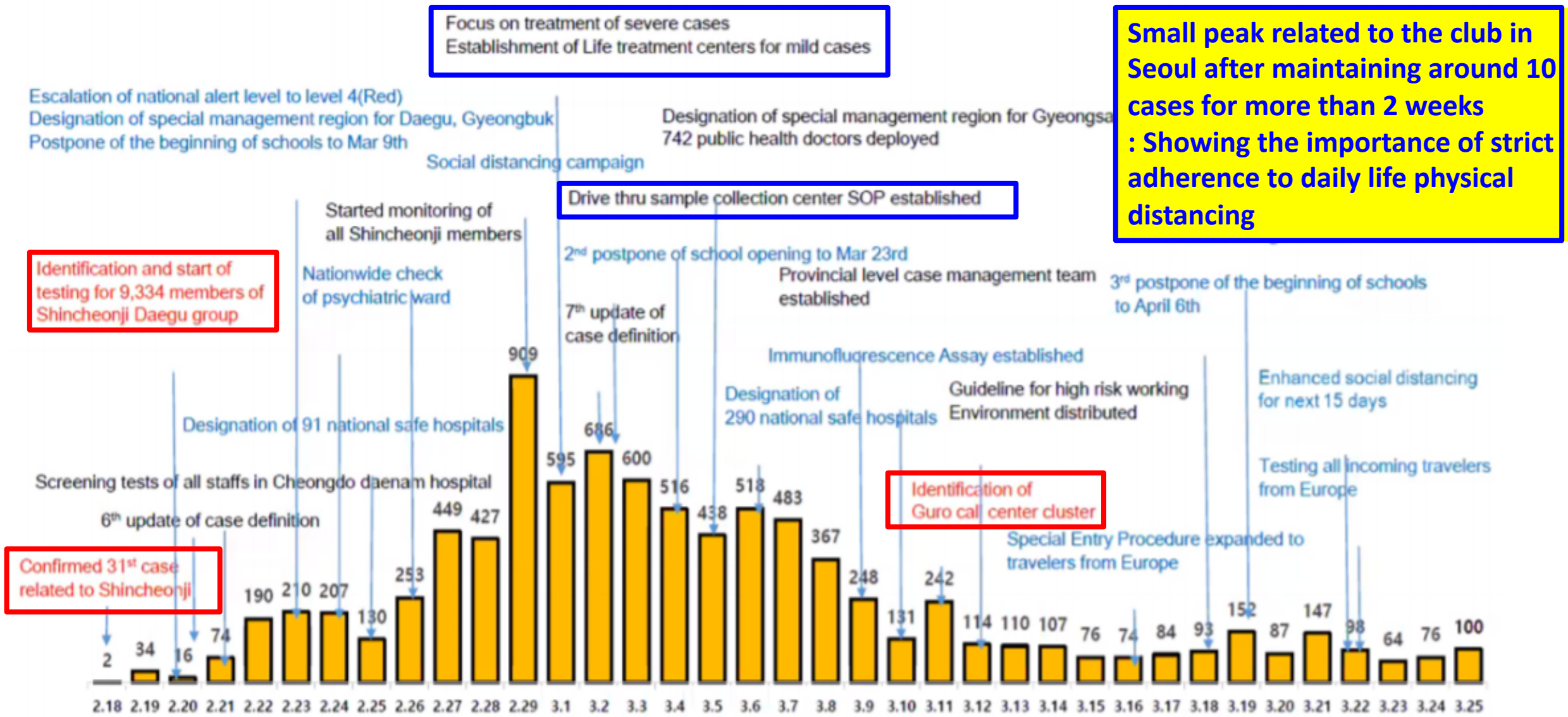
Actions taken after the 2015 MERS Outbreak

- Governance: dedicated Emergency Operation Center, Laboratory Analysis Center in Korea CDC
- Regulatory framework: Emergency Use Licensing in collaboration with MFDS and pharmaceutical companies enabled prompt preparation for lab testing
- Infrastructure: negative pressure rooms, field response teams, inter-ministerial cooperation (Ministries of Interior and Safety, Land, Infrastructure and Transport, and Food and Drug Safety etc.)
- Risk communication: dedicated teams, daily briefings (transparency, speed)

