

Response of Workplaces in South Korea to the COVID-19 pandemic in the first 100 days

Key Facts

- Within 100 days of diagnosis of the first COVID-19 case, 17.4 percent of confirmed cases were found to be group infections in workplaces, including healthcare facilities, call centers, and public service offices
- The main contents of the guidelines to minimize infections were workplace distancing, flexible working schedules, early identification of workers suspected to be infected, and disinfection
- In preparation for another epidemic, risk assessment for COVID-19 infection continues to be necessary in every workplace. In view of the long term, occupational health should be treated as a more important part of the national crisis response system, so that immediate and consistent policies can be implemented

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The majority of COVID-19 workplace group infections were observed in healthcare facilities, call centers, and public service offices. Responses to workplace COVID-19 infections primarily included workplace distancing, flexible working schedules, early identification of workers suspected to be infected, and disinfection.

Abstract

100 Tage nach der Diagnose des ersten COVID-19-Falls entfielen in Südkorea 17,4 Prozent der bestätigten Fälle auf Gruppeninfektionen am Arbeitsplatz, einschließlich Gesundheitseinrichtungen, Call-Centern und in der öffentlichen Verwaltung. Die Reaktion in der Arbeitswelt erfolgte, nachdem Südkorea Alarmstufe Gelb für Infektionskrankheiten ausgerufen hatte. Das Land erließ Richtlinien, um das Risiko einer Ansteckung mit dem COVID-19-Erreger am Arbeitsplatz zu verringern. Diese Richtlinien enthielten unter anderem Maßnahmen zur Förderung des Abstandhaltens bei der Arbeit, zu flexiblen Arbeitszeiten, zur frühzeitigen Identifikation infektionsverdächtiger Beschäftigter und zur Desinfektion. In Vorbereitung auf erneute Ausbrüche der Pandemie oder das Auftreten eines neuen Erregers ist auch weiterhin eine Gefährdungsbeurteilung für jeden Arbeitsplatz notwendig, die den Infektionsschutz berücksichtigt. Langfristig sollte der Gesundheitsschutz bei der Arbeit als ein wichtiger Teil des nationalen Krisenreaktionssystems behandelt werden, sodass sofortige und widerspruchsfreie Maßnahmen umgesetzt werden können.

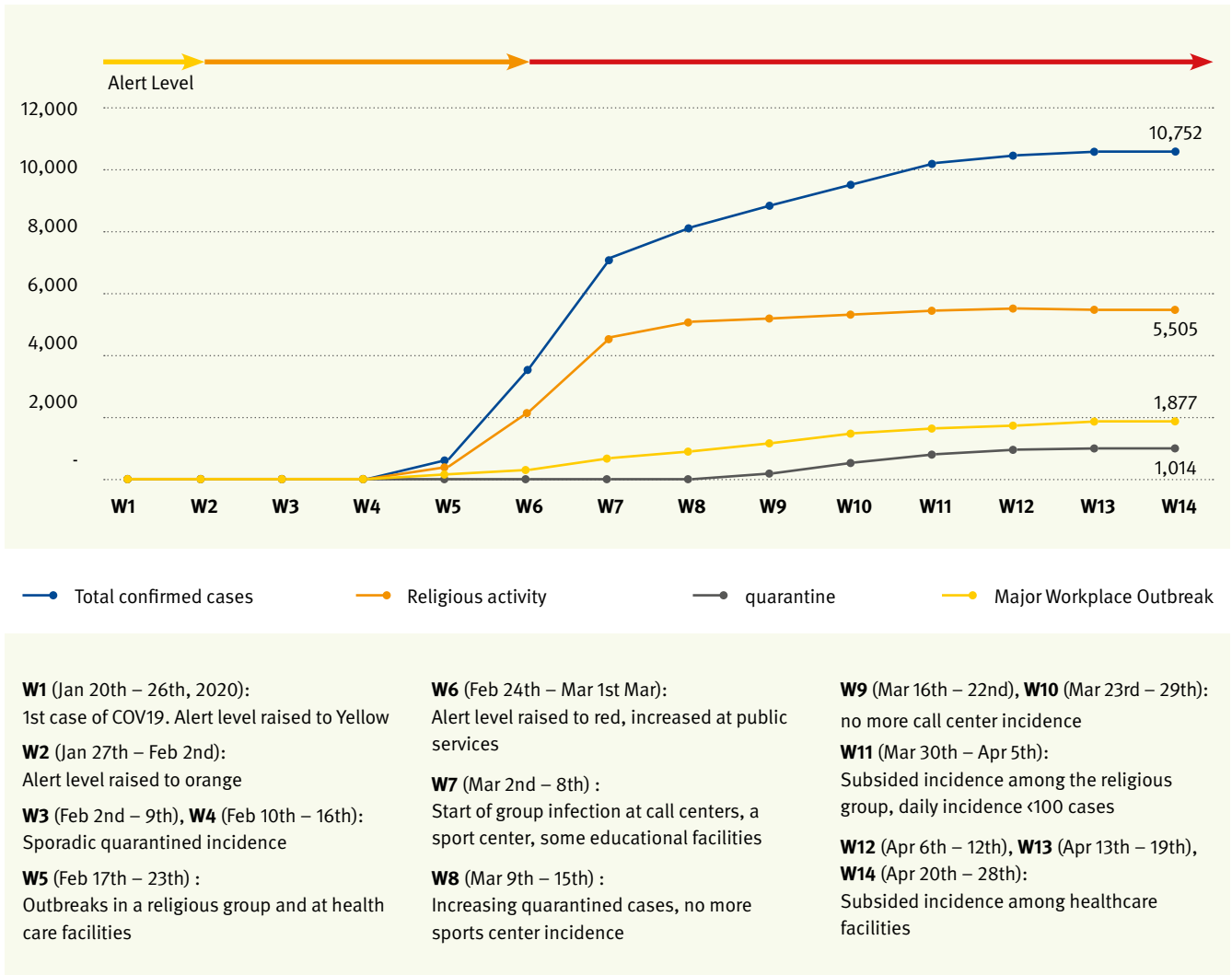
Aus Zeitgründen war eine Übersetzung des Beitrags ins Deutsche leider nicht möglich.

