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## Improvement of INFECTION Control System in KOREA

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### Abstract

*In our country, Ji Seok-young conducted vaccination in December, 1879, which was the first time to cure smallpox that was the most dreadful infectious disease. Although there is a decrease in the total quantity of infectious diseases, their relative value become larger, instead. VDP was eradicated, and it's possible to prevent and suppress water-borne and food-borne infectious diseases and diseases through parasite infections. However, there are new types of diseases that are considered as great social issues, including imported infectious diseases, zoonoses and other infectious diseases which cannot be controlled by antibiotics, which are sexually transmitted and hard to observe, and which occur through vector-borne infection, community-acquired infection or healthcare-acquired infection. And the third is taking prompt measures for the sake of patients who fail to prevent themselves from the disease. They should be equipped with an infectious disease surveillance system, provide regular education and encourage more people to be vaccinated instead of merely depending on Korea Centers for Disease Control & Prevention. As for the third principle, it cannot curb the spread of the disease and thereby results in doing much damage when proper early measures aren't taken. To prevent it in advance, more intensive, diverse education and careful management are required.*

**[Keywords]** *Infection Disease, MERS, SARS, Management, Public Health*

### 1. Introduction

Infectious diseases are diseases caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread, directly or indirectly, from one person to another[1].

In 1918, many people who numbered between 25 and 50 million lost their lives due to the Spanish influenza pandemic, which also was one of the causes to put the First World War to an end. In 1928, Pasteur's discovery of penicillin made a great contribution to the advance in modern medicine and pharmacy, and that was of great help for the treatment of infectious diseases such as smallpox, measles, malaria, cholera and bacillary dysentery

as well. In our country, Ji Seok-young conducted vaccination in December, 1879, which was the first time to cure smallpox that was the most dreadful infectious disease[2]. In 1945, the Central Epidemic Prevention Center was established, and it started to keep legal infectious diseases under surveillance in 1954. In 1963, the National Institute of Health was established. In recent years, SARS spread in 2002, and then Korea Centers for Disease Control & Prevention were established in 2004[3].

Although there is a decrease in the total quantity of infectious diseases, their relative value become larger, instead. VDP was eradicated, and it's possible to prevent and suppress water-borne and food-borne infectious

diseases and diseases through parasite infections. However, there are new types of diseases that are considered as great social issues, including imported infectious diseases, zoonoses and other infectious diseases which cannot be controlled by antibiotics, which are sexually transmitted and hard to observe, and which occur through vector-borne infection, community-acquired infection or healthcare-acquired infection[4].

## 2. The Recent Trend in the Occurrence of Infectious Diseases

According to the data released by the infectious disease surveillance department in Korea Centers for Disease Control & Prevention of the Ministry of Health and Welfare, there is a tendency that infectious diseases have been on the wane since 2009, but the occurrence of the diseases is at a standstill due to the appearance of variant infectious diseases.

Imported infectious diseases are on the steady rise along with the increase in foreign tourists, and approximately 40 percent of the cases of imported infectious diseases appeared in Seoul in 2016[5].

## 3. The Types of Infectious Diseases by Ways of Spread

There has been a rapid spread of insect(mite)-borne diseases since March as the weather started to warm. In particular, SFTS is on the rapid rise, and there are other insect-borne diseases such as malaria, yellow fever, dengue fever, Japanese encephalitis, epidemic typhus and tsutsugamushi disease.

Contagious diseases that are caused by interpersonal contact are measles, rubella, epidemic parotitis, diphtheria, influenza and tuberculosis, etc. At present, vaccination against the diseases is mostly provided by the government from infancy and early childhood to manage the diseases[6].

Water-borne and food-borne diseases are bacillary dysentery, typhoid, food poisoning, enterohemorrhagic E. coli infections and

cholera, etc. Especially, the occurrence of cholera in 2016 in the region of Geoje created a big stir because it's known that it spread through seawater[7].

## 4. Systematic Infectious Disease Management

SARS(severe acute respiratory syndrome) and MERS(Middle East respiratory syndrome) exposed our country's weakness in the infectious disease management system. After a patient was diagnosed with MERS for the first time on May 20, 2015, there appeared 180 more patients during a short period of time. In total, 186 were infected with MERS, and 38 patients died. The fatality rate of MERS reached 20.4 percent in our country[8].

At that time, people had to be beset by fear and dread for more than seven months until the cessation of MERS was formally declared on December 23, 2015, because of inadequate early countermeasures, which were attributed to the centralized infectious disease management system and the complacency of medical institutions. To remedy the situation, continuing concern and efforts from national healthcare organs, medical institutions and individuals are all required[9].

To be specific, every local community should try to heighten the level of immunity. They should be equipped with an infectious disease surveillance system, provide regular education and encourage more people to be vaccinated instead of merely depending on Korea Centers for Disease Control & Prevention. Those who live in group should be informed about how to manage infectious diseases so that they can cope with it properly if they catch any infectious disease. In terms of the prevention of the reproduction of infection, a disease spreads if 50 percent of the population have immunity. If 75 percent are immune, the disease becomes endemic. If 90 percent or more have immunity, it disappears. So vaccination should be provided to enhance the level of immunity, and individuals should try to be immune as well[10].

In local community, public organizations such as public health centers should set up

the kind of system that can observe if the expected disease take place additionally at a specific time and at a specific place and that can manage the disease, and they should make an immediate report to the higher authorities about clinical characteristics, the results of experiment, the source and type of danger, the number of patients, death toll and conditions that affect the spread of the disease.

At present, the FMTP II for infectious diseases has been conducted every year in an effort to bolster the competency of the central government and local public health centers, but hands-on workers are overburdened at work, and it's difficult for them to take care of their work and receive education at the same time. Therefore local healthcare organizations should hire experts in infectious diseases and offer sustained education for them.

To promptly cope with the occurrence of any infectious disease, it seems necessary for local healthcare organizations to join forces with related institutions such as fire stations and police stations. "A smart quarantine information system" was established on April 20, 2017, by linking Korea Centers for Disease Control & Prevention and information acquired by roaming from abroad to ensure the successful prevention of and countermeasure for imported infectious diseases. This system is expected to make it possible to manage those who return after visiting a country polluted by an infectious disease in consideration of the incubation period[11].

There are three principles for infectious disease management. The first is blocking the spread of the disease(eliminating the reservoir, reducing infectivity, isolating the reservoir and environmental hygiene management). The second is strengthening immunity(various personal efforts for better immunity). And the third is taking prompt measures for the sake of patients who fail to prevent themselves from the disease. As for the third principle, it cannot curb the spread of the disease and thereby results in doing much damage when proper early measures aren't taken. To prevent it in advance, more intensive, diverse education and careful management are required.

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#### Major career

- 2013~present. Gyeongsangnamdo Community Health Survy, Associate Responsible Professor.

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