Timeline of the Early Stage of Public Health Responses in Korea

- Jan 3: Activated the Emergency Operations Center
  - KCDC initiated strengthening public health entry screening by individual temperature check and health questionnaires from the direct flights from Wuhan at the Incheon Airport, and further strengthened the thermal surveillance in other POEs.
- Jan 6: Alerting clinicians to look-out for patients with respiratory symptoms with a history of visit to Wuhan, China.
  - Drug Utilization Review systems also support this through providing travel histories of the patients at healthcare facilities.
- Jan 4 and 8: Developed, distributed guidance for the national designated isolation hospitals for clinicians
- Jan 17: Guidance for testing and management of nCoV and guidance for local governments.
- Jan 20: Scaled up alert level from Blue (Level 1) to Yellow (Level 2 out of 4-level national crisis management system), Jan 27: level 2 to 3 and Feb 23 level 3 to 4

Figure 1 New case of COVID-19 and speedy response of Korean authority



South Korea's Agile Responses to COVID-19

Testing

- Fast track preparation of COVID-19 testing kits in collaboration with Ministry of Food and Drug Safety and pharmaceutical companies
- Rapid expansion of testing labs including public and private sectors: 18 labs (31 Jan)->46(7 Feb) ->77 (25 Feb) ->114 (9 March)- 20,000 samples per day-> 30,000~40,000 per day
- Introduction of innovative sampling method: drive-through and walk-through

➢ 640,237 tested: 10,804 (1.7%) positive (as of May 5)

➢ Will guide us who should be isolated (cases including asymptomatic) and quarantined(contacts)

South Korea's Agile Responses to COVID-19

Tracing the movement and isolation/quarantine with ICT support

- Safety protection mobile app :Intensive tracing using GPS

  - Developed by the Ministry of the Interior and Safety, uses GPS to keep track of their location to make sure they are not breaking their quarantine.

  - Allows those quarantined to stay in touch with government officers.

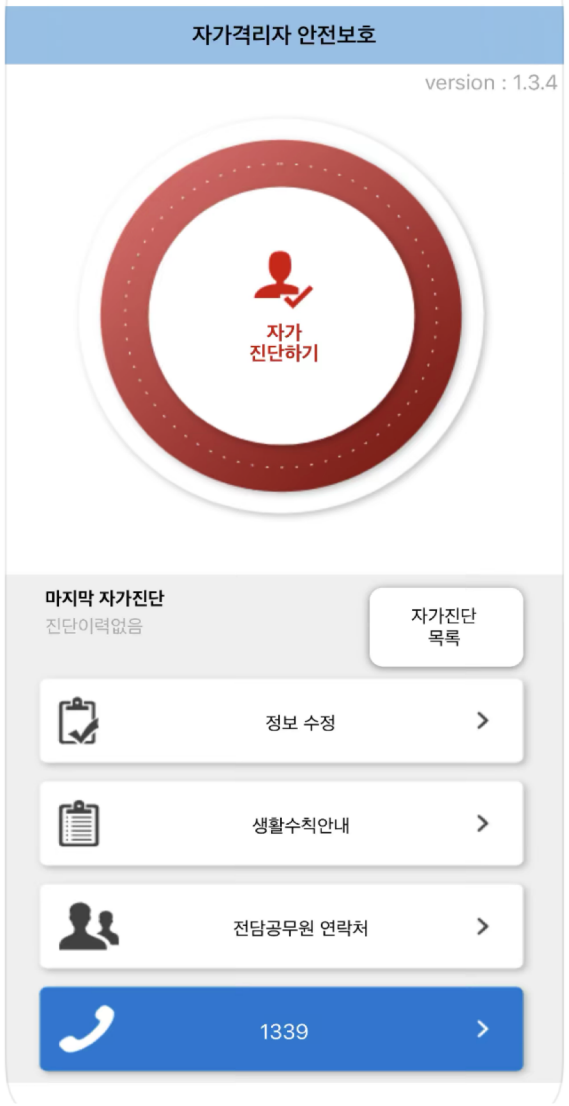
  - Real-time alerts via text message, apps and online on the number of confirmed cases of coronavirus (COVID-19), travel histories of those infected.