Outbreak of COVID-19 in society and the workplace

COVID-19, caused by the SARS-CoV-2 virus, is an unprecedented global public health crisis. South Korean workers have been confronted with various serious occupational health risks that were not yet fully understood by the policy-making authorities. This report presents the incidence trends

of workplace COVID-19 infections and the responses to the infection in South Korea within 100 days of diagnosis of the first COVID-19 case in Korea. Since the above have not yet been comprehensively evaluated in workplaces, we assembled the daily announcements of the central and local governments^[1] and analyzed the major cases of group infection in workplaces to visualize the overall trend of workplace infections.

By April 28, 2020, 10.752 COVID-19 cases had been diagnosed through 608.514 tests, including 244 deaths, representing a 2.3 percent case fatality rate^[1,2]. Figure 1 presents the weekly incidence of confirmed cases by major group infection. The incidence of COVID-19 was sustained with the occurrence of sporadic, quarantined cases until the 3rd week of the first 100 days. It rapidly increased after identification of



W1 (Jan 20th – 26th, 2020): 1st case of COVID-19. Alert level raised to Yellow
W2 (Jan 27th – Feb 2nd): Alert level raised to orange
W3 (Feb 2nd – 9th), **W4** (Feb 10th – 16th): Sporadic quarantined incidence
W5 (Feb 17th – 23th) : Outbreaks in a religious group and at health care facilities

W6 (Feb 24th – Mar 1st Mar): Alert level raised to red, increased at public services
W7 (Mar 2nd – 8th) : Start of group infection at call centers, a sport center, some educational facilities
W8 (Mar 9th – 15th) : Increasing quarantined cases, no more sports center incidence

W9 (Mar 16th – 22nd), **W10** (Mar 23rd – 29th): no more call center incidence
W11 (Mar 30th – Apr 5th): Subsided incidence among the religious group, daily incidence <100 cases
W12 (Apr 6th – 12th), **W13** (Apr 13th – 19th), **W14** (Apr 20th – 28th): Subsided incidence among healthcare facilities

Grafik 1: Confirmed COVID-19 cases by major group infection

the super spreader case from a religious group, surging on February 29 (5th week). About 5 weeks later, with comprehensive PCR testing and nationwide Public-Private academic cooperation, the number of new cases dropped to under 100 (11th week) [2, 5].

From among 10.752 COVID-19 cases, major group infections reported by central and local authorities belonged to religious groups (51.4 percent) and workplaces (17.4 percent). The incidence in workplaces started to increase along with that in religious groups by the end of the 5th week, when the COVID-19 alert level was raised to red (Figure 1). Several types of workplaces reported group infections, including public service offices (6th week), call centers, sport centers, and educational facilities (7th week) (Figure 1). The highest incidence was

observed in health care facilities, followed by call centers, sports centers, and public service offices (Table 1). The increased incidence was sustained for longer in health care facilities than in other workplaces (14th week), indicative of the high risk of direct contamination faced by workers at these facilities during patient care. As of April 5, 2020, the KCDC reported that 2.4 percent of confirmed COVID-19 cases were health care workers, and 1.0 percent was infected in a work-related environment [3].

