



A Study on the Legal Improvement for the Crisis Management of New-Infectious Diseases: Focused on the revision of the Act on the Prevention and Management of Infectious Diseases

Seon-Wook Kim¹⁺, Seol A Kwon^{2#}

¹Department of Crisisonomy, Chungbuk National University, 1, Chungdae-ro, Cheongju-si, Chugcheongbuk-do, Korea

²National Crisis and Emergency Management Research Institute, Chungbuk National University, Chungdae-ro 1, Seowon-Gu, Cheonju, Chungbuk 28644, South Korea

ABSTRACT

The MERS hit the South Korea served as a turning point in the crisis management response system on infectious diseases. In South Korea, about 80 kinds of legal infectious diseases are controlled under the “Infection Disease Control and Prevention Act.” This study examined improvement with an aim of managing crisis of new infectious diseases mainly focusing on prevention of infectious diseases. As part of establishing an effective and efficient crisis management system of infectious diseases, the Korea Centers for Disease Control and Prevention had established a complete control tower in well preparation for a possible outbreak. In terms of prevention and response, an article on punishment is revised such as the enactment of prevention act for new infectious diseases spread from foreign countries and disinfection. In terms of response and restoration, there is a capacity-building for crisis and communication in response to infectious diseases. New infectious diseases will continue to appear. In responding to the uncertain change, a government-wide crisis management system should be reinforced in an effort to prevent further incoming and transmission of new infectious diseases into the society.

Key words: Infectious disease, Crisis management system, prevention of infectious disease, crisonomy, Act on the Prevention and Management of Infectious Diseases

Introduction

An outbreak of Middle East respiratory syndrome (MERS) in 2015 brought about a crisis of public health in South Korea. In actuality, the main cause of the crisis lied in virus, but the social structure

in South Korea, vulnerable to virus, was a major cause of national state of social emergency (Kim, 2016: 27; Kim, 2015: 166).

There is a growing interest in diseases and crisis management system all over the society after the MERS broke off, and various efforts are made to build an effective management system for infectious diseases. Nevertheless, new and existing infectious dis-

⁺ The 1st Author: Seon-Wook Kim, E-mail. sunwooky21@chungbuk.ac.kr

[#] Corresponding Author: Seol A Kwon, E-mail. seolakwon@chungbuk.ac.kr

Received: Dec. 12, 2019 / Revised: Dec. 27, 2019 / Accepted: Dec. 27, 2019

© 2020 Crisis and Emergency Management: Theory and Praxis. All rights reserved.

eases such as Zika (2016), Ebola (2017), Cholera (2019) and Pest (2019) are striking the world (YHNews, 2019).

Infectious diseases are generally defined as “a disorder that occurs in ways that pathogen microorganisms are entering animals or plants and grow inside,” which is contrast to “contagion” merely passing diseases to other people (Yoon, 2018: 102).

The “Infection Disease Control and Prevention Act” (hereinafter referred to as “Infection Disease Prevention Act” took effect in South Korea. This paper will mainly discuss improvement for the crisis management of new infectious diseases based on the Infection Disease Prevention Act. Then it will examine the crisis management system conducted in South Korea as well as the current state of the occurrence of infectious diseases (in Section II) and the revised prevention act in South Korea and the gist of the Infection Disease Prevention Act in Germany (in Section III). Lastly, it will look into legal improvement for the crisis management in response to new infectious diseases (in Section IV).

Crisis Management System in South Korea and Current State

Concept and History of Infectious Diseases

Infectious diseases refers to a disorder caused by pathogens that invaded people or animals and settled in internal organs, thereby spreading to people through people, animals or other reservoirs infected with harmful pathogens or toxic chemicals. Contagion is also directly or indirectly transmitted among people or between people and animals among other ones normally doing harm to human beings and animals (Byun, *et. al.*, 2018: 485).

The World Health Organization (WHO) considers infectious diseases and contagion as synonymous, and does not adopt another meaning. The South Korean government enacted the “Infectious Disease Prevention Act” (No.308, came into effect on February 28, 1957) on February 2, 1954 when infectious diseases struck the country after the Korean War. After the amendment in December 2009, it was revised to the “Infection Disease Control and Prevention Act” and still remains effective (Lee, 2016: 152; Lee, 2015: 20).

When the act was revised, the “Parasite Prevention Act” and the “Infectious Disease Prevention Act” were incorporated into the new “Infectious Disease Prevention Act.” On that note, a contagious disease was changed into an infectious disease to cover non-communicable diseases from one to another. An infectious disease can be seen as over than contagious diseases, encompassing infectious

diseases and non-communicable diseases (Lee, 2016: 153).

This act is the most fundamental and basic law aiming to improve and maintain public health in a way that prevents the occurrence and transmission of harmful infectious diseases and coding necessary details for that purpose.

The “Infectious Disease Prevention Act” has been revised for 42 times to date. Since the amendment in March 2018, the act was graded into 10 diseases such as the 1st level infectious disease, the 2nd level infectious disease, the 3rd level infectious disease, the 4th level infectious disease, parasite infectious disease, infectious disease monitored by the WHO, biological terror infectious disease, sexually mediated infectious disease, endemoenzootic common infectious disease and medicine-related infectious disease (No. 15534, took effect in January 1, 2020).