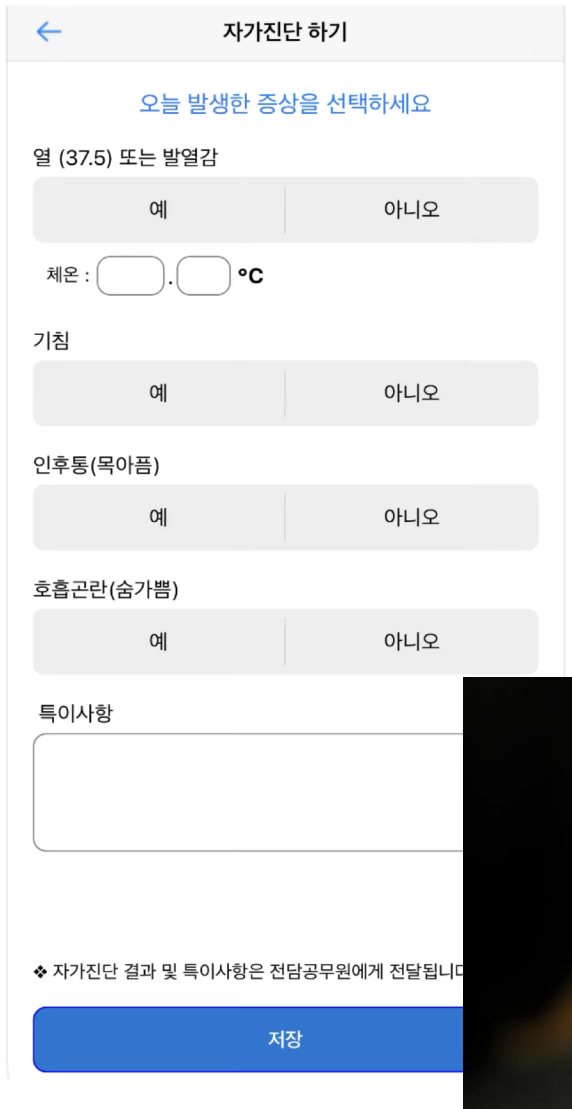
  - Not mandatory and telephone calls will still remain as an option.

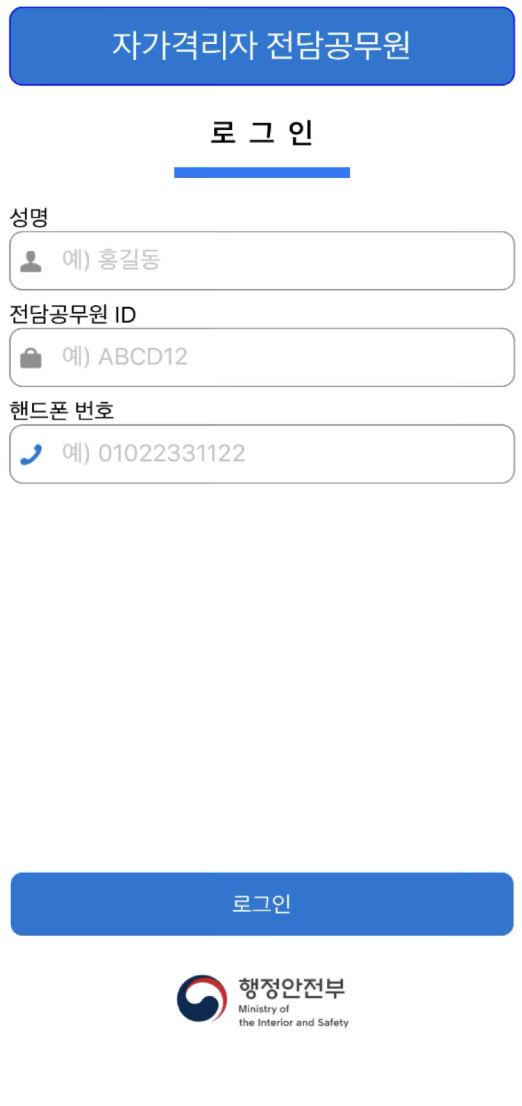
- CCTV analysis
- Credit Card transaction log information

➢ Raised questions on privacy but only minimum information without the names are disclosed under the amended law to allow the investigation