Incidence among call center workers continued to increase for four weeks (11th week) (Figure 1). Most of the cases in call centers were among workers situated in a high-density work environment. A recent report from a call center outbreak in Seoul revealed that 92 (8 percent of the total work-

ers) were diagnosed with COVID-19, representing an attack rate of 43.5 percent. This showed that crowded office settings such as call centers could be exceptionally contagious sources of further transmission [4].

Participants in a leadership seminar held in a local sports center during the 6th week became spreaders in several other local sports centers. Physical activity and close kinship during the seminar rendered them highly contagious. Most of the group infection cases were customers infected by their sports teachers.

The work burden of public service officers increased greatly during the emergency response period, resulting in exhaustion. This group included workers in health departments and prisons, firefighters, and po-

lice officers. Although the infection route among them is not yet clear, the importance of public service officers in emergency response needs to be emphasized.

Not many group infections were reported from manufacturing industries, possibly due to the presence of younger, asymptomatic cases.

Response to COVID-19 in society and workplaces

The basic acts formulated for emergency response in South Korea are:

1. Framework Act on the Management of Disasters (FAMD), and
2. Infectious Disease Control and Prevention Act (IDPA).

According to (1), the government can initiate the response system to control national disasters, including pandemics, and the regulation-related act (2) relates the action specifically to infection control.

Based on FAMD, the Korea Centers for Disease Control and Prevention (KCDC) developed the Infectious Disease Crisis Management Standard Manual. According to

this manual, KCDC raised the alert level for infectious disease to blue considering the pneumonia cases in China. On January 20, the KCDC announced the occurrence of the first COVID-19 case in South Korea, raised the alert level to yellow, and began operations in the Central Disease Control Headquarters (CDCHQ). The Ministry of Commerce, Industry and Energy recommended formulating a Business Continuity Plan (BCP) during alert levels blue and yellow (Table 2).

After raising the alert level to orange (Jan 27, 2020), the Central Disaster Management Headquarters (CDMH) started to operate with government-wide support systems. The CDMH prepared to fast-track the development of COVID-19 diagnostic testing kits by holding urgent Private-Public Partnership talks. They provided doctors with access to the travel information of patients through the Intelligent Transport System (ITS), increased the number of screening stations and infectious disease hospitals, and distributed the drive-through screening test guidelines. Most of those policies were based on the FAMD and IDPA.

Workplace policy was also determined by the CDMH and ministry of employment

and labor. The major policy for workplaces was presented in the "Guidelines for the Workplace Response (GWR) to COVID-19 infection".

The important contents of the GWR include:

1. Strengthening of worker hygiene management and maintain cleanliness and disinfection at workplaces,
2. Prevention of infection and spread in the workplace,
3. Establishment of a protocol to detect suspected or confirmed patients in the workplace,
4. Establishment of a dedicated system and prepare a response plan for large-scale absenteeism,
5. Sick leave management for confirmed patients and contacts,
6. Postponement of special and pre-placement health examinations that may cause splashes during examination, such as pulmonary function examination (pulmonary vitality test, maximum expiratory flow measurement during work, non-specific hypersensitivity test), sputum cell test among workers who have fever or respiratory abnormalities on the examination day.