Crisis Management System of Infectious Diseases in South Korea

The South Korean governments adopts the “Basic Act on the Crisis and Safety Management” as a fundamental law with regard to provisions related to crisis and safety management system. Under the crisis safety act, a crisis management system is operated according to four steps: prevention/mitigation, preparedness, response and recovery (Yang, *et. al.*, 2016: 96; Lee, 2018: 245-302).

When crisis hit, manuals, including the national crisis management guideline, stipulate a specific role and the scope of tasks of relevant government departments and agencies. The crisis safety act classifies infectious diseases as the category of social disaster (Seo, 2015: 222).

Infectious disease crisis management includes an overall process of activities such as planning, organizing, implementing, coordinating and controlling resources led by the government in an effort to effectively prevent, prepare, respond and restore national crises caused by infectious diseases. Pursuant Article 34 of the Infectious Disease Prevention Act, Minister of Health and Welfare sets up crisis management solutions on infectious diseases in order to respond to crises caused by the transmission of infectious diseases and incoming of new foreign diseases.

As seen the table below, the solution complies with the existing standard manual on infectious disease crisis management based on Paragraph 2.1-2.2 of Article 34, Paragraph 5 of Article 34 of the crisis safety act and the national crisis management basic guideline (No. 342 of Presidential Directive). Pursuant to Article 35, a joint crisis preparation drill is conducted every year with relevant agencies (Roh, 2017: 296).

Paragraph 2.3-2.6 of Article 34 comply with a crisis management

solution and a 24-hour emergency center is run for rapid response when an infectious disease-related crisis occurs. The crisis management solution covers a) arrival and spread of new infectious diseases when patients come to South Korea through airports or ports, and b) a larger number of patients affected by unidentified or re-emerged diseases in South Korea.

At the preparation phase in the process of crisis management stipulates that crisis-management agencies in the field of infectious diseases shall share information and build a coordination system and thereby recognize and actively respond to crisis immediately at various levels of crisis alert (Seo, 2015: 224).

As shown in the table below, crisis alert is composed of attention(Blue), caution(Yellow), alert(Orange) and seriousness(Red). Minister of Health and Welfare announces a crisis alert depending on the results of the crisis assessment council. The Blue is a situation in which new foreign or unidentified infectious diseases appeared or reappeared. Under this circumstance, the Korea Centers for Disease Control and Prevention runs task forces by diseases, monitors possible crises, maintains response device, conducts disinfection-

related activities in spots and implements disinfection-related infrastructure for necessary cases.

The Yellow is a situation in which new foreign or unidentified infectious diseases appeared or reappeared or infectious diseases are spread in a limited scope. The Central Disinfection Control Center is established and operated in the Korea Centers for Disease Control and Prevention, and relevant organizations are coordinated. Furthermore, the agency conducts disinfection-related activities in spots, implements disinfection-related infrastructure and steps up supervision.

The Orange is a situation in which new foreign infectious diseases are transmitted to a limited extent or unidentified infectious diseases appeared or reappeared or infectious diseases are spread to local communities. Under this circumstance, the Central Disinfection Control Center is operated at the Korea Centers for Disease Control and Prevention. In special cases, a government-wide meeting chaired by Prime Minister is held and the Ministry of Public Administration and Security reviews an option to run a government-wide support center. Furthermore, a coordination system among relevant author-

<Table 1> Act on the prevention and management of infectious diseases

Major articles on the Act on the Prevention and Management of Infectious Diseases		The scope of application
Article 1.	Response system on the occurrence of crises and arrival of new foreign infectious diseases and role of relevant agencies	Standard manual on infected disease crisis management (basic law on crisis and safety and management)
Article 2.	Judgment on disaster and crisis, decision of crisis alert and management system	
Article 3.	Writing a list of experts, including medical personnel to be dispatched when infected diseases occur, facilities and medical centers	Infected disease crisis management solutions (Act on the Prevention and Management of Infected Diseases)
Article 4.	Ways to accumulate and procure medical supplies	
Article 5.	Emergency preparation training such as national instruction by types of disasters and crises, education on personnel mobilization, facilities and agencies, and map exercise	
Article 6.	Things recognized by Minister of Health and Welfare necessary to overcome other disasters and crises	

※ Source: KCDC(2018a: 107).

