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1. Introduction

The first confirmed patient of COVID-19 in the Republic of Korea(RoK) was reported on January 20, 2020. As of October 23, 2020, there were 25,698 confirmed cases and 455 deaths of COVID-19. This is ranked 86th in the world in terms of the number of confirmed patients, and the ROK can be evaluated that it controls COVID-19 successfully considering a total population of 52 million people.



COVID-19 Confirmation Tracker in the ROK

* Source : COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

From the beginning of 2020, several foreign media have pointed to the ROK as a democratic country that responded to COVID-19 successfully, comparing it with the response of China, which imposed a lockdown in Wuhan. They say that factors for successful quarantine include rapid development and approval of diagnostic kits, identification of contacts through epidemiological investigations of infectious patients, expeditious and active diagnostic tests, safe and effective tests such as drive-through tests, and transparent disclosure of infectious disease-related information like the travel log of confirmed patients. Mask-wearing culture,

physical distancing campaigns, and voluntary cooperation of citizens are also mentioned.

The Korean government is promoting international standardization, naming it the "K-Qaurantine Model". The Korean government described the 'K-Qaurantine model' as a 3T (Test-Trace-Treat) which are '① test/confirmation \rightarrow ② epidemiology/tracking \rightarrow ③ quarantine/treatment'. It is based on identifying contacts by a precise epidemiological investigation of infectious disease patients, quarantining suspected COVID-19 patients and conducting active diagnostic tests. However, in this process, the sensitive personal information such as medical conditions, travel history, sexual orientation and private relations are collected, processed and disclosed, leading to controversy over personal information infringement.



* Source : Ministry of Foreign Affairs. TRUST Campaign to fight against COVID-19 : Lessons Learned & the Way Forward

It is not only in the ROK where people raise concerns about state surveillance, human rights violations, and discrimination against minorities in the government's response to this infectious disease crisis. In many countries around the world, governments take hardline measures to block COVID-19, and international organizations and human rights groups are expressing concern. Other countries also use technologies similar to those of the ROK, such as collecting personal information or tracking locations, and there are cases of using

technologies that have a greater risk of human rights violations, such as face recognition¹ or drones². However, few countries employ massive personal information collection and surveillance technologies aggressively like the ROK. Nevertheless, Korean model is worth an in-depth study in that such strong surveillance measures are assessed as effective in quarantine. The ROK has succeeded in controlling the number of confirmed cases without implementing restrictions on entry from abroad, lockdowns in regions, or strict limitations on travel like a curfew.

It is difficult to conclude that the Korean model is more repressive in that restrictions on the right to liberty of movement are also limitations on fundamental rights. But before concluding that strong surveillance measures are effective in responding to infectious diseases, we need a rigorous analysis on whether the collection of personal information and the use of surveillance technology really worked in responding to COVID-19, whether there were other larger factors that influenced the success of quarantine, or whether it is possible to improve the Korean model in a less invasive way.

¹ VICE News, Moscow's Facial Recognition Tech Will Outlast the Coronavirus, 2020.4.16.

² The Economic Times, Covid-19 lockdown: Authorities rely on drone eye to maintain vigil, 2020.4.12.

Infection Control System of Korea



* Source : The government of the Republic of Korea. Tackling COVID-19 : Health, Quarantine and Economic Measures Korean Experience. 31 March 2020

2. Human Rights Principles in times of infectious disease crisis

Korea's quarantine policy needs to be evaluated through the standards of human rights along with its effectiveness. Although most countries around the world have already adopted the International Covenant on Economic, Social and Cultural Rights, many governments have been threatening basic rights in the name of public crisis or national security. For this reason, the UN Economic and Social Council adopted the Siracusa Principles³ and proposed specific conditions and grounds for limiting fundamental rights in 1984. The World Health Organization (WHO) said in a book published in 2002, interfering with human rights in order to achieve the goals of public health can be justified only as a last resort, and in accordance with Siracusa principles when all of the following conditions are met. Even though restrictions are permitted, such restrictions must be limited to a fixed period and must be reviewed.⁴

- The restriction is provided for and carried out in accordance with the law;
- The restriction is in the interest of a legitimate objective of general interest;
- The restriction is strictly necessary in a democratic society to achieve the objective;
- There are no less intrusive and restrictive means available to reach the same objective; and

• The restriction is not drafted or imposed arbitrarily, i.e. in an unreasonable or otherwise discriminatory manner.

Even in the Coronavirus crisis, international organizations, including the United Nations,

³ Siracusa Principles on the Limitation and Derogation of Provisions in the International Covenant on Civil and Political Rights, Annex, UN Doc E/CN.4/1984/4 (1984)

⁴ World Health Organization, 25 Questions and Answers on Health and Human Rights, 2002.

Data Protection Supervisory Authorities and human rights groups call for the governments' actions to respond to this crisis to be based on human rights principles. The UN High Commissioner for Human Rights urged, "Lockdowns, quarantines and other such measures to contain and combat the spread of COVID-19 should always be carried out in strict accordance with human rights standards and in a way that is necessary and proportionate to the evaluated risk."⁵ The Secretary-General of the United Nations also published the policy report 'COVID-19 and Human Rights', saying, "We must ensure that any emergency measures are legal, proportionate, necessary and non-discriminatory, have a specific focus and duration, and take the least intrusive approach possible to protect public health".⁶

The principle of protecting personal information in the infectious disease crisis is not very different from the general human rights principle. Data Protection Supervisory Authorities in many countries also published the principle of processing personal information in the COVID-19 crisis. Though the Personal Information Protection Act does not hinder the processing of personal information to control the infectious disease crisis, it is the general stance that the principle of personal information protection is still applied⁷. The European Data Protection Board (EDPB), the European body composed of national data protection authorities, said that measures to prevent infectious diseases may limit the rights of data subjects to some degree, but this should not be a general limit to invalidate basic rights and should be considered necessary and proportionate for the public benefit, based on the law, and the duration of its restrictions should be strictly limited.⁸ As international civil society and human rights organizations such as Human Rights Watch, Amnesty International, Association for Progressive Communications and Access Now are also concerned that the

⁵ UN OHCHR. Coronavirus: Human rights need to be front and centre in response, 2020.3.6. https://ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25668&LangID=E

⁶ UN OHCHR. We are all in this together: UNSG delivers policy brief on COVID-19 and human rights. Statement by UN Secretary-General António Guterres. 2020.4.23.

⁷ The Personal Information Protection Commission, a Data Protection Authority in Korea, did not take a stance on the protection of personal information related to COVID-19, as it was newly-instituted on August 5th, 2020 to strengthen its independence and authority according to the revision of the Personal Information Protection Act in January 2020. On September 11, after its launch, it announced <COVID-19 Personal Information Protection Reinforcement Measures>

⁸ EDPB. Thirtieth Plenary session: EDPB response to NGOs on Hungarian Decrees and statement on Article 23 GDPR. 2020.6.3.

governments' actions in response to COVID-19 can be a constant digital surveillance, they recommended principles to avoid the situation. They requested that "COVID-19 related responses that include data collection efforts should include means for free, active, and meaningful participation of relevant stakeholders, in particular experts in the public health sector and the most marginalized population groups."⁹

⁹ Joint Civil Society Statement: States use of digital surveillance technologies to fight pandemic must respect human rights. 2020.4.2.

3. Korean legislation for processing personal information in responding to infectious diseases

The general law governing the collecting and processing of personal information in the ROK is the Personal Information Protection Act. As a law stipulating the prevention and response of infectious diseases, there is the 'Infectious Disease Control and Prevention Act (hereinafter referred to as the Infectious Disease Prevention Act)'. Article 6 of the Personal Information Protection Act states that "The protection of personal information shall be governed by this Act, except as otherwise specifically provided for in other Acts." Therefore, the Infectious Disease Prevention Act is applied first when they deal with personal information to control infectious diseases. If there is no specific provision for managing personal information in the Infectious Disease Prevention Act, the Personal Information Protection Act is applied.