Quelle: KOSHA, Grafik: Klean better publishing

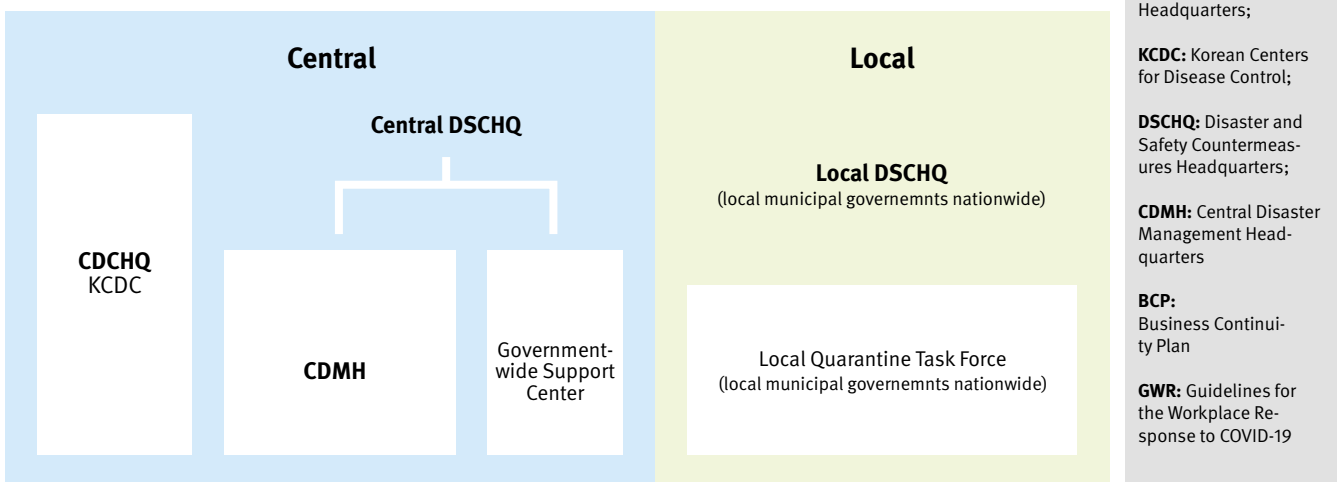
Workplaces	No. of Incident cases	Details		
Healthcare facility	Total cases including patients	1,219	Facilities	General hospitals, outpatient clinics, nursing facilities, daycare centers
	Health care workers	241	Job	Doctors, nursing professionals, dentists, hospital caregivers, home care workers, office workers, cleaners, cooks
Call center	Workers	192		Call center workers
Education		27		Teachers, students
Sports center	Workers & customers	103		Trainers, customers
Public Service	Workers	95		Government employees, soldiers, firefighters
Other services	Workers & customers	42		Restaurant customers, bank and other factory employees
Manufacturer, Construction	Workers	17		Electronics workers, construction workers, chemical workers

Tabelle 1: Major COVID-19 group infections in workplaces

	Society	Workplace
Alert level Blue Jan 3rd		
Alert level Yellow Jan 20th	CDCHQ, Local government task force team operation Expansion of the case definition, strengthening of the screening test	Development BCP
Alert level Orange Jan 27th	Social distancing CDMH operation Urgent talks for Public-Private Partnerships: Development of diagnostic testing kit for COVID-19 Intelligent Transport System on patients' foreign travel information PCR test in private medical institutions Appointed Infectious Disease Hospital Fire officials' mobilization order no.1 Drive-through screening test guidelines	Preparation for operation of BCP Application of GWR to COVID-19: Social distancing in workplaces, deferment of the workers medical screening program Expansion of available items to occupational safety and health management expenses: personal masks, thermal imaging cameras, hand sanitizers.
Alert level red Feb 23rd	Enhanced social distancing CDSCHQ operation with government-wide support network. Ban on multi-use facilities (kindergartens, gyms), deferment of school opening Relieving the burden of four social insurance payments and electricity Appointment of National Safe Hospitals Fire officials mobilization order no.2 Opening of residential treatment centers Recommendation to close religious facilities, gyms, clubs, and bars	Upgrading of the GWR to COVID-19 in several foreign languages, operation of BCP Deferment of Safety and Health Education, Financially supporting personal mask manufacturers Deferment of the occupational accident insurance payment Extension of foreign workers' working period Online Safety and Health inspection Social distancing guidelines Guidelines for infection prevention at call centers

Tabelle 2: Major emergency responses to COVID-19 in society and workplaces

Quelle: KOSHA, Grafik: kleon better publishing



Grafik 2: Response system of the South Korean Government to COVID-19

Prevention of infectious diseases in call centers (Mar 15th 2020)

- A** Designate a dedicated organization or a dedicated person at the workplace to prepare a response manual, and guide and disseminate the manual to all call center workers.
- B** Minimize congestion, install transparent partitions or screens (recommended height: 90 cm from desk). Increase the gap between desks and workers as much as possible (preferably over 1 m).
- C** Flexible working system (telecommuting, time difference commuting). Create an environment where annual vacations are freely available. Take measures to prevent work or personal disadvantages.
- D** Provide hand disinfectants and masks in proportion to the number of workers; make it mandatory to wear masks as often as possible.

Install air conditioners and air cleaners according to the office area and the number of workers. Periodically open windows to ventilate (at least once every 2 hours).

Maintain cleanliness of desks, chairs, office equipment (mouse, keyboard, etc.), door handles, handrails, switches (buttons), and disinfect regularly (once a day).

Use disposable covers, filters, or replace them at any time for contact surfaces, such as telephones, headsets, and microphones, which may come in contact with droplets. If disinfection is possible, perform disinfection (at least once a day). Maintain the cleanliness of the space and periodically ventilate and disinfect (at least once a day).
- E** Monitor body temperature more than twice a day (note temperatures over 37,5 °C).