<Table 2> Level of crisis alert in case of infectious disease crisis management in South Korea

Division	Types of crises		Major response activities
	New foreign infectious diseases	Unidentified re-emerged infectious diseases	
Attention (Blue)	occurrence and spread of new infectious diseases in foreign countries	Occurrence of unidentified or re-emerged infectious diseases	Operation of task forces by infectious diseases (the Korea Centers for Disease Control and Prevention)
Caution (Yellow)	Arrival of new foreign infectious diseases	Limited spread of unidentified or re-emerged infectious diseases to South Korea	Establishment and operation of the Central Disinfection Center (Korea Centers for Disease Control and Prevention)
Alert (Orange)	Limited spread of new foreign infectious diseases to South Korea	Spread of unidentified or re-emerged infectious diseases to local communities in South Korea	Continue to operate the Central Disinfection Center (Korea Centers for Disease Control and Prevention) Establishment and operation of the Central Accident Handling Center (the Ministry of Health and Welfare)
Seriousness (Red)	Spread of new foreign infectious diseases to local communities or the country	Spread of unidentified or re-emerged infectious diseases to the entire country	Government-wide effort and response

※ Source: Ministry of Food and Drug Safety(2019: 42).

ities is promoted and response activities covering disinfection and supervision are implemented as part of the decision.

The Red level refers to the situation in which foreign or unidentified infectious diseases are transmitted or re-struck across the country. At this phase, a government-wide efforts are stepped up and the National Emergency Management Agency is run in particular occasions.

Current State of the Occurrence of Infectious Diseases in South Korea

The number of patients who reported to be infected with legal infectious diseases in 2018 reached 170,498 (329 per 100,000 persons), 17,627 rising from 157,871 in 2017 (295 per 100,000 persons), which is the highest level since 2009 (1502.6 per 100,000 persons) when new influenza struck the world. Until 2017, no patients affected by the MERS among the 1st level diseases was reported after the disease was eliminated in 2015. Yet one person who traveled from the Middle East was confirmed in 2018 (KCDC, 2018b: summary 7, 10).

The percentage of typhoid among the 2nd level diseases rose 66.4% compared to the previous year. Coming into South Korea accounted for 43.2%, jumping 39% from the last year (213 in 2018). Hepatitis A reduced 44.9% compared to the previous year. Most diseases broke off in Daejeon, Sejong, Chungcheongnam-do and Jeollabuk-do, and 20 to 40s accounted for 76.4% (2,437 in 2018). Malaria, among the 3rd level diseases, have decreased since 2007, but rose 11.8% compared to 2017 (576 in 2018). The tsutsugamushi disease has annually risen since 2009, but went down after 2017 and 36.7% downed compared to the previous year (6,668 in 2018). The number of reporting severe Fever with Thrombocytopenia Syndrome (SFTS) has continued to increase since its confirmation

in May 2013. In 2018, it reduced to 4.8% compared to the last year identified as 259 (46 dead) in 2018 (KCDC, 2018b: summary 8-10).

Foreign infectious diseases have continued to rise, and about 400 patients have been reported since 2010. In 2018, 597 patients were reported, jumping 12.4% from 2017 (531). Major foreign diseases reported in last year included Dengue Fever (27%), bacillary dysentery (24%), typhoid (15%) and Malaria (13%). Key source regions included Asian countries including Philippines, Vietnam, Laos, Thailand, India, Cambodia and China, accounting for about 87%, followed by African countries such as Nigeria, Uganda and Ghana nearly 8% (KCDC, 2018b: summary 10).

Key Points of the Act on the Prevention and Management of Infectious Diseases

Revised Act on the Prevention and Management of Infectious Diseases in South Korea

The Act on the Prevention of Infectious Diseases, aiming to prevent and manage infectious diseases, consists of the general rules of Chapter 1, basic plans and projects of Chapter 2, report of Chapter 3, monitoring infectious diseases and epidemiological study of Chapter 4, High-risk pathogens of Chapter 5, vaccination of Chapter 6, prevention of spreading infectious diseases of Chapter 7, preventive measures of Chapter 8, disinfection personnel, epidemiological investigator, quarantine officer and prevention-related members of Chapter 9, expense of Chapter 10, supplementary rules of Chapter 11 and punishment of Chapter 12. This paper will examine some revised parts on March 27, 2018.

<Table 3> Trend of the occurrence of legal infectious diseases by years

Year	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Occurrence rate per 100,000 people	93.9	27.7	192.4	114.6	101.3	148.4	181.0	185.7	201.5	295.5	329.1

* Source: KCDC(2018b: summary 7).

<Table 4> Trend of the occurrence of foreign infectious diseases

Disease-specific country	Asia								Africa	Europe	Other continents
	Philippines	Vietnam	Laos	Thailand	India	Cambodia	China	Others			
Report rate (%)	144 (24%)	72 (12%)	69 (12%)	52 (9%)	35 (6%)	32 (5%)	27 (5%)	89 (15%)	45 (8%)	14 (2%)	18 (3%)

* Source: KCDC(2018b: summary 11).

Change in Current Infectious Diseases Classification System

The infectious diseases classification system was revised in about two decades. The current classification system was reclassified into groups according to disease characteristics as the 1st level, the 2nd level, the 3rd level, the 4th level, the 5th level and designated infectious diseases. However, some acts were revised in March 2018 that the current system was changed into the 1st level, the 2nd level, the 3rd level, the 4th level and parasite infectious disease as groups based on seriousness, spreading power, level of isolation and date of report, which are scheduled to enter into force starting from January 2020.