Safety Protection Mobile App

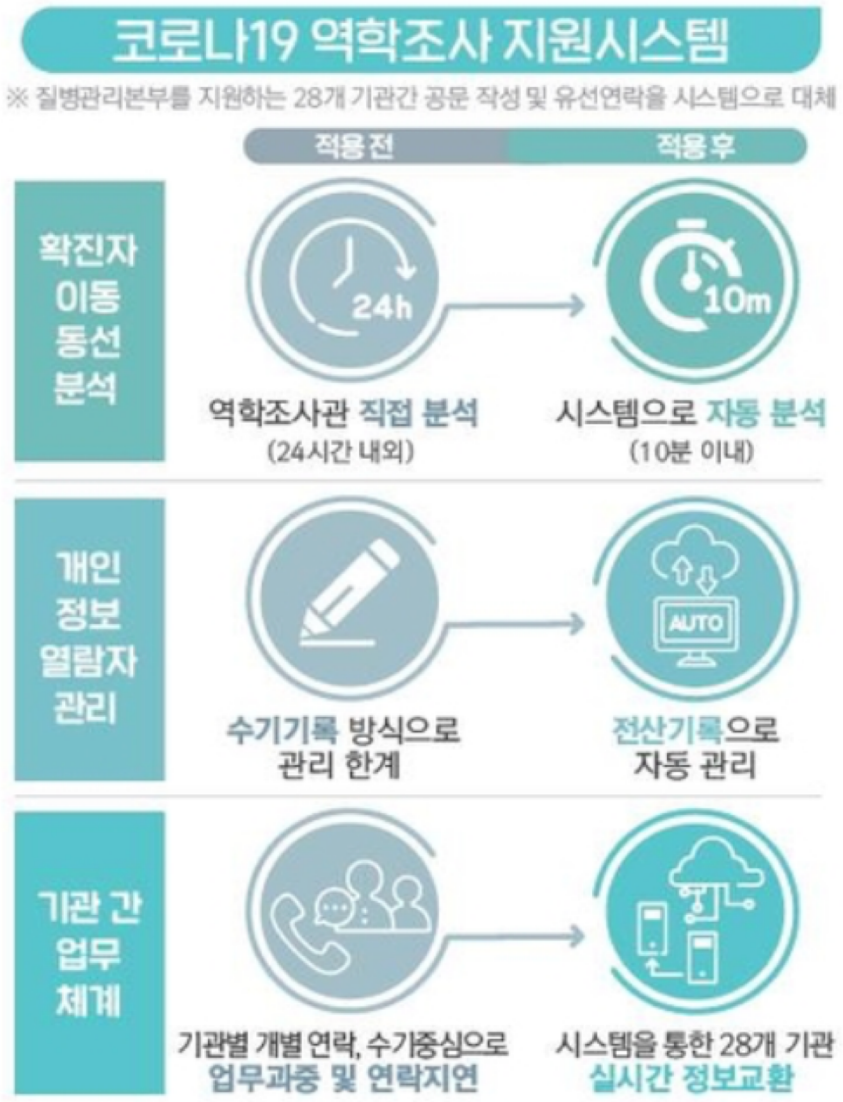






Ministry of Interior and Safety

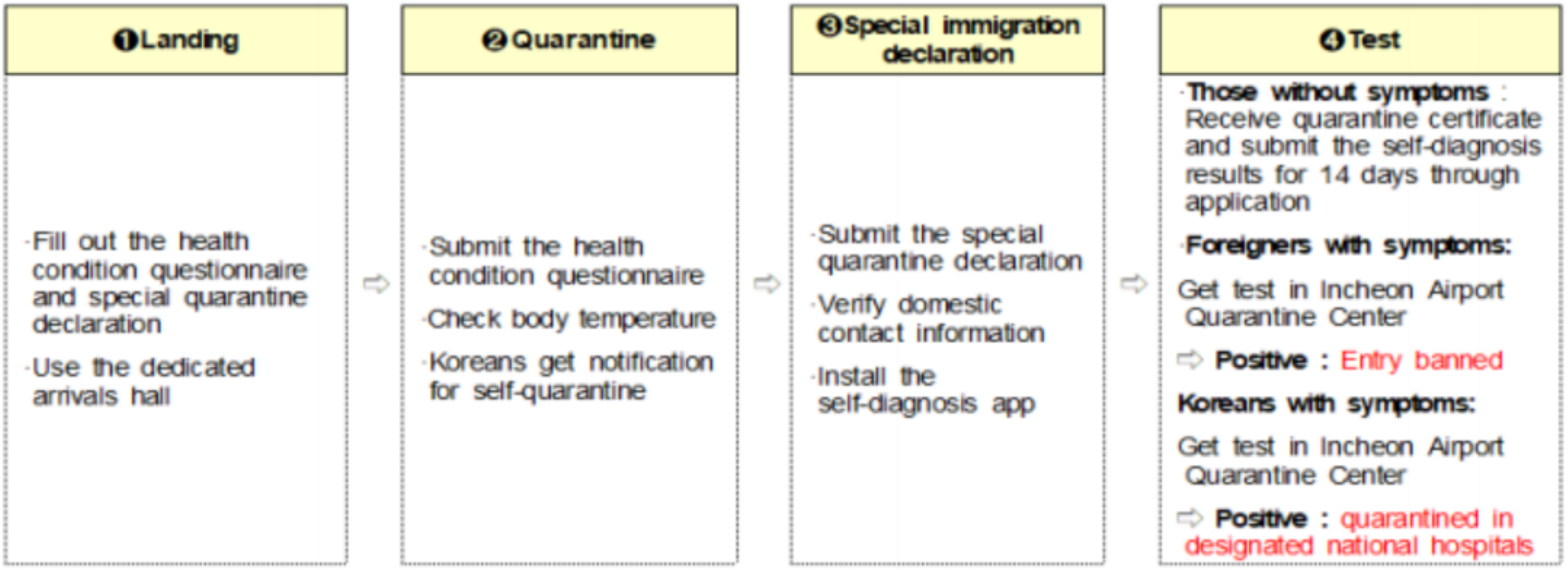
COVID-19 Smart Management System



Co-developed by Ministry of Land, Infrastructure and Transport, Ministry of Science and ICT, and Korea Centers for Disease Control and Prevention (KCDC) Operated from March 26 2020

Korean National Police Agency, the Credit Finance Association, South Korea's three mobile carriers and 22 credit card issuers have joined to create the quick tracking system.

Special Entry Procedures



- **Special Entry Procedures expanded to all incoming travelers from March 19: Korean and Foreign**
- **Also began testing all travelers coming from Europe and US and holding them for 24 hours until test results are received. Even if testing results are negative, all travelers must go into 14 days of self-quarantine or government quarantine (Europe from March 22, US from April 13)**