However, the relationship between the Personal Information Protection Act and the Infectious Disease Prevention Act needs to be defined more clearly. Some provisions of the Infectious Disease Prevention Act provide "in relation to OOO, except for those specified in this Act, the Personal Information Protection Act is applied". Other provisions of the Infectious Disease Prevention Act that do not contain these phrases may be misunderstood as not applying the Personal Information Protection Act. For example, Article 76-2, Paragraph 8 of the Infectious Disease Prevention Agency provides information to health care institutions, etc., the party receiving the information must not use the personal information for other purposes, and destroy it after completing the relevant tasks without delay. It stipulates that "When a person processes the relevant information in violation of this Act, such person shall be governed by the Personal Information Protection Act". But the Infectious Disease Prevention Act does not have any rules on the processing principle or destruction of

personal information by the Korea Disease Control and Prevention Agency which collects and processes original personal information. The Personal Information Protection Act should be applied in this case, but it is not clearly described in the Infectious Disease Prevention Act.

Article 58(1)(3) of the Personal Information Protection Act exempt the case of "Personal information processed temporarily where it is urgently needed for the public safety, security such as public health, etc." from the application of Chapters 3 through 7 of the Act. Yet it is unlikely that Article 58(1)(3) of the Personal Information Protection Act will be applied to the processing of personal information in COVID-19 response measures. This clause rules "temporarily processed personal information," and regular personal information management in the infectious diseases crisis would follow the Infectious Disease Prevention Act.

One of the factors that enabled the ROK to respond to COVID-19 swiftly was that it established a legal basis for compulsory countermeasures through the amendment of the Infectious Disease Prevention Act after the policy fiasco on MERS in 2015.

New provisions were introduced to collect medical history, credit card use details, location etc. of confirmed and suspected infectious disease patient and to disclose information which authorities decide necessary for the prevention of infectious diseases in the revision of the Infectious Disease Prevention Act on July 6, 2015. The Infectious Disease Prevention Act has been amended several times again in the midst of tackling COVID-19 in 2020.

4. Digital Rights Issues in COVID-19 Response

(1) Epidemiological investigation and contact tracing of infectious disease patients

A. Overview and present state on epidemiological investigation and contact tracing

When a confirmed case occurs, the health authorities track the movement of the confirmed patient through an epidemiological investigation to determine from whom the confirmed person was infected and who are at risk of infecting. Upon identifying a confirmed case, the public health center must immediately report it to its city or province administration and the Disease Control and Prevention Agency and then register the case on the Integrated Disease and Health Management System. The investigator notifies the patient that the investigation will be conducted according to the Infectious Disease Prevention Act. After a contact check under the direction of the city/province emergency team, a list of contacts is registered in the system, and transferred to the public health center in which the contact resides, and the contact is required to self-quarantine. Normally, the 14-day travel history before the onset of symptoms is analyzed in an epidemiological approach to acquire relevant information. A research of the confirmed case focuses on their overseas visits, contacts with existing confirmed cases, visits to public or healthcare facilities, linkage to mass infection cases, and medical history. The scope of close contacts includes any individuals encountered with the confirmed patients starting from 2 days before their illness onset, and in the case of asymptomatic patients, 'from 2 days before the date of sample collection, considering a variety of factors such as symptoms of the confirmed case, wearing face masks, type of visiting place, and time and length of exposure. The movements of confirmed

cases can be first checked during patient interviews. Investigations using GPS or credit card transaction records should only be conducted when municipal epidemic service officers deem it necessary.

Epidemiological investigations are conducted on confirmed patients not just in the ROK. What makes the ROK unique is that it does not rely solely on patient interviews, but supplements it with extra information such as medical records, credit card transaction details, location data, and CCTV footage in case patients cannot remember in detail or make false statements.¹⁰ In addition, the Contact Tracing App, which is widely employed in Europe and the United States, is not used in the ROK. It may be because there have been so many confirmed cases that epidemiological investigations cannot handle them in the West where detailed tracking of contacts is difficult due to privacy protection, whereas the ROK finds contacts through collecting personal information and monitoring technology.





Source : COVID-19 National Emergency Response Center et al.

¹⁰ COVID-19 National Emergency Response Center, Epidemiology & Case Management Team, Korea Centers for Disease Control & Prevention, Contact Transmission of COVID-19 in South Korea: Novel Investigation Techniques for Tracing Contacts, 2020.2.18.

Legal grounds

Chapter 4 of the Infectious Disease Prevention Act deals with the general regulations of epidemiological investigations, and the request and process of additional information is stipulated in Article 76-2 (request for information and confirmation of information). Article 76-2, Paragraph 1 of the Act provides health authorities with the legal ground to collect personal information.

• Requester: The Commissioner of the Korea Disease Control and Prevention Agency, mayors, province(Do) governor

• Request requirements: when necessary to prevent infectious diseases and block the spread of infection

• Party obligated to provide information: the heads of relevant central administrative agencies (including affiliated agencies and responsible administrative agencies thereof), the heads of local governments (including the superintendents of education), public institutions, medical institutions, pharmacies, corporations, organizations, and individuals to provide the following information concerning patients of infectious diseases, etc. and persons suspected of an infectious disease, and persons in receipt of such request shall comply therewith. Virtually everyone

• requested object:

- Personal information, such as names, resident registration numbers, addresses, and telephone numbers (including cell phone numbers);

- Prescriptions and medical records

- Records of immigration control during the period determined by the Minister of Health and Welfare

- Other information prescribed by Presidential Decree for monitoring the movement of such patients

Enforcement Decree of the Infectious Disease Control and Prevention Act Article 32-2 defines requestable information to figure out the movement means credit card, debit card, pre-paid card, transportation card statements, and video compiled through image data

processing equipment(i.e. CCTV).

Article 76-2 Paragraph 2 prescribes that the Commissioner of the Korea Disease Control and Prevention Agency, mayors, province governor or the head of local government may request any telecommunications business operator and the personal location information provider to provide location information of patients of an infectious disease and persons suspected of an infectious disease, in this case, through police.

COVID-19 Epidemiological Investigation Support System

The Ministry of Land, Infrastructure and Transport, the Ministry of Science and ICT and the Korea Disease Control and Prevention Agency launched COVID-19 Epidemiological Investigation Support System(EISS) in March 26, 2020. The system is a new computer network designed to support epidemiological investigations on confirmed cases in close cooperation with 28 organizations including the Korea Disease Control and Prevention Agency, the Korean National Police Agency, the Credit Finance Association, 3 telecommunications companies, 22 credit card companies.

Operating structure of COVID-19 Epidemiological Investigation Support System



* source: The Ministry of Land, Infrastructure and Transport

Before establishing the system, most of the processes like writing official documents and

landline contact between agencies have been done manually, but the system secured the speed and accuracy of information acquisition by converting them to a smart city technology system. Accordingly, the analysis for epidemiological investigations, such as drawing the travel log that took an average of more than a day at the beginning of the COVID-19, would be reduced to within 10 minutes. This system complements the results of interviews with confirmed patients by means of the automatic identification of the movement and location of the confirmed person by time period and enables real-time analysis of big data. Various statistical analyses would also be possible such as examining large-scale outbreak areas (hot spots) and identifying the source of infection there.



Data Collection Procedure

* Source : MOLIT Press Release - MOLIT, MSIT and KCDC launch the COVID 19 data platform (2020.3.26)



* Source: Flattening the curve on COVID-19 : The Korean Experience

Regarding the protection and security of personal information, the epidemiological investigator requests the personal information from the relevant authorities only for confirmed persons whom they have determined additional information is necessary for, and in the case of location information, the National Police Agency should certify and approve the request additionally. (As mentioned above, this is stipulated in Article 76-2, Paragraph 2 of the Infectious Disease Prevention Act.) Access to the system and information is allowed only to the required minimum number of people, and authority is strictly classified according to the role of the person in charge. Information can be viewed and analyzed only by the Disease Control and Prevention Agency and epidemiological investigators of local governments and it is designed to keep off any access and use by other government bodies. They say that this system will be operated for a limited time in consideration of the phase of infectious disease crisis, and collected personal information will be destroyed as soon as the COVID-19 crisis ends.

The Korean government plans to upgrade the current system to a 'data-based epidemiological investigation support system'. The newly-developed system will add data of overseas immigration record and health-care facility use history to currently linked data of mobile location and credit card transaction. On July 1, as QR code based digital sign-in system(KI-Pass) was linked to the System, it became possible to keep the record of the facility access history needed for the epidemiological investigation.