On this occasion, provisions such as Article 2 (Definition), Article 11 (Report of doctors), Article 12 (Other stakeholders required to report), Article 16 (Monitoring infectious disease sample), Article 41 (Patient Management), Article 42 (Compulsory disposal on infectious disease) and Article 63 (Korea Health Management Association) were revised.

In 1952 when the former the Act on the Prevention of Infectious Diseases classified them into the 1st, 2nd and 3rd diseases. According to the degree of urgency and medical system of infectious diseases, the new system will be launched on January 2020 for the first time since its revision available for systematic and professional management of infectious diseases in a way that reclassifies them into the 1st, 2nd, 3rd, 4th and designated infectious diseases in January 2000.

Reinforcement of the Role of the Korea Centers for Disease Control and Prevention and Establishment of Control Tower

Following the MERS outbreak, the government faced problems associated with organizational response system for infectious disease control. Recalling such problems, it decided to promote the head of the Korea Centers for Disease Control and Prevention to a vice minister-level position to build up an organization responsible for response to crisis. On the occasion of this amendment, the head of the Korea Centers for Disease Control and Prevention, instead of Vice Minister of Health and Welfare, started to serve President of the Korea Centers for Disease Control Committee under the Ministry of Health and Welfare mainly reviewing major policies on the prevention and management of infectious diseases. In addition, the number of committee members was extended from within 20 to within 30 (Article 10). A legal basis was created on the establishment and operation of an emergency center to serve as a control tower in case of an emergency of infectious diseases (Enacted Paragraph 5 of Article 8).

Main works handled by the head of the Korea Centers for Disease

Control and Prevention obviously included collecting, disseminating of information on infectious diseases, emergency management, early response and commanding emergency or crises when infectious diseases sweep the country. In addition, a current provision subject to the Ministry of Health and Welfare was promoted in that those who preserve and manage high-risk pathogens shall write records on the current state of preserving the pathogens and submit it to the head (Article 21).

Improvement in the Quality of Medical Service for Nationals

The name of regular vaccination was changed into required vaccination in order to lighten medical burdens shouldered by nationals and further properly prevent and manage infectious diseases. Furthermore, the “human papilloma virus test” and “hepatitis A” stipulated as required vaccination in a current act, were upgraded in law (Article 24, Paragraph 1 of Article 27 and Paragraph 1 of Article 28). A legal evidence was also created for designating facilities to seclude people who contacted patients (enacted Paragraph 3 of Article 39). Mayors and governors should designate such facilities to prevent the occurrence of infected diseases (Chun, 2015: 152-153).

Minister of Health and Welfare, mayors or governors designated facilities, not designated exclusively for people affected, for temporary periods pursuant to Paragraph 1 of Article 39-1 if a number of people affected including patients take place and all of them cannot be accommodated. In addition, at least one of urban or provincial epidemiological investigators shall be appointed as a doctor to secure the rights of health for nationals (Paragraph 2 of Article 60).

Foreign cases on the Act on the Prevention and Management of Infectious Diseases

The German government is enacting and implementing diverse laws to prevent further spread of infected diseases. The representative act is the German “Act on Protection from Infection” which took effect in January 2001 (Lee, 2015: 71).

The Act on the Prevention of Infectious Diseases aiming to prevent and respond to infected diseases consists of the general rule of Chapter 1, adjustment of missions and early detection of diseases of Chapter 2, epidemiological monitoring of Chapter 3, prevention from infectious diseases of Chapter 4, control of infectious diseases of Chapter 5, protection of particular facilities, office and

people from infection of Chapter 6, water of Chapter 7, health requirements of employees in case of handling food of Chapter 8, pathogens activities of Chapter 9, institutions of Chapter 19, consistency with local law of Chapter 11, reward for special cases of Chapter 12, expense of Chapter 13, special regulation of Chapter 14, punishment of Chapter 15 and transitional regulation of Chapter 16.

Independence of Robert Koch Institute (RKI)

The RKI is a supervisory agency specialized in the prevention and management of infected diseases and a federal institute aiming to monitor the occurrence of diseases, health risk, efficiently report national health and take necessary measures (Kim, 2015: 107).

This institute should offer advice on measures to prevent the spread of acute infectious diseases and early detection to relevant authorities at the request by the highest health authorities in the province. If communicable diseases occur, it should assess the dangerous situations (Article 4). First, it writes guidelines and recommendations on the prevention and detection of spreading infectious diseases for people in charge with handling the diseases in cooperation with relevant federal authorities. Second, it epidemically evaluates data on diseases to be reported and confirmed pathogens submitted to the RKI under the International Health Regulations (Sim, 2018: 188).

Third, it provides the results of epidemiological assessment to particular agencies such as federal authorities, Fourth, it regularly uploads results. Fifth, state and other officials provide assistance to implement tasks related to epidemiological monitoring under the prevention act. In addition, it should develop work abilities in cooperation with the WHO and other international organizations. It should particularly take measures to curbe the spread across borders and recognize and prevent the risks at an early stage (Paragraph 3 of Article 4). Therefore, the RKI conducts various works associated with infected diseases, especially the most direct and core plans to prevent the spread of such diseases (Yoon, 2018: 262).