South Korea’s Agile Responses to COVID-19

Treatment

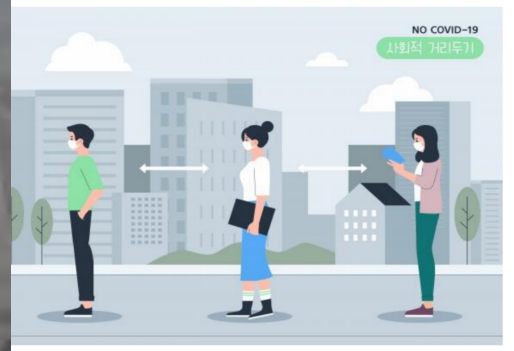
- Classified the cases based on severity
- Community treatment centers for mild cases to prevent overwhelming of hospitals and to enable severe patients to be properly treated at the hosp itals.
- Mild cases isolated and monitored at community treatment centers are monitored twice a day health care workers.
- Designation of 329 hospitals as COVID-19 hospitals while ensuring hospital accessibility and safety of non-COVID-19 patients
- Dispatch of medical staff from public hospitals and volunteers to Daegu

Community Treatment Centers

- Operation of Community Treatment Centers for mild cases
- 16 centers for 2620 mild cases as of March 15
- 409 dedicated medical staff monitoring health status
- When symptoms aggravate, patients are transferred to hospitals
- Most are closed now