However, the legal grounds for COVID-19 Epidemiological Investigation Support System is equivocal. The government has proposed Article 18 (epidemiological investigation), Article 18-4 (request for data submission, etc.), and Article 76-2 (request for information and confirmation of information), etc. of the Infectious Disease Prevention Act, yet they are not the legal bases for this system, but rather for collecting and processing personal information through epidemiological investigations. COVID-19 Epidemiological Investigation Support System is also expected to base on a specific legal stipulation, given the revision of the Infectious Disease Prevention Act on September 29, 2020, which render a separate provision, the Article 40-5 as legal foundation for 'Integrated Infectious Disease Management Information System'. Because the impact on the data subject may be significantly different through the automated processing of personal information by this system despite the provisions for the collection and processing of personal information in general. That is why the European Union's General Data Protection Regulation(GDPR) has created a new

regulation related to 'automated decision-making for individuals, including profiling', to protect data subjects from automated processing of personal data that have a significant effect on data subjects. As the system not only speeds up processing but also enables additional analysis on the confirmed and suspected, it is necessary to clarify the function and safety measures of this system in law. Otherwise, we cannot rule out the possibility that personal information collected through epidemiological investigations would be used indiscriminately in a way that was not originally supposed to.

B. Issues

We cannot deny that the identification of contacts through tracing the past movements of confirmed patients and active measures (diagnosis and quarantine) on contacts contributed to controlling the spread of COVID-19. But medical records, credit card transaction, transportation card details, and CCTV footages are all very sensitive personal information. Though collection is allowed, it needs to be done to the minimum extent necessary, and appropriate supervisory mechanisms to curb abuse are also required.

Necessity and proportionality of collecting additional sensitive information

Additional information such as medical records is not automatically collected, and the investigator determines whether additional information like location data is needed while interviewing with the confirmed patient. The question is that it is left to the investigator's arbitrary judgment, and there is no system to examine its appropriateness. Even investigative agencies need a court warrant when collecting such information for the purpose of the public interest, like criminal investigation. It may be difficult to request permission from the supervisory authority whenever necessary as epidemiological investigations must be carried out quickly, but it is required to supervise them at least afterwards.

Data-based evaluation is also needed to see how helpful the additional information has actually been because it takes time to obtain additional information, and before that, most information may be confirmed by an oral statement of the confirmed person. A study is needed at how much rate is additional personal information collected, how much is the

content of the interview supplemented by the collection of additional information, and what is the epidemiological significance of such difference. Although the additional information complements the interview to some degree, it is essential to evaluate whether such usefulness is acceptable compared to the intrusion of the privacy of the confirmed patient.

Further discussion is needed whether to collect additional information could be based on the consent of the confirmed patient because it is hard to be truly free consent when the data subject provides his or her personal information at the request of the government. The consent of the data subject may give legitimacy to the collection of sensitive personal information. Even when law stipulates the collection of additional information, implementation should be done in a human rights-friendly environment and trust between the epidemiological investigator and the confirmed person. The epidemiological investigator must explain the meaning and necessity of the investigation to the confirmed person, and certify the intention of the confirmed person when additional information is collected.

Although the confirmed people are just patients and not suspects, there is a social stigma in which some patients are treated like criminals. For example, some cases of covering the travel history were reported, and they suffered from social criticism. It cannot be simply regarded as irresponsibility of the confirmed person, but rather reveals how privacy-intrusive the epidemiological investigation process can be. In May 2020, when a group infection broke out in a Itaewon club, a private educational institution instructor was accused of causing further infection by hiding his job and path, and eventually charged with arrest and sentenced to six months in prison. But we cannot condemn the person's lies unconditionally, considering the club was mainly used by sexual minorities at the time, hate speech toward sexual minorities poured out after it was reported, and there was a fear of involuntary outing and being fired from a job. If it were not for social stigma and discrimination against sexual minorities, and invasion of privacy due to disclosure of the movement of confirmed persons, there might be no need to lie. In another case, one confirmed person lied to conceal the fact that she attended church as her family was against church. Even if it is not illegal, there are privacies that no one wants to reveal.

It is also vital to be wary of overconfidence about objective information. One confirmed person was accused by the local government for hiding the travel history as the interview and GPS location information of the person did not match. After prosecutor's investigation

the person was not indicted. Location information is not always accurate and the investigation should be conducted in a cooperative relationship with the confirmed case.

Collected personal information cannot always be free from the risk of leakage. In the early days of the outbreak of COVID-19, there were successive cases of leakage of personal information of confirmed persons and contacts by officials who first obtained sensitive personal information.

Leakage of personal information of confirmed persons and contacts by public officials

January 27

A police officer at a police station in Busan posted the personal information of a person in the "Novel Coronavirus suspected patients Report" shared by the public health center on the police's internal network on 5 KakaoTalk chat rooms. The report included information on the person's age, place of residence, underlying disease, and personal information of family members such as husband's company and children's school

January 30

A public official of Yangsan City delivered the photographing files of public documents related to suspected patients with COVID-19 prepared at the public health center through KakaoTalk to local provincial and municipal councilors and local heads. The documents include the name, age, and nationality of the suspected patient.

A Taean-gun official divulged a report containing the personal information of the confirmed person and contact through KakaoTalk.

January 31

A public official at Seongbuk-gu Office leaked the internal documents of the Seongbuk-gu Health Center in Seoul, which contained the personal information of the confirmed person, through an SNS chat room, and a photograph of the report containing the private data of the confirmed person and contact was posted on the Internet community.

February 4

A public official of Gwangju City received documents from public health centers about patients who were diagnosed COVID-19 and disclosed them to the outside. After printing the official letter, he took a picture with his mobile phone and uploaded it to his SNS group chat room, and it was spread to 'Internet Mom Cafe' through SNS at random. It had the age, gender, occupation, area of residence, hospital visit history, and disease of the confirmed patient and 4 family members.

February 11

A Shinan-gun official leaked official documents containing the personal information and movement of a citizens who had been classified as a suspected COVID-19 patient. The name of the person was covered, but the place of residence of the person and his/her family was indicated in detail, and the jobs and companies' name of the person and family were put. It was spread through social media and local online communities.

February 19

A Daegu police officer leaked official documents containing personal information of the confirmed person, contact and the path of infection to acquaintances, including family members.

February 22

A Cheongju city official leaked undisclosed data from the municipal emergency meeting. Data with the personal information of the confirmed couple (the name of the couple and family members and so on.) spread through local group of the city, KakaoTalk, and Internet communities.

The former chairperson of the Changwon City Council received a report on the outbreak of a confirmed COVID-19 cases through the secretary's office, and then leaked it to an online chat room with his family. The outbreak report which had the confirmed person's real name, age, and occupation, was posted on internet blogs and distributed to local communities.

A public official in Seogwipo City, Jeju, leaked an official document containing personal information of the confirmed person and it was circulated through the Internet community.

Arbitrary expansion of the range of suspected patient

Article 76-2 of the Infectious Disease Prevention Act permits the collection of personal information not only of patients with infectious diseases, but also of suspected infectious patients. As the concept of the suspected patients is ambiguous, the scope can be infinitely expanded, and accordingly, there is a high possibility that personal information is excessively collected.

The concept of suspected patients is stipulated in Article 2, No. 15-2. It is not a concept originally included in the Infectious Disease Prevention Act, but was newly established through the revision on March 4, 2020, due to the need for active identification and measures as COVID-19 can be transmitted very easily. Since it is defined as "people who are suspicious of contact" and "patients suspected of COVID-19" it is possible that the extent may be excessively broadened based on the arbitrary judgment of the health authorities. Despite this ambiguity, the Infectious Disease Prevention Act imposes various obligations on suspected patients, limits bodily integrity, the freedom of movement and residence, and forces criminal penalties for violations of legal obligations.