Regulation on Compensation for Special Occasions

As people with pathogens, suspected of infection, suspects and those with other pathogens under this law who suffered economic losses arising from banned employment receive monetary compensation. This holds true to those who had been or are now isolated as carriers or suspects. However, those who carry other pathogens can be rewarded only if no other protective options except for isolation is available (Article 56).

Those who suffered health loss and their bereaved families can

apply for health and economic losses after other measures in parallel to vaccination are taken due to vaccination or other special preventive measures under the “Federal Bill of Rights” (Article 60). It is conducted when state authorities officially recommended and implemented, order or law is enacted pursuant to the infectious disease prevention law, or in accordance with the regulation for implementing international law on health.

The possibility of health loss caused by vaccination is sufficient to acknowledge the damage under Article 60. If the association between vaccination and health loss is medically uncertain, that association can be recognized by obtaining the approval of the highest state authority managing the bill of rights of war victims (Yoon, 2018: 278).

Legal Improvement for Crisis Management of New Infectious Diseases

Building Complete Control Tower of the Korea Centers for Disease Control and Prevention

After the SARS hit the country in 2003, the Korea Centers for Disease Control and Prevention under the Ministry of Health and Welfare is carrying out various missions in a bid to respond to infectious disease-related crises with the U.S. Center for Disease Control (CDC), the German Robert Koch Institute (RKI), the Japanese National Institute of Infectious Diseases (NIID) and the French Institute for Public Health Surveillance (InVS).

The MERS outbreak served as an opportunity to reflect on the inadequate response system of infectious diseases in South Korea. By amending the prevention acts, the Korea Centers for Disease Control and Prevention is starting to consolidate its role. When the MERS struck the country, its response system related to infectious disease crisis featured a complicated structure of control towers such as the Central Disinfection Center (Korea Centers for Disease Control and Prevention), the Central MERS Management Center (the Ministry of Health and Welfare), a government-wide MERS Support Center (the Ministry of Public Safety and Security) and public-private joint response (the Ministry of Health and Welfare) and an immediate response team (Kim, 2015: 130).

Given the special characteristics of infectious disease, the South Korean organization structure for crisis response benchmarked the U.S. CDC given the special features of infected diseases, the Ministry of Health and Welfare mainly led the actual process of response, so that professional decision-making and proper response are almost

impossible (Byun, 2018: 491).

The 100 Policy Tasks under the five-year national plan in the Moon Jae-in administration include the establishment of a center for responding to infectious diseases under the Korea Centers for Disease Control and Prevention. In France, the Operational Centre for Emergency Health Response and Regulation (CORRUSS) under the Ministry of Health makes judgment over crises and issues emergency. According to this procedure, the public health crisis response center (CCS) sets up prevention solutions and conducts joint response with local health authorities.

Although a crisis assessment meeting is operated by relevant departments under the Ministry of Health and Welfare and the Central Disinfection Center (The Korea Centers for Disease Control and Prevention) responds to crises, early preventive information measures were not taken appropriately when the MERS hit the country and thereby repeatedly changing control towers run by the government (Park & Kim, 2017: 23).

In this light, a relevant law should be enacted to establish a completely specialized and professional control tower at the infectious disease response center under the Korea Centers for Disease Control and Prevention. By doing so, a rapid response and more responsibility can be expected considering the special features of infected diseases.

Enactment of New Act on Foreign Infectious Disease Prevention

Public health crisis hit the South Korea due to the arrival of new foreign infectious diseases such as SARS, new influenza and MERS since the 2000s, but such national crisis management problems caused by social catastrophe such as infectious diseases are not exceptional to major advanced countries (Chung, 2012: 42).

The U.S. government enacted the Pandemic & All-Hazards Preparedness Reauthorization Act in preparation for public health crisis. The Japanese government enacted the special act on measures such as new influenza in 2012 in a bid to effectively respond to new high-risk infectious diseases such as new influenza (Sho, 2015: 226-227; Lee, 2015: 93).

The South Korean government is preparing for establishing a comprehensive basic plan regarding infectious diseases by enacting "Act on the Prevention and Management of Infected Diseases." Contrary to the U.S. and Japan, there is no independent law on a response system specialized in infected diseases in South Korea (Sho, 2015: 235).

An independent special law needs to be enacted in order to respond to new foreign or re-emerged infectious diseases with

higher mortality rates or likely to lead to a collective occurrence in parallel to the 1st level disease. The WHO announced 14 pathogen that could sweep the world in the future. The Korea Centers for Disease Control and Prevention selected 16 infected diseases likely to come from foreign countries in the near future which need to prepare readiness for prevention of posing threats to public health at the national level (The Ministry of Health and Welfare & MBC, 2019).

By creating a better environment for rapidly responding to infected diseases in a way that enacts independent and customized laws aiming to respond to a crisis of global infectious diseases, trust from people should be enhanced and a system for global cooperation needs to be built.

In implementing the tasks, the government tended to put more emphasis on affiliated provisions (including directive, manual and guideline, etc.) to applied in the phase of practice rather than focusing on the higher law. In this light, it is expected that national anxiety can be appeased by ensuring the legal stability through provisions, not by unilaterally requesting measures pursuant to the standardized manual (Bae, 2016: 47).