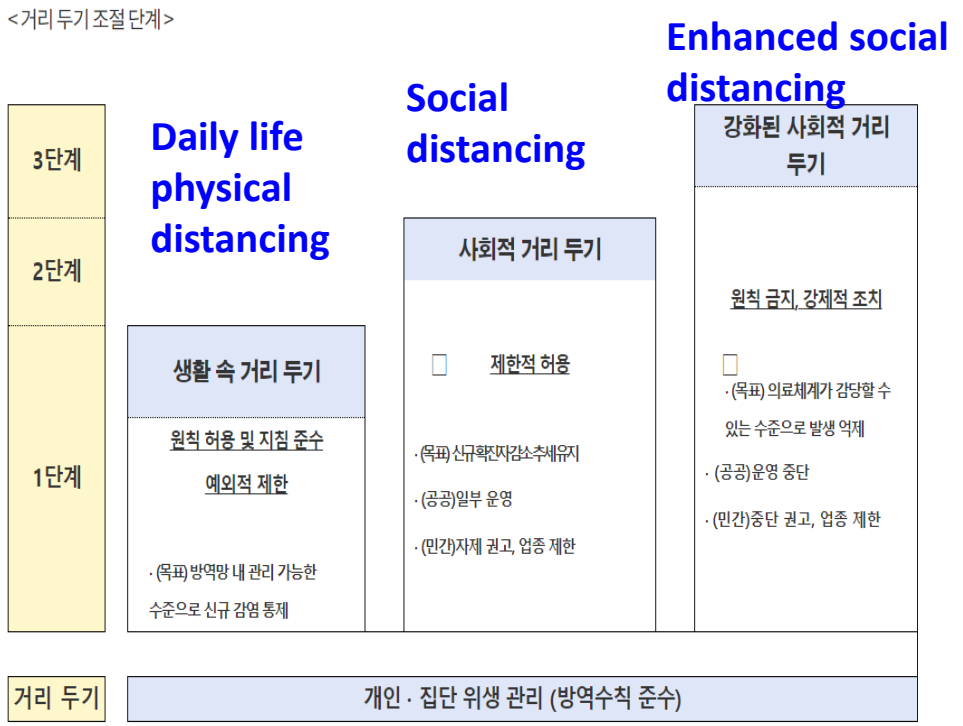
Social Distancing

- School closure and cancellation of major events started from an early stage of the outbreak.
- Relaxed social distancing (daily life distancing) implemented from May 6 after extended voluntary social distancing until May 5.
- Online school (elementary, middle, high school) began from April 9 and stepwise opening of schools planned from May 19
- General election on April 15 and two days of early voting as planned with strict hygienic measures (disposable gloves, masks and 2 meters distancing)
  - No COIVD-19 cases related to the election so far, high turnout rate of 66.2%