Article 2,15-2. The term "a person suspected of contracting an infectious disease" means any of the following persons:

(a) A person (hereinafter referred to as "contact") who comes into contact with or is suspected of contacting with a patient or probable patient of an infectious disease or pathogen carrier (hereinafter referred to as "patient of an infectious disease, etc.");

(b) A person who has stayed in, or passed through, a quarantine inspection required area or strict quarantine inspection required area defined in subparagraph 7 or 8 of Article 2 of the Quarantine Act, and may have contracted an infectious disease;

(c) A person who has been exposed to risk factors, such as infectious pathogens, and may have contracted an infectious disease;

A suspected patient of infectious disease is a broader concept than 'a contact (person)', but

the concept of contact person is also widely applied compared to regulations. The contact criteria proposed by WHO are as follows. (As of May 10)

• 15 minutes or more in contact with the suspected or confirmed patient within 1 meter

· Direct physical contact with suspected or confirmed patients

• Those who cared for suspected or confirmed patients directly without appropriate personal protective equipment

• Contact suggested in the risk assessment of the country of residence(region)

They are not domestic standards, and the range of contacts is determined pursuant to the judgment of quarantine officers and epidemiological investigators at the actual site by referring to these standards, but sometimes the range of contacts is defined too broadly.

It is the collection of base station access information used as a justification to identify potential contacts that shows the range of personal information collection can be expanded indefinitely in responding to COVID-19. Base station investigation is a method in which mobile phone access data recorded in a specific base station are provided in a pile at a specific time and place and has been used to discern the identities of people around the base station. On June 28 2018, the Constitutional Court of Korea ruled that the base station investigation was inconsistent with the constitution. It was because control was insufficient over the abuse of requests made by the investigative agency while only promoting the convenience and efficiency of the investigation. While even the base station investigation of the investigative agency should have approval by the court, the collection of base station access information for the purpose of preventing infectious diseases is carried out at the request of the health authorities or local government heads without the permission of the court.

For example, in the process of identifying contact people of mass infection in the Itaewon club in early May, the Seoul Metropolitan Government and the health authority requested base station access information from the mobile operator.¹¹ The list of people who stayed for

¹¹¹¹ The base station access information collected at this time is not the user's call record. Mobile devices like smartphones regularly send and receive signals with neighboring base stations even when they are not using a call or the Internet, and mobile operator store device information recorded in the base station for a certain period of time. Storing mobile device information

more than 30 minutes was selected based on the history of accessing 17 base stations around the club between midnight and 5 AM every day from April 24 to May 6. The number of people picked in this way reached 10,905. However, it is far-fetched to consider more than 10,000 people as suspected patients of infectious diseases. Moreover, the epidemiological basis for collecting personal information is unclear. The day the confirmed person visited the club was early on May 2nd, and the period for requesting base station access information was from April 24, and the demanded time was from midnight to 5 AM. It is doubtful that it was not intended to track the contact of the confirmed person, but to identify people who frequently visit the Itaewon club. Even if it was for the public purpose to deliver messages on quarantine, it is a problem that the government can easily collect personal information of specifically classified people at any time without any control. On July 29, 2020, some civil society organizations¹² filed a constitutional petition seeking the measures to be unconstitutional, which the Minister of Health and Welfare, the Commissioner of the Disease Control and Prevention Agency, the mayor of the Seoul Metropolitan Government, and the Commissioner of the Seoul Metropolitan Police Agency processed base station information since it violates the right to informational self-determination, the secret and freedom of privacy, and of communication, as well as right to the general freedom of action.

It was not the first base station investigation conducted in responding to COVID-19. Before the case at the Itaewon club, base station information was provided in the case of outbreak at the Guro Call Center mass infection, Dongdaemun internet cafe, and Seorae Village wine bar. The base station access information around the conservative group rally held in Gwanghwamun on August 15 was also collected. In order to prevent such broadening application, the concept of suspected patients needs to be more cleary defined or a procedure and/or institution is needed that can supervise the arbitrary judgments of health authorities.

recorded in a base station server rather than a call record may violate the Personal Information Protection Act.

¹² Korean Progressive Network Jinbonet, Institute for Digital Rights, Digital Information Committee of MINBYUN-Lawyers for a Democratic Society, Open Net Korea, and People's Solidarity for Participatory Democracy

Destruction of collected personal information

Article 76-2(6) requires institutions that receive personal information from the Commissioner of the Disease Control and Prevention Agency to destroy the information without delay and notify the Commissioner of the Disease Control and Prevention Agency when the task is completed. However, the Article did not regulate whether the Commissioner of the Disease Control and Prevention Agency, etc., who initially collected personal information pursuant to paragraphs 1 and 2 should destroy the collected personal information. According to the personal information protection principle, the collected personal information must be deleted when the purpose of processing is fulfilled.

In this regard, Korean Progress Network Jinbonet requested for information disclosure to the Disease Control and Prevention Agency, and the agency responded that "the information on confirmed patients and quarantined persons collected after the MERS outbreak in 2015 has not yet been destroyed." In addition, the Central Disease Control Headquarters said at the regular media briefing that it decided to retain information on MERS patients permanently for patients suffering from MERS to observe and manage complications and health damages with responsibility in the future. The Central Disease Control Headquarters did not state the legal grounds directly, but according to the reporter's written inquiry to the government, it was in accordance with the standard personal information protection guidelines.

Meanwhile, in a press release¹³ announcing the official launch of the 'COVID 19 Epidemiological Investigation Support System', the government said, "The system will be operated temporarily in consideration of the stage of the infectious disease crisis, and personal information will be destroyed as soon as the COVID-19 ends." Yet the Disease Control and Prevention Agency did not answer inquiries from the Jinbonet about the criteria for determining the end of the COVID-19. Just as the MERS in 2015, which occurred also in 2018, and periodically-appearing influenza, the 'end of the COVID-19' may not come forever depending on the criteria.

Therefore, the fact of keeping personal information collected during the MERS outbreak and

^{13 [}Press Release] MOLIT, MSIT and KCDC launch the COVID 19 data platform. (2020.3.26)

http://www.molit.go.kr/english/USR/BORD0201/m_28286/DTL.jsp? id=eng_mltm_new&mode=view&idx=2931

the government's statement to destroy personal information collected for the purpose of responding to COVID-19 are contradictory. The legal basis is not clear as well whether government should destroy or can preserve the personal information collected during the response to the infectious disease.

According to data provided by the Disease Control and Prevention Agency to the Democratic Party's lawmaker Chung Chun-sook, personal information of 33,991 people was collected through the quarantine information system and 2,325,845 people through the web report of infectious diseases during this year. According to Article 2 of the Enforcement Decree of the Quarantine Act, personal information collected in the quarantine information system is destroyed after two months. But the personal information of 2,325,845 people obtained from the infectious disease web report (which seems to mean the Integrated Disease and Health Management System) is permanently preserved. Considering that there are about 20,000 confirmed cases in the ROK, personal information of not only confirmed patients but also contacts are collected and permanently preserved through infectious disease web reports. The COVID-19 Epidemiological Investigation Support System has location information and card transaction details of 10,073 collected separately.

Status of personal information collected on COVID-19 by the Disease Control and Prevention Agency during this year

Source	Personal Information category												
	Gender	Name	Resident	Guardia	Phone	Mobile	Address	Occupati	period				
			registratio	n's	number	phone		on					
			n number	name		number							
quarantine	Male	193,720	90,611	-	-	87,503	-	-	2months				
information	Female	137,271	66,874	-	-	64,071	-	-	•				
system													
web repor	Male	1,220,741	1,220,852	32,247	258,466	1,045,162	1,118,909	686,737	Permanent				
of	Female	1,105,104	1,105,246	29,113	258,345	1,031,273	1,105,431	739,311					
infectious													
diseases													

* Source: the Disease Control and Prevention Agency / Lawmaker Chung Chun-sook press release

Regarding the destruction of collected personal information, it is vital to improve as follows. First of all, it is necessary to stipulate the principle of processing personal information collected in responding to infectious diseases in the law. If they need to preserve the collected personal information, it should be clearly defined the purpose and the scope of the personal information that needs to be preserved. Depending on the purpose and need, some information should be deleted and some information may be preserved. For instance, additional data collected to determine the movement log of the confirmed person like credit card transaction history, transportation card usage history, CCTV, etc. may be destroyed immediately after the log is identified. After a certain period of time, the movement of the confirmed patient and the contact information will not be necessary for guarantine purposes. Therefore, the principle should be not destroying personal information "as soon as the COVID-19 situation ends", but destroying personal information that is not necessary for quarantine purposes after a certain period of time. If it is necessary to use some personal information for the purpose of research on infectious diseases in the future, it may be possible to find a method of storing it separately after pseudonymization after it is no longer necessary for quarantine purposes.