Amendment of Punishment Acts Including Disinfection

The punishment article has been recently revised (entry into force on January 1, 2020): two new articles on fine less than five million won for those who violated an obligation of report on the 1st level and 2nd level infectious diseases (Paragraph 3 of Article 79), as well as fine less than three million won for those who violated an obligation of report on the 3rd level and 4th level infectious diseases (Paragraph 1 and 2 of Article 80).

The Act on the Prevention of Infectious Diseases contains provisions on disinfection-related workers ranging from the 52nd to 59th articles. A new Paragraph 8 of Article 80 stipulates that those who did not report or reported the operation of disinfection services illegally are subject to fine less than three million won in accordance with a provision on disinfection services (Paragraph 1 of Article 52).

The provision that "unlicensed and illicit operation of disinfection services shall be subject to fine less than three million won" can thus be lighter than other acts. For example, Article 35 of the Fire-fighting System Installation Business Act was upgraded and revised, saying those who operate unlicensed services without registering fire-fighting systems shall be subject to less than three-year sentence or fine less than 30 million won.

Paragraph 2 of Article 48-2 of the Act on Fire Prevention and

Installation, Maintenance, and Safety Control of Fire-fighting Systems stipulates that those who operate services without registering fire-fighting management services shall be subject to less than three-year sentence or fine less than 30 million won.

To be sure, it is unconvincing to simply compare them based on different sectoral characteristics. However, they are considered as persons directly associated with infectious diseases as stipulated in the Act on the Prevention of Infectious Diseases on the obligation to educate disinfection personnel (Article 55).

Multi-floor facilities are disinfected in accordance with Article 24 ordinance (facilities that must be disinfected) as well as in details pursuant to Article 40 of rules (disinfection standards and records on disinfection) and along with relevant acts including the Waste Control Act. Above all, it should not decide which one is grave or not, in that it is impossible to avoid direct or indirect contact with patients affected by infectious diseases. Therefore, it is necessary to step up public health sanitation by more heightening punishment regulations than current ones.

Reinforcement of Capacity-building for Crisis and Communication on Infectious Diseases

The Korea-WHO joint investigation group mentioned crisis communication such as information announcement as a cause of fail to early response. Various factors including fluidity, uncertainty of incidents caused by the crisis, communication problems and subsequent lack can rapidly lead to crisis. In that sense, what, when and how to announce the general public is a beginning of responding to the crisis and evidence for them to understand the situation (The Ministry of Health and Welfare; Park & Kim, 2017: 16; Lee, 2018: 372).

Paragraph 2 of Article 6 (Rights and Obligations of Nationals) of the Act on the Prevention of Infectious Diseases stipulates that nationals shall have rights to know about information and response regarding the current situation on the occurrence, prevention and management of infectious diseases, and a government and provincial governments shall notify information as early as possible.

Paragraph 1 of Article 34-2 (Announcing information in case of infectious diseases crisis) stipulates that Minister of Health and Welfare shall immediately notify what nationals must know for preventing infectious diseases such as moving routes, transport, medical centers and the number of people who contacted the patients when infectious diseases harmful for the health of people are transmitted. In terms of communication on crisis management, it is significant to withdraw all crisis situations concerning organizations. When carrying out such a work, it is necessary to consult with

employees as well as specialists who are well acquainted with the organizations (Lee, 2018: 377).

To this end, information on infectious diseases should be early announced and experts in crisis communication should be nurtured. Concerning nationals' rights to know, social concessions to under-privileged class such as people living in remote areas, people with disabilities, young people and foreigners cut off from crisis information should be made in a way that educates communication experts working at the Korea Centers for Disease Control.

On another side, misinformation such as fake news is likely to be conveyed due to various information and communication channels in the era of an one-person media. If someone deliberately or falsely reveal false information including fake news to others in case of emergency, it is assumed that suspects shall be accused of spreading inaccurate information under criminal law.

Conclusion

The MERS hit the South Korea served as a turning point in the crisis management response system on infectious diseases. We have witnessed the significant lesson that the inception and spread of the diseases not only greatly affected personal life, physical and property damage, but also had immense impacts on socio-economic losses at the national level (Su, *et. al.*, 2015: 2349; Petersen, *et. al.*, 2015: 54).

Now in South Korea, about 80 kinds of legal infectious diseases are controlled under the "Act on the Control and Prevention of Infection Disease." It is important to effective control these diseases for the purpose of promoting and maintaining the health of nationals. The revision of the prevention act will take effect in January 2020, changing an infectious disease classification system in about two decades. According to disease characteristics, infectious diseases in groups were reclassified by grades into the 1st level, the 2nd level, the 3rd level, the 4th level and parasite disease on the basis of standards such as seriousness, spreading power, level of isolation and date of report. With the number of communicable disease spreading to South Korea rising due to increased international exchanges and climate change, rapid response is deemed to be expected as the number of legally infected patients are dramatically increasing (Park, 2009: 19-20).