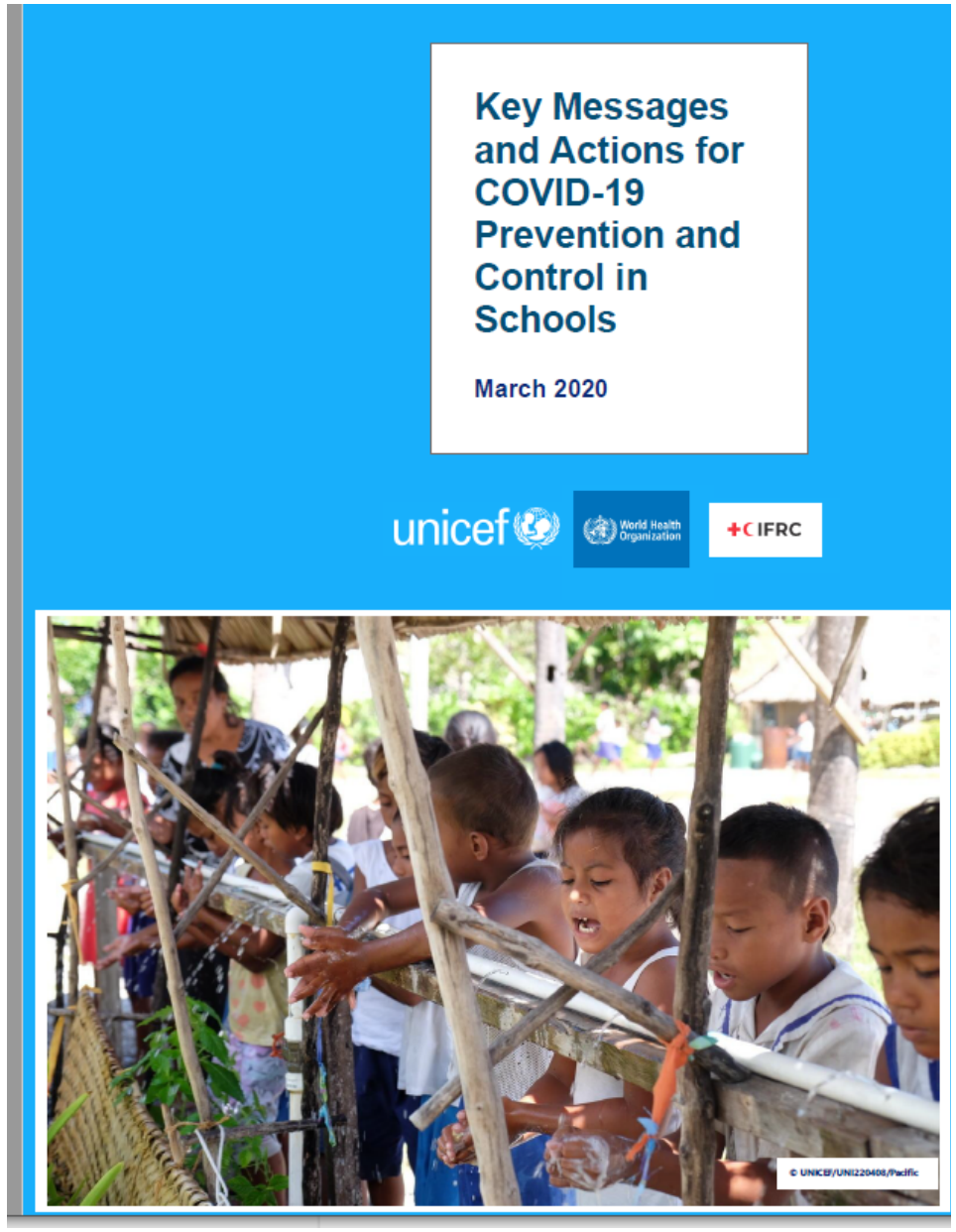


Graded Social Distancing Policy in Korea

- Risk assessment criteria
  - Less than 50 new cases per day
  - Unknown source <5%
  - Number and scale of clustering cases
  - Known epidemiological link >80%
- Basic principles of social distancing at the personal- and community-levels
- Adjustment of 3 levels of social distancing by regular risk assessment
  - Level1: Daily life physical distancing
  - Level 2: Social distancing
  - Level 3: Enhanced Social distancing



Transition must be guided by public health principles, economic &societal considerations



Recommendations for healthy schools :

- Sick students, teachers and other staff should not come to school
- Schools should enforce regular hand washing with safe water and soap, alcohol rub/hand sanitizer or chlorine solution and, at a minimum, daily disinfection and cleaning of school surfaces
- Schools should provide water, sanitation and waste management facilities and follow environmental cleaning and decontamination procedures

- Schools should promote social distancing:
  - Staggering the beginning and end of the school day
  - Cancelling assemblies, sports games and other events that create crowded conditions
  - When possible, create space for children's desks to be at least one metre apart
  - Teach and model creating space and avoiding unnecessary touching

Risk Communication

- Media briefing: Twice/day since 20 Jan
  - Central Disaster and Safety Countermeasure HQ and Korea CDC
- ➢ During last two weeks, around 70% of confirmed cases were imported (as of May 4)
- Transparency -enhancing public trust
- Collaboration with Expert committees and TF on clinical, epidemiology, lab testing and public health measures

Lessons from COVID-19 Outbreak Responses

- **Early** action is the key
- Asian countries with previous **experience** from MERS and SARS performed well: Korea, Hong Kong and Taiwan etc.
- **Easy access to medical services** for everyone (National Health Insurance for everyone) High number of Hospital beds per 1000 people: 12.27 Korea (2017), Germany 8, France 5.98, Italy 3.18, Spain 2.97, US 2.77, UK 2.54
- **Whole of government/society approach**: coordination between central and local governments, different ministries, public & private, academic societies, **public participation and community engagement**
- **Transparent risk communication** with public and media: trust leading to full community engagement and support
- **Innovative technologies**: drive through, walk through, smart tracking using ICT

Ways Forward: The Case of South Korea

- Timely and robust analysis of epidemiological and clinical data needed
- The number of public health experts (infectious disease expert, epidemiologist, microbiologist and modelling experts etc.)
- Securing infrastructure in preparation for surge (designated hospitals, negative pressure room, ventilators, ECMO)
- Inter-ministerial and public-private collaboration
- Scaling up R&D Investment
- Collaboration with WHO and global initiatives such as CEPI, GLoPID-R for developing vaccines and therapeutics
- Application of graded social distancing policy in Korea based on public health principles, economic &societal considerations

Public Diplomacy During the COVID-19 Crisis: The Case of South Korea

- Foreign Minister's Interview with BBC (15 March 2020)
- President's speech during G20 Summit (26 March 2020)
  - Emphasizing openness, transparency, democracy
  - Health Ministers' Session on COVID-19
- Requests from many countries to learn from Korea : >170 webinars, videoconferences and teleconferences with ~50 countries and international organizations to share our experiences (as of end of April)
- 117 countries asking for testing kits, official request from 81 countries (as of mid April)
- WHO DG requested a Keynote Speech to the President Moon during World Health Assembly (May 2020) - "K Success Model for COVID-19"