The role of the police in collecting location information

Article 76-2 (2) requires the Commissioner of the Korea Disease Control and Prevention Agency, etc. to request location information to the head of the police office when requesting location information, and the head of the police office who received the request is required to request location information to the personal location information service provider and telecommunication service provider. However, it is not clear whether the police office simply relays the request or the police office can also process the provided location information directly. The Infectious Disease Prevention Act does not explicitly stipulate that the police office can alayzed 3.6 million cases of mobile phone location information of 1316 people related to the Itaewon club using the investigation program.

On the other hand, pursuant to Article 76-2, personal information, including information for identifying individual movements, can be directly requested and provided with by the

Commissioner of the Disease Control and Prevention Agency, while only location information is provided through the police office. According to a press release related to the 'COVID-19 Epidemiological Investigation Support System', "the epidemiological investigators can request the relevant authorities to provide personal information with confirmed persons only when they have determined additional information is needed and, extra confirmation and approval procedures by the National Police Agency are required just for location information. It sounds like the purpose of passing through the National Police Agency is to prevent abuse of location information collection. However, allowing not only health authorities but also police offices to access sensitive location information increases the risk of personal information infringement, and access to location information by investigative agencies can raise public concern about state surveillance. A supervisory mechanism that can prevent abuse of authority is needed, which should be applied not only to location information, but to the collecting and processing of all personal information, and it is desirable that other agencies, not the National Police Agency, play the supervisory role.

(2) Disclosure of movement paths of confirmed patients

A. Overview

The most controversial issue in the ROK is the disclosure of movement path of the confirmed cases. From the beginning of the outbreak of COVID-19, the government has given serial numbers to confirmed patients and disclosed their path. In reflection of the social criticism raised for failing to open infectious disease information properly in the MERS outbreak in 2015, transparency has become the government's principle for COVID-19 measures.

After investigating the contacts of the confirmed patient, each local government publishes information such as the patient's number, gender and place of residence, major movements (date and place the patient visited), the date and time of diagnosis, and visiting medical

institutions on the website. In addition, whenever there is a confirmed case, information is sent to the citizens of the region by text, indicating the confirmed case and the main route. It is not forwarded to the phone numbers of registered citizens in the area, but is sent to all mobile phones in a specific area like broadcasting through a function called CBS (Cell Broadcasting Service). So, even if you are a resident of that area, you may not receive text messages when you are somewhere else at a certain point, or you can get it even if you are not a resident.

The legal grounds for the disclosure of movement path is Article 34-2 (Disclosure of information in case of infectious disease crisis). Article 34-2 Paragraph 1 provides "the Disease Control and Prevention Agency or local governments shall promptly disclose information with which citizens are required to be acquainted for preventing the infectious disease, such as the movement paths, transportation means, medical treatment institutions, and contacts of patients of the infectious disease, etc.", when a crisis warning higher than 'Caution' is issued.

The reason why the movement path of a confirmed person is disclosed in this way is that there may be cases when it is difficult to identify contacts through an epidemiological investigation. For example, when a confirmed person ate at a restaurant, it is tricky to determine who were around the person at the restaurant. That is why the movement path of a confirmed patient is disclosed so that citizens who have overlapping movements with the confirmed case can prepare themselves.

B. Damage caused by the disclosure of movement paths

Because they opened the excessively detailed movement path and personal information of the confirmed cases to the public, some confirmed patients were exposed to unfounded criticism, speculation, and hate speech. For example, one confirmed person was condemned for having an affair because his wife and children were tested negative, but only the sister-in-law was tested positive. In other case, as a local government head posted the notice of the confirmed case on Facebook not only with the surname, gender, and the name of the apartment in which the person resides, but also with the fact that her boyfriend is a member of Shincheonji, a sect that churches consider heretical, the patient complained of

the pain caused by the malicious comments. It was also pointed out local governments had different standards for disclosure of movement.

A case of the disclosure of the movement in early 2020: The specific movement of the confirmed person was disclosed

Sunday, May 10

Home \rightarrow 14:00 Other city (3 people living with contact person)

Monday, May 11

7:10 home

7:20 Take the 6002-1 bus at Mubong Elementary School stop

8:20 After getting off at Gangnam Station, leaving for other city

18:40 Take the 6001 bus at Gangnam Station stop

19:20 Take a taxi at Hanmi Pharmaceutical stop

19:40 Return home by taxi

Tuesday, May 12

7:00 Home

7:00-9:00 Outdoor exercise near home

9:00 return home

13:00 Take a taxi near home

13:23 Collect body sample at Dongtan Health Center Screening Clinic

13:40 Get off the taxi and buy ice cream at the mall near home

13:50 Go home on foot

18:00 Outdoor exercise near home (1 contact person, the same contact person on the 10th)

Emergency safety text causing suspicion that the confirmed patient had an escort job



Cases of damage caused by the disclosure of movement path

- A confirmed case in Bucheon filed a complaint with the National Human Rights Commission of Korea as the name of the store where he was working was disclosed and he was also identified.

- A confirmed female working at OO Electronics' XX business site was revealed her movement, surname, the fact that her boyfriend was a member of Shincheonji, and the name of the apartment she resides in through a briefing at the city hall and the mayor's Facebook page. So, she appealed to SNS, saying, "It's too harsh mentally."

- It turned out that a male and a female confirmed patients visited a plastic surgery clinic together in Gangnam over two days through divulging movement. There were lots of comments that presumed the relationship between the two was infidelity in the Internet community, and it was reported that the male patient received psychiatric counseling due to severe stress, and the female patient who was about to marry at that time also suffered a lot of psychological stress.

- Out of 5 family members who were confirmed, the husband appealed to social media to stop criticizing his wife and family. His wife was a nurse at a facility for severely disabled people, and she did not know that she was infected and went to various hospitals with people with disabilities and condemnation poured out from the Internet community over this.

- One confirmed patient had negative test results for his wife and children, but only his sister-in-law proved positive, and suffered from speculation that he had an affair with the sister-in-law.

- There was suspicion that a confirmed person might be a barmaid as the route of visiting karaoke bar several times during a specific time was revealed.

- At the end of February 2020, it was known that certain religious groups were involved in the cause of the explosive COVID-19 outbreak in Daegu and Gyeongbuk province. According to the data of the religion's internal reports (until March 9), a total of 5,200 cases of persecution due to the outbreak have been received. Persecution at home was the most common with 2,700 cases, followed by workplace bullying, with around 1200 cases. There were over 300 damages related to the leakage of personal information,

followed by 100 cases of treatment rejection and 70 cases of facility use rejection. In particular, there were eight cases of forced conversion, in which abduction, confinement, and assault occur accordingly. Two members of the church who suffered from domestic violence died of fall from high-rise housing. At work, they are often fired for being a member of the sect.

- In early May 2020, after the occurrence of confirmed cases at the Itaewon club, the Kookmin Daily named the club as a gay bar and released a hate report against sexual minorities. So there was widespread concern that the disclosure of personal information on confirmed cases may lead to outing. The Seoul Metropolitan Government introduced anonymous tests so that sexual minorities could go to the test without worry, and the number of tests increased sharply afterwards.

One survey shows people are more afraid of stigma they will get than the infection when they are confirmed COVID-19. In the survey conducted by Professor Myungsoon Yoo of Seoul National University Graduate School of Health with 1,000 adult men and women nationwide, the degree of fear of condemnation from other people and/or additional damage when becoming a confirmed case was an average of 3.52 points. This score was higher than those related to infection, such as 'asymptomatic infection' (3.17 points) and 'a person nearby who has not reported voluntarily even though he/she has symptoms' (3.1 points).

As such damages from disclosure of movement path continued, the National Human Rights Commission of Korea issued a statement in the name of the chairperson on March 9, saying, "We are concerned that, there are cases in which confidential private information is exposed more than necessary in the process of informing movement paths of confirmed patients." And, it said "Instead of disclosing the time and place of visit of each confirmed patient one by one, we recommend the method of showing only the place of visit by time without specifying the individual and the status of disinfection and quarantine by health authorities for facilities or businesses that confirmed patients passed by."