The Korea Centers for Disease Control and Prevention has recently selected 16 new infectious diseases possible to come from foreign countries in terms of the possibility of causing public health crisis and risk of transmission when infectious diseases

affect the world due to the changing future environment. First, a complete control tower managed by the Korea Centers for Disease Control should be set up as part of building an effective and efficient crisis management system for infectious diseases. An outbreak of MERS led us to meet our inadequate response system of infectious diseases and also a complicated structure of control towers such as the Ministry of Public Safety and Security, the Ministry of Health and Welfare and the Korea Centers for Disease Control (Park, 2017: 1-2).

On that note, the Korea Centers for Disease Control should be kept independent and a complete control tower should be set up by building its expertise through the infection response center. Second, a new foreign infectious disease prevention should be prepared. As demonstrated by the United States and Japan, there is no independent special law on infectious diseases in South Korea (Park, 2018: 2576-2577; Sugishita, *et. al.*, 2019: 6).

Another law should be legislated in response to new highly hazardous foreign or re-emerged infectious diseases with high mortality rate or a collective outbreak in parallel to the 1st level disease. Third, punishment regulations on disinfection should be revised. It is extremely light to impose “fine less than three million won” for unlicensed and illicit operation as stipulated in the act in comparison of other acts (Purtle, *et. al.*, 2018: 9)

As seen by an obligation of education on disinfection-related workers under the prevention act (Article 55), they are regarded as experts who handle infectious diseases. On that nose, punishment regulations should be stepped up to promote public sanitation. Fourth, capacity-building on infectious disease crisis communication should be facilitated. Pursuant to Paragraph 2 of Article 6 of the Act on the Prevention of Infectious Diseases, and the country and provincial government shall allow the public to get access to information at an earlier date. Immediate sharing information and nurturing experts in crisis management are urgent calls in case of an outbreak of infectious diseases (Szmukler & Kelly, 2016: 449).

A threat to new infectious diseases will persist as long as people survive. Recalling Paragraph 6 of Article 34 of the Korean Constitution “the country shall make endeavor to prevent disasters and secure nationals from such a threat,” the government should step up a response and preparation system to infectious diseases with an aim to prevent such diseases and a massive spread (Kim & Jang, 2010: 436; Noh, *et. al.*, 2020: 305; Mehlman & Lederman, 2020: 1-2).

Acknowledgement

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2017S1A5B8059946).

References

- Bae, Jae-Hyun. 2016. Problems and Improvements of the National Disaster Response System in the MERS Disaster: Focusing on the Operation System of the Central Defense Response Headquarters and the Central Accident and Remediation Headquarters. *Korean Journal of State Management*. 11(3): 27-53.
- Byun, Seong-soo, Yu-ri Shin, and Sung Cho. 2018. Establishing an Emergency Response System for Infectious Disease Crisis Management. *Journal of the Korea Contents Association*. 18(7): 484-494.
- Chun, Byung-chul. 2015. Improving the Infectious Diseases Crisis Response System: Managing the Isolation of Suspected Infected and Exposed Persons. *Medical Policy Forum*. 13(3): 152-153.
- Jung, Chan-kwon. 2012. *Second Edition of National Crisisonomy*. Seoul: Daemyeong-sa.
- KCDC. 2018a. *The Second Plan for the Prevention of Infectious Diseases-Strengthening the Joint Response System Based on One Health 2018-2022*.
- KCDC. 2018b. *Infectious Disease Annual Report*. KCDC.
- KCDC. 2019. *A Study on the Diagnosis, Management, and Response System of 16 Major Infectious Diseases Possible to Inflow Overseas*.
- Kim, Nam-Soon. 2015. *The Problem and Improvement of Infectious Disease Management System: Focusing on MERS Infection*. KIHASA Research Report.
- Kim, Nam-Soon. 2016. *Reinforcement of Infectious Disease Management System for Central and Local Governments and Medical Institutions*. KIHASA Research Report.
- Kim, S. H. and J. Y. Jang. 2010. Correlations Between Climate Change-related Infectious Diseases and Meteorological Factors in Korea. *Journal of Preventive Medicine and Public Health*. 43(5): 436-444.
- Kim, Tae-hyung. 2015. Medical Systems in the Event of Large-scale Infectious Diseases: Strengthening the Hospital’s Response System and Infection Treatment Infrastructure. *Medical Policy Forum*. 13(3): 166.
- Korea Centers for Disease Control and Prevention. 2019. 10. 25.
- Korea Centers for Disease Control and Prevention. 2019. 11. 1.
- Korea Ministry of Government Legislation and National Legal Information Center. law.go.kr
- Lee, Chun-hyun. 2015. *A Study on the Countermeasures of Criminal Policy for Effective Prevention and Management of Infectious*