Workers with fever (over 37,5 °C) or respiratory symptoms (cough, sore throat, etc.) should be immediately reported to the local health center. Even if there is no direction from the health authorities, allow the worker to use sick leave or paid leave.

Tabelle 3: Guidelines for call center workers

In addition to the GWR, there was expansion of items relating to occupational safety and health management expenses.

When the alert level was raised to red, CDSCHQ (Central Disaster and Safety Countermeasure Headquarters) and the government-wide network was operationalized. Multi-use facilities and schools were closed. GWR in workplaces was upgraded to strengthen social distancing measures. Considering the outbreaks in call centers, the Ministry of Employment and Labor announced guidelines for call center work (Table 2). The response system in alert level red is presented in Figure 2. Guidelines for call center workers included maintenance of minimum space between workers, screens, flexible working schedules, and detailed instructions for maintaining cleanliness in the workplace (Table 3). In fact, the condensed working space was one of the most important reasons why the attack rate of COVID-19 was so high. Therefore, the guidelines strengthened regulations governing interpersonal

space and flexible working schedules in order to minimize congestion in the office.

Distancing in the workplace

There are four^[5] components of workplace distancing guidelines: use a flexible working system, minimize meetings and business trips, case monitoring, space management, and disinfection (Table 4). After alert level red, CDSCHQ strongly encouraged flexible working and the use of sick leave. In the majority of private business in Korea, workers do not have enough sick leave. According to IDPA, the employer should provide paid sick leave to workers who need to leave for home quarantine or treatment of infectious disease. The COVID-19 crisis evokes a social discussion regarding provision of paid sick leave to all workers. Another social discussion that started due to COVID-19 was that of presenteeism among workers. Nineteen percent of Korean workers reported presenteeism^[7], which could be an important risk factor for contagious disease.

Avoiding face-to-face meetings, business trips, and teaching was another critical component of preventing the spread of workplace infection. Due to an increase in the number of confirmed patients among civil servants, the government implemented three-shift remote work from March 16 as part of the prevention effort. In this non-face-to-face working environment, which was built based on a range of ICT technologies including Cloud Mobile, government officials have been working just as efficiently as if they had showed up at the office. Online educational content can enable students to continue learning at primary, junior high, and high schools^[6]. Suspected signs and symptoms of COVID-19 and hygiene procedures were strictly monitored at the gates and front doors of meeting rooms in most public and private workplaces.

To date, meeting the challenges in the workplace due to COVID-19 has not been easy for workers and professionals. As opposed to health care facilities, which are already known to be high-risk workplaces,

Workplace Distancing



Use vacation and flexible work:

Active use of a flexible working system (telework, time off work, etc.) and vacation system (family care leave, annual leave, sick leave, etc.)



Meetings & business trips:

Deferring or canceling domestic and overseas business trips, workshops, collective training, preferred use of video conferencing



Suspicious symptom monitoring and action in case of symptomatic case:

Daily worker body temperature checks with a non-contact thermometer or thermal imaging camera to check for respiratory symptoms. Leave work immediately if symptoms appear. Fever check (more than twice a day).



Management of office space, cafeteria, and rest area:

Keep the distance between workers at 2 meters (at least 1 m). Don't allow several people together in the common room. Wear a mask when in indoor multi-use facilities.



Disinfection and hygiene:

Keep the windows open at all times, or periodically ventilate at least twice a day. Frequently disinfect commonly used objects (such as door handles) and surfaces more than once a day, use personal mugs, teaspoons, and personal items. Stop actions that may splatter saliva (singing songs, shouting slogans, etc.) or physical contact (handshake, hugging, etc.) Workers who interact directly with customers, or work in indoor multi-use facilities should be provided with masks and sanitary items when it is not possible to keep 2 meters space between personnel.

Tabelle 4: Major Components of Guidelines for Workplace Distancing

the risk in call centers and public service offices was unpredictable. The COVID-19 pandemic is ongoing, and nobody can predict the outcome. Additionally, there could be another infectious epidemic involving another transformed pathogen that is even more contagious. Therefore, risk assess-

ment in terms of workplace infection continues to be necessary in every workplace. The items in the risk assessment should include flexible schedule, presenteeism, congestion of the workplace, personal density, and the disinfection schedule; the same causes of infection that we observed in the

COVID-19 workplace outbreaks. In view of the long term, occupational health should be treated as a more important part of the national crisis response system, so that immediate and consistent policies can be implemented.

Fußnoten

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