Excessive personal information exposure can not only infringe on the privacy of confirmed patients, but have a negative effect on quarantine because people suspected of infection may hesitate to report voluntarily or avoid testing due to concerns about privacy exposure. In

addition, it can hinder accurate epidemiological investigations by preventing confirmed patients from revealing their movements honestly.

C. Improvement of the method of movement path disclosure

As the movement path disclosure caused a social controversy like leading to the announcement of a statement by the National Human Rights Commission of Korea, the Central Disease Control Headquarters improved the method of notifying movement path through several revisions. On March 14, the Central Disease Control Headquarters published <Information Disclosure Guide for Movement paths of Confirmed Patients > reflecting the recommendations of the National Human Rights Commission and distributed it to local governments.

According to this,

• As a basic principle, "the information such as movement paths of infectious disease patients and their contacts, etc. is disclosed only when it is necessary for the prevention of infectious diseases, taking into account various aspects like epidemiological reasons, legal restrictions, and privacy protection of confirmed patients".

• The information 'from one day before the onset of symptoms to the date of quarantine' can be released, and if no symptoms are confirmed, the information is 'from one day before the date of specimen collection to the date of quarantine'.

• They can open the information of 'the place and means of transportation where the contact with the confirmed patient occurred to the extent to worry about infection in terms of time and space.

• In principle, the detailed address of the residence and the name of the company are not disclosed.

• They should exclude information that can identify individuals, and spatial and temporal information must be specified so that potential contacts can recognize whether they encountered the confirmed patients.

• When all contacts have already been identified, the information should not be disclosed.

It is positive that the Central Disease Control Headquarters prepared and distributed standards in order to ensure that local governments implement the disclosure of movement paths of confirmed patients more consistently and protect the personal information of the confirmed patients. Yet contrary to the recommendations of the National Human Rights Commission, it maintains the disclosure of the movement of each confirmed patient. In this case, people is likely to identify each confirmed person, and hate speech about the confirmed person based on a specific movement cannot be eradicated. And the local governments still disclose the personal information such as gender, age, and nationality of confirmed person.

On April 12, 2020, the Central Disease Control Headquarters released <Information Disclosure Guide for Movement paths of Confirmed Patients (2nd Edition)>. The main contents added or changed are as follows.

• The period for disclosure of the movement was defined as 'from the time of information verification to 14 days elapsed from the date of encounter with the last contact by the confirmed person.' because the purpose of the disclosure is for potential confirmed patients who have not been identified in the epidemiological investigation, so there is no need for disclosure after the incubation period of the coronavirus pathogen.

• The start of disclosure changed from 1 day to 2 days before the onset of symptoms in case of COVID-19.

• Places where disinfection were finished on the movement path were to be announced as "disinfection completed". This is because damage to the shops and restaurants where the confirmed person visited increased while the purpose of the disclosure of the movement was not properly communicated to the public. Although disinfection was completed after the outbreak of the confirmed case, the stores and restaurants were recognized as "not to go" places by people, and they suffered from declining sales. It reminds us of the importance of delivering an accurate message to the public in times of crisis.

Even after the Central Disease Control Headquarters distributed the guide, some local governments continued to expose excessive identity information. For example, after an infection in the Itaewon club in early May, a local government in Chungcheongbuk-province

has disclosed information that can identify the person and the movement of the confirmed person like "age, gender, and working at oo department store o floor". Sexual minority rights groups were concerned that the disclosure of the confirmed patients' route could lead to coercive outings. In addition, information on the movement of confirmed patients, which was disclosed through the homepages of local government, spread through media outlets, blogs, and SNS. In order to prevent the ongoing infringement of the confirmed person's personal information due to the spread of the information through the Internet, the government, through the Korea Internet & Security Agency (KISA), requested online service providers to delete the information on the confirmed cases past the disclosure deadline autonomously. Nonetheless information of movement paths reported through the media still remains.

The Central Disease Control Headquarters released 3rd edition of the Guide on June 30th.

• It stipulated that, the open information such as the location must be deleted when the disclosure period has expired.

• Information identifying individuals such as gender, age, nationality, etc. would not be disclosed, and when the residence is disclosed, information below the eup/myeon/dong(small township) level would not be open.

• Since the "repeated mass exposure site" related to group outbreaks is disclosed by the Central Disease Control Headquarters, local governments do not disclose it.

• The most important change is not to disclose individual movements over time, but to disclose information on area (city, province, county, district), place type, business name, detailed address, exposure date, and disinfection status in the form of a place list. It is the method that the National Human Rights Commission of Korea and human rights organizations have demanded persistently. The table below is an example of the information disclosure recommended in the Guide the third edition.

City or	City,	Type of place	Business	Address	Time	Disinfection
Province	county or		Name		of	status
	district				exposure	
00	00	sales	ooMart	1st Floor,	Monday,	completed
province	city		(○○branch)	o ∘street ,	June 29	
				oo city,	13:00-	
				oprovince	15:00	
oo city	oo district	Public	No.oo bus		Tuesday,	planned
		transportation	(○○APT-		June 30	
			ocenter)		13:00-	
					13:20	

Reference 1. Examples of standards for information disclosure of confirmed patients

* Source: Information Disclosure Guide for Movement Routes of Confirmed Patients (3rd edition)

On October 6, 2020, the Central Disease Control Headquarters published the <Directive for Disclosure of Information including the Movement path of Confirmed Patients (First Edition)> The directive contains the contents of the previous guide, and the followings have been added.

• When distributing information on the website, it was considered to ensure the accessibility of information for the disabled such as the visually impaired. Therefore, when information is uploaded in the form of an image file, if an appropriate alternative text is not provided, information delivery is restricted, so the information is posted in the form of text.

• Though the third edition said not to disclose the individual movements of confirmed patients, local government still notify the individual movements, so the form of disclosure of movements was clarified again with <Example of Non-compliance>.

<Example of non-compliance> Release of the individual information on each confirmed patient's route

Type 1

○○ city No. 100			
Time of Exposure	Business Name	Address	Disinfection status
Mon October 5	AB Mart	1st Floor, oostreet 12, oo city,	completed
13:00-15:00	(CD branch))	∘∘province	
Mon October 5	EF coffee shop	2nd Floor, oostreet 34, oo city,	completed
15:00-16:00		∘∘province	

2 Type 2

○○ city No. 100										
City or	City, county	Туре	of	Business	Address	Time of	Disinfection			
Province	or district	place		Name		Exposure	status			
ooprovince	oo city	sales		AB Mart	1st Floor,	Mon	Completed			
				(CD	oo street 12 ,	October 5				
				branch))	oo city,	13:00-				
					∘∘province	15:00				

○○ city No. 101									
City or	City, county	Type of	Business	Address	Time of	Disinfection			
Province	or district	place	Name		Exposure	status			
ooprovince	oo city	restaurant	EF	1st Floor,	Mon	completed			
			restaurant	oo street 34 ,	October 5				
				oo city,	13:00-				
				ooprovince	15:00				

* source: Guidelines for Disclosure of Information including the Route of Movement of Confirmed Patients (First Edition)

Nevertheless, it seems that the intention of the Central Disease Control Headquarters is still not conveyed to local government. Many local governments disclose the individual movements of confirmed cases. For example, the Gwangjin-gu(district) Office still discloses information on the movement of a confirmed patient as follows. In particular, it is questionable why they disclose the movements by time period even though there is no contact.

Gwangjin-	restauran	**restaurant	Fri. October 16	•wearing	On foot	
gu	t		18:52-18:54	mask		
			Takeout order	 disinfection 		
				completed		
		As determ	nined that there is	s no contact,		
		business nan	ne is not open(oral s	statement)		
Gwangjin-gu	pharmacy	** pharmacy	Tue. October 13	•wearing	On foot	
			18:36-18:37	mask		
			Sat October 17	 disinfection 		
			12:02-12:03	completed		
		As determin	determined that there is no contact,			
		business nan				
Gwangjin-gu	mart	** mart	Fri October 16	•wearing	On foot	
				mask		
				 disinfection 		
		As determin				
		business nan				

Movement of specific confirmed case

* Source: Gwangjin-gu Office website

D. Comment

It is evaluated positively that the Central Disease Control Headquarters has tried to correct the issues in the midst of responding to COVID-19. However, since the purpose of the guidelines is not conveyed to local governments exactly, it is necessary to strengthen the supervision over local governments so that the guidelines can be implemented accordingly.