- Diseases*. Korea Criminal Policy Research Institute.
- Lee, Eol. 2015. Japan's Infectious Disease Response System and Current Status. *Overseas Medical Policy Trend*. 13(4): 93-96.
- Lee, Jae Eun. 2018. *Crisisonomy*. 2nd ed. Seoul: Daeyeong-munhwasa.
- Lee, Kyung-hwan, Tae-hwan Kim, Man-no Kim, and Sun-woo Han. 2016. Reasonable Resolution of Legal Disputes and Regulations Related to Infectious Diseases. *Korean Society for Disaster Information*. 12(2): 150-166.
- MBC. 2019. 7. 11. "16 New Infectious Diseases" Holiday Traveler Emergency.
- Mehlman, M. J. and M. M. Lederman. 2020. Compulsory Immunization Protects Against Infection: What Law and Society Can Do. *Pathogens and Immunity*. 5(1): 1-7.
- Ministry of Food and Drug Safety. 2019. Operation Manual of Emergency Disease Crisis Response. Ministry of Food and Drug Safety.
- National Legislative Support Center National Assembly Legislation. lawmaking.go.kr
- Noh, J. W., K. B. Yoo, Y. D. Kwon, J. H. Hong, Y. Lee, and K. Park. 2020. Effect of Information Disclosure Policy on Control of Infectious Disease: MERS-CoV Outbreak in South Korea. *International Journal of Environmental Research and Public Health*. 17(1): 305-312.
- Park, Hae-mi and Dae-jung Kim. 2017. Exceptional Health Situation and Crisis Avoidance: Focusing on the Infectious Disease Emergency Preparedness and Response System in France. *Crisisonomy*. 13(8): 13-26.
- Park, M. 2017. Infectious Disease-related Laws: Prevention and Control Measures. *Epidemiology and Health*. 39: 1-29.
- Park, M. J. 2018. Infection and the People's Rights Regarding MERS in the Republic of Korea. *J Infect Dis Med*. 3(124): 2576-2577.
- Park, S. I. 2009. Disease Control in Korean Aquaculture. *Fish Pathology*. 44(1): 19-23.
- Petersen, E., D. S. Hui, S. Perlman, and A. Zumla. 2015. Middle East Respiratory Syndrome-advancing the Public Health and Research Agenda on MERS-lessons from the South Korea Outbreak. *International Journal of Infectious Diseases*. 36(C): 54-55.
- Purtle, J., R. I. Field, T. Hipper, J. Nash-Arott, E. Chernak, and J. W. Buehler. 2018. The Impact of Law on Syndromic Disease Surveillance Implementation. *Journal of Public Health Management and Practice: JPHMP*. 24(1): 9-17.
- Roh, Tae-ho. 2017. A Proposal of Prevention on Infectious Disease Proliferations. Korean Institute of Fire Science & Engineering. 296.
- Seo, Kyung-hwa, Jung-chan Lee, Gye-hyun Kim, and Eol Lee. 2015. A Study on Korea's Crisis Management System in the Event of Infectious Diseases. *National Policy Studies*. 29(4): 219-242.
- Shim, Young-Kyu. 2018. A Study on the International Normative System for the Prevention and Management of Infectious Diseases: From Harmonious Perspective. *Journal of Maritime Law*. 30(2): 187-216.
- Su, S., G. Wong, Y. Liu, G. F. Gao, S. Li, and Y. Bi. 2015. MERS in South Korea and China: A Potential Outbreak Threat? *The Lancet*. 385(9985): 2349-2350.
- Sugishita, Y., A. Kayebeta, K. Soejima, and M. Yauchi. 2019. Rapid Increase of Syphilis in Tokyo: An Analysis of Infectious Disease Surveillance Data from 2007 to 2016. *Western Pacific Surveillance and Response Journal: WPSAR*. 10(1): 6-14.
- Supreme Court of Korea and Comprehensive Legal Information. glaw.scourt.go.kr
- Szumukler, G. and B. D. Kelly. 2016. We should Replace Conventional Mental Health Law with Capacity-based Law. *The British Journal of Psychiatry*. 209(6): 449-453.
- Yang, Ki-geun, Joo-ho Lee, Sang Il Ryu, Yoon Suk Song, Dong Kyu Lee, and Young Gun Hong. 2016. *Revision of Disaster Management*. Seoul: Daeyeong-munhwasa.
- Yonhap News TV. 2019. 11. 13. Infectious Black Death Outbreak in China... 2 People Confirmed.
- Yoon, Ik-Joon. 2018. Legal Issues in the Prevention and Management of Zoonosis: Limits and Alternatives for the Management of Zoonosis as a Case of MERS. *Journal of Law and Politics Research*. 18(3): 99-122.
- Yoon, Jin-ah. 2018. A Study on the Prevention and Control of Infectious Diseases in Germany. *Law and Policy Studies*. 18(4): 255-288.

Seon-Wook Kim (sunwoiky21@chungbuk.ac.kr)

He has been attending a doctoral course in crisisonomy Chungbuk National University since September 2019. His research interests are the fields of social disasters under the Disaster Safety Act.

Seol A Kwon (seolakwon@chungbuk.ac.kr)

She received her Ph.D. from Chungbuk National University, Korea in 2017. She is a Chief of Center for Disaster Safety Innovation of National Crisisonomy Institute(NCI), Chungbuk National University. Her research interests include life environment crisis, crisis management, organization theories, and risk communication.