Currently, each local government discloses the movements of the confirmed patients in their own region and those of other regions respectively. What is important to citizens is not whom they have contacted with among confirmed patients in a certain area, but if they have

contacted a confirmed person without knowing. Therefore, it is sufficient to check the list of places and times that a confirmed person has visited within a specific area, regardless of whether the confirmed person resides in that area or not.

The Infectious Disease Prevention Act has also been revised in accordance with the guideline of the Central Disease Control Headquarters. Article 34-2, Paragraph 1 of the Infectious Disease Prevention Act requires that "gender, age, and other information determined to be irrelevant to the prevention of infectious diseases and prescribed by Presidential Decree are excluded." Paragraph 2 was newly-introduced "to delete the disclosed information without delay when the information is no longer required to be open due to the achievement of the purpose of disclosure." Paragraph 3 allows an objection to be filed if the disclosed information is different from the facts or if there is an opinion about it, but It would be better to hear the opinions of the parties before they are released in the first place.

It is also necessary to assess the effectiveness of the disclosure. As mentioned above, the purpose of the disclosure of the confirmed person's movement is to enable citizens who have overlapping movements with the confirmed patient to prepare themselves when it is difficult to identify all of the contacts through an epidemiological investigation. However, nothing has been known on how many cases have come to recognize that they are contacts through the disclosure of the movement. On the contrary, revealing the movement may have a greater psychological effect on people confirming that they did not go to the place and feeling relieved. Since there is a high risk of personal information infringement even in a pseudonymized form of disclosure, it is necessary to evaluate the effectiveness and implication of the disclosure strictly.

(3) Monitoring of self-quarantine

The Infectious Disease Prevention Act allows quarantine in the facilities or self-isolation for infectious disease patients and suspected patients. The quarantine Act also stipulates that infectious disease patients and contacts can be monitored and quarantined. The government

is monitoring to manage self-quarantine through the Ministry of the Interior and Safety's < Self-Quarantine Safety Protection > app and the Ministry of Health and Welfare's <Self-Check> app. The <Self-Quarantine Safety Protection> app is for contacts with patients and immigrants, and the <Self-Check> app is for those who are exempt from self-isolation among immigrants.

The <Self-Quarantine Safety Protection> app has a motion detection function, so when there is no mobile phone movement for 2 hours, a notification window pops up twice, and when there is no confirmation of the self-isolated person, a dedicated official will call. Symptoms are monitored more than twice a day through an app or phone call in the morning and afternoon, and the official in charge of monitoring (there is a separate app for officials) checks the overall situation, such as the state of quarantine, by phone call once a day.



Self-Quarantine Safety Protection app

* Source: Tackling COVID-19 - Health, Quarantine and Economic Measures: Korean Experience.



Self-quarantine Safety APP for Assigned Case Officers

* Source: Flattening the curve on COVID-19 : The Korean Experience

Article 42, Paragraph 2 of the Infectious Disease Prevention Act provides for compulsory measures against suspected patient of infectious diseases, while Paragraph 2, No. 2

provides the legal grounds 'to check the presence or absence of symptoms of infectious diseases and to collect the location data with devices using wired/wireless communication, information and communication technology, etc. In the case of the Self-Quarantine Safety Protection app, it is said to be installed based on consent, but it was virtually compulsory to install it because people from abroad must install the app to be allowed at entry. As of June 10, 2020, the installation rate of the Self-Quarantine Safety Protection app is 93.8%, with 95.5% of arrivals from abroad and 87.8% of domestic contacts.

As some self-quarantined persons did not follow quarantine measures like leaving the quarantine area without permission, the government began to consider introducing a wristband that is linked to <the Self-Quarantine Safety Protection> app. The National Human Rights Commission of Korea issued a statement on April 9 to express "concern over the plan to force wearing a so-called wristband capable of real-time location tracking being on the table." A means of checking location in real time by attaching it directly to an individual's body like a wristband, is required under legal grounds and a strict review on balance between restrictions of basic rights of an individual and the public interest, and minimum damage. Human rights groups also criticized the introduction of wristbands as a policy of "treating the self-quarantined person as a potential risk to be controlled, not as citizens to be protected from infectious diseases", and voiced opposition.

Eventually the government introduced a wristband named "safety Band" on April 27. If the wearer keeps away from quarantine area or tries to remove the device, a dedicated official is notified. The government says that wearing the safety band is based on the user's consent, but if they do not agree, they will be quarantined at a facility and imposed the cost of isolation. As pointed out by the National Human Rights Commission of Korea, consent that does not respect the free will of the data subject cannot be said to be true consent. Even if a quarantine violator refuses to install the self-quarantine safety protection app or does not have a mobile phone, they are immediately ordered to quarantine at a facility. In addition, the government warned that it will take stern measures against noncompliance, including immediately accusing those who leave the self-quarantine site without permission. The Infectious Disease Prevention Act revised on September 29 included a clause that the location information of self-quarantined persons can be collected. The number of wearers of the Safety Band, introduced on April 27, 2020, was 425 by October 10.

2020 the number of monthly absent without leave during self-quarantine (Feb.19~Oct.10.) (unit: person)

	Total	February	March	April	May	June	July	August	September	~October
		19~								10
the	1,230	31	77	217	152	145	125	244	207	32
number of										
persons										

* The number can change according to local government report

* Source: Lawmaker In-soon Nam, Data of the National Assembly's annual audit and inspection of government, 2020



* Source : donga.com (2020.4.25)

The confirmed cases are patients, and the self-quarantined persons are potential patients. However, the policy of the Self-Quarantine Safety Protection app and the Safety Band treats self-quarantined people as a potential perpetrator, and object to be monitored and controlled. It was introduced not as a service provided by the government to the public, but

as a means to facilitate control. There have been coercive legal measures, such as criminal penalties against violators of self-quarantine rules besides the app. Furthermore the Self-Quarantine Safety Protection app and the Safety Band enable real-time location monitoring of self-quarantined persons.

The more applause Korea's quarantine policies have received, the more the government seems to be obsessed with perfect results. The government introduced wristbands for the reason that there are very few self-quarantine escapees although the government substantially forces self-quarantined people to install apps, dedicated public officials inspect them on regular basis, and authorities threaten to give criminal punishment against violators. Human rights groups are concerned that more surveillance devices as wristbands can be easily introduced in other areas in the future. If the wristbands, which were first used for some sex offenders, were expanded to self-quarantined persons who are not criminals, it would be easier to employ the device to control another group henceforth.

(4) Mandatory entry log system

The central and local governments order to restrict or prohibit gatherings at restaurants, cafes, and entertainment facilities when necessary as per the spread of Coronavirus. Physical distancing goes beyond just limiting or banning meetings, and it is mandatory to make a list of people entering certain facilities. The legal ground for these measures is Article 49 of the Infectious Disease Prevention Act, which stipulates measures that can be taken "to prevent infectious diseases" by the Commissioner of the Korea Disease Control and Prevention Agency or head of the local government. Entry log system did not have clear grounds in the law and was interpreted as a part of an administrative order to restrict gatherings, but on August 12th, Article 49, paragraph 1, 2-2 was newly established with the revision of the Infectious Disease Prevention Act, and offered legal basis to "Guidelines for quarantine such as writing a list of visitors, wearing a mask, etc."

The government launched the QR code-based <KI-Pass> system on July 1st, saying the handwritten entry register is not accurate enough. For example, only 41.0% (2,032) of the 4,961 people on the list related Itaewon Club mass infection could be contacted by phone

calls. Twelve types of facilities categorized as high-risk such as internet cafes, karaokes, and entertainment bars, and facilities under administrative orders of gathering restrictions or 'electronic entry log' must introduce an electronic entry log system. Yet, if a visitor refuses to use the QR code or does not have a mobile phone, the visitor can write her/his information in a roll book after checking the ID card.



QR code scanning procedure

* Source : Ministry of Health and Welfare : Your Information Is Our Best Defense Against COVID-19

The electronic entry log system works as follows. A visitor receives a QR code from a company like Naver and presents it to the facility manager where she/he visits. The facility manager installs an app for facility managers and generates visit records by recognizing the QR code presented by the visitor through the app. At this point, only the time and facility name recognized by app for facility managers is recorded and whom a specific QR code belongs to is not discernible by the information alone. QR issuing companies like Naver store and manage personal QR code information generated by the app in the server. Facility information and user visit records (QR code recognition records) collected through the facility manager app are stored and managed in the server of the Social Security Information Service. When a mass infection occurs, the quarantine authorities request the QR issuing company and the Social Security Information Service for personal information and visit

records to the facilities where the confirmed person visited, and match them. The electronic entry log system is also linked to the 'COVID-19 epidemiological investigation support system,' so that a list of facilities visited by a specific confirmed person and a list of visitors who called on a certain facility can be easily identified.

The government said that the electronic entry log system was designed to protect personal information. ① Only the minimum personal information necessary for quarantine like name, contact details, facility name, and access time is encrypted and collected, ② the data is dispersed to and stored and managed by QR issuing companies and the Social Security Information Service, and ③ After a certain period of time (4 weeks) the data is destroyed automatically to minimize risk on personal information infringement.

The government puts forward "user consent under the Personal Information Protection Act" as the legal basis for the electronic entry log system. However, all users can choose is whether to do it electronically or by hand. The important point is that the government can check who entered a facility at any time by combining the dispersed personal information. In other words, whereabouts of each individual are under the surveillance of the government as the entry log is mandatory not only for infectious disease patients or suspected patients. It is substantially general surveillance in that it is a policy for all citizens.

In order for an entry log to be really consent-basis, right not to leave an entry record must be allowed. For example, a facility could provide service to notify the people who has left their visit record in case a COVID-19 confirmed case occurs there later. It can be regarded as true consent if you can choose not to leave your information without any penalties. It would be more autonomous and less intrusive, while still having a similar effect to the mandated entry log. It is surely impossible to record visitors to a particular facility without omission. But the entry log is not managed rigorously even under this mandatory system because there is not enough administrative power to supervise whether facilities handle it properly. There were reports on damage to personal information caused by the leakage of handwritten lists. There have been several cases of contacting someone to ask out after getting name and contact information on the entry lists. As the electronic entry log system is introduced, one can avoid this kind of damage of individual leaks, but may be exposed to a much more systematic surveillance by authorities.

5. Conclusion

(1) The need for independent supervision

We have gone over various issues that have caused controversy over personal information infringement in Korea's response to COVID-19 so far, but the fundamental problem shared with all the issues is that there is no adequate supervisory system to prevent abuse of authority or human rights violations. The current Infectious Disease Prevention Act rules that the administrative authorities for the prevention of infectious diseases, such as the Minister of Health and Welfare or the head of a local government, can decide 'what the information that the people need to know to prevent infectious diseases is', and 'which information is necessary to prevent infectious diseases and block transmission of infection' at their discretion. Considering the nature of public health authorities, it is highly likely that they focus on the efficiency and medical necessity of enforcement, while they might relatively neglect deliberation on other basic rights including the right to informational Self-Determination.

Even though fundamental rights may be limited to some extent for the public interest of public health in an infectious disease emergency, it is necessary to check the process outside the public health authority in order to ensure that it is done to the minimum and that such restriction is not abused or continued after the emergency. That is the role of a supervisory body. The National Human Rights Commission or the Personal Information Protection Commission may serve as such a supervisory body, or a separate supervisory committee operated in an emergency of infectious diseases can be formed with health care specialists, human rights experts, the National Human Rights Commission, and the Personal Information Protection Commission.

As the National Human Rights Commission of Korea has already suggested comments on some policies of the health authorities, the National Human Rights Commission or the Personal Information Protection Commission can play a role to supervise the process

without separate regulation in the Infectious Disease Prevention Act. But if there is a clear clause that provides the role of the supervisory body, a more balanced policy establishment and enforcement can be possible. The supervisory body may have the authority to monitor whether information disclosed by health authorities or local governments infringes on the rights of data subjects excessively, and whether epidemiological investigations collect personal information more than necessary and to request correction. It will also have the authority to submit opinions on new laws, policies, or guidelines related to the prevention of infectious diseases.

(2) The material basis of K-quarantine

Will other countries be able to follow the Korean model? First we should recognize that there existed technical and social conditions that made such a model possible in the ROK. We have the material conditions of a surveillance society that can trace an individual's two-week travel record in a couple of hours. Some of them are consumer culture in which credit cards are usual means of payment, public transportation system that enable people to use various means of transportation across the country with a single transportation card, linkage of personal information databases through the wide use of Resident Registration Number in major social areas, tracking mobile devices through a real-name registration system, and nationwide-installed CCTVs. The ROK is not the only country with such a surveillance system, but few countries have all these systems together. They are now used for the public benefit of responding to infectious diseases, but we need to note that it can turn into a surveillance system for citizens at any time.

Political power today may have less desire to abuse power than the dictators of the past, but the ability to have a practical influence on people's everyday lives gets much stronger. Therefore, we need more democracy than before. However reviewing on revising the Infectious Disease Prevention Act, it is questionable whether there was the step for establishing a social consensus over such a surveillance system. As mentioned above, one of the principles of human rights in the infectious disease crisis is that the restriction on fundamental rights should be based on the law. In the ROK, legislation is used to justify restrictions on fundamental rights to the contrary. After a policy that could violate human

rights is first introduced, and public criticism is raised against it, then the legal provisions to justify the policy are made through amendment of the law without sufficient social discussion. Examples of such cases are the mandatory entry log and the introduction of a safety band for self-quarantine violators.

(3) Has the ROK succeeded in quarantine against COVID-19?

Can the ROK be considered to succeed in quarantine against Coronavirus? If so, what factors contributed to it? it is said that the reason why the ROK can avoid a strict lockdown was active contact tracking and inspection unlike other countries. Then, does it have to take certain restrictions on the rights of personal information and risk of national surveillance like the ROK in order to contain infectious diseases? In-depth research and discussion would be needed to reach the conclusions.

First, it is imperative to analyze scientifically how effective the surveillance technology used in the ROK has been to respond to infectious diseases. The ROK is not the only one conducting epidemiological investigations on infectious disease patients. The differences are that the number of confirmed patients did not increase explosively to the level that epidemiological investigations could not handle, and that the interviews with confirmed patients were supplemented by additional information such as credit card and transportation card details, CCTV, and location data. It is true that the use of this additional information has helped more efficient identification of the contact person, but it is necessary to verify through data how much more it has contributed than relying solely on interviews. Moreover, there is no data on how much the disclosure of the patients' movements contributed to the identification of potential contacts. Rather, we can give some credit for the measures in that they have relieved citizens' anxiety.

Second, we need to evaluate what factors truly contributed to the response to infectious diseases. Various factors as well as surveillance techniques like the collection of additional personal information and the monitoring of isolated people, influenced the successful management in the epidemiological investigation. Diverse elements less intrusive to human

rights, may have a positive effect on tackling COVID-19 such as rapid development and approval of diagnostic reagents, introduction of creative test methods like drive-through and walk-through, appropriate recruitment of epidemiological investigators, disclosure of adequate information on the COVID-19 situation, voluntary cooperation of citizens in physical distancing, wearing masks. We should not overestimate the effectiveness of personal information collection and monitoring measures.

Third, it is also required to discuss what successful quarantine is. Policies to contain infectious disease should not consider only health care aspects. Government could limit the travel of people, for the quarantine purpose but it can be a threat to livelihood of the vulnerable. Therefore, it is necessary to discuss the level of confirmed cases that our medical system can handle while maintaining basic economic and social life, not just aiming to minimize infected patients and deaths under any circumstances. One of the criteria can be whether a quarantine policy is human rights-based. Adopting these criteria, it is possible to evaluate that policies based on autonomy and less intrusive on human rights are successful, although their quarantine effects are somewhat inferior compared to the coercive measures centered on control and punishment.

The socially deprived people suffer most from the damage due to the policies focused on control and punishment. The structural inequality of a society is becoming more pronounced in this infectious disease crisis, not only in terms of digital rights, but also in various areas of human rights, and not only in the ROK, but all over the world. The policies on COVID-19 should not stay at just responding to infectious diseases, but progress to solve the structural problems of the society. Since we do not know when COVID-19 will end, and COVID-19 will not be the last infectious disease ever.

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