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Brief Report

A Public-Private Partnership Model to Build a Triage System in Response to a COVID-19 Outbreak in Hanam City, South Korea

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ABSTRACT

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A substantial, immediate healthcare burden for screening of Coronavirus disease 2019 (COVID-19) is created when large-scale outbreaks occur. There have been a series of measures to strengthen the screening process through robust public-private partnerships between Hanam City Public Health Center (PHC), the local medical association, and central/provincial government. A partnership between PHC and the local physician's group in Hanam City established the Respiratory Clinic. The PHC provided the infrastructure for the Respiratory Clinic including medical facilities, supplies (i.e. personal protective equipment), and administrative support. A total of 11 registered physicians from the local physicians group agreed to participate in clinical service provided at the Respiratory Clinic. Any citizens with COVID-19 suspected respiratory symptoms call the COVID-19 hotline and visit the Respiratory Clinic if required. Responding to COVID-19 outbreaks will be a continual process, and the screening system is essential support to public health interventions, and crucial in the response to a surge in COVID-19 cases.

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Introduction

In a large-scale Coronavirus disease 2019 (COVID-19) outbreak, a larger number of people may require screening in a short period of time, posing substantial burden to the healthcare system [1]. The triage system is an assessment of the degree of severity of symptoms of a patient. When a large number of patients present, identification of symptoms of infection and risk management, needs to be reliable and efficient to be an effective screening system where individual care, isolation, or quarantine can then be implemented [2]. As the complexity of responding to COVID-19 increases, it requires more effective, efficient local public service delivery. Moreover, in the context of culture in society, and policy regarding institutional collaborations in Korea, new models

and frameworks are required to utilize the collaborative mechanisms at a local level.

1. Setting

Amid COVID-19 outbreaks in South Korea, a series of measures to strengthen the screening process, through robust public-private partnership between Hanam City Public Health Center (PHC), local medical association, and central/provincial government are reported (Figure 1).

Hanam City is largely a residential city, located east of Seoul, with approximately 270,000 people in the population. The PHC is in the center of city, sharing its campus with the City Hall and City Council (Figure 2). As of May 5th, 2020, a total of 8 confirmed COVID-19 patients were reported in Hanam City, with a total of 207 people quarantined for 14 days.

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Figure 1. Public-private partnership between Hanam City Public Health Center, local medical association, and central/provincial government.

Figure 2. Map of Screening Center and Respiratory Clinic, Hanam City, in response to COVID-19.

Figure 3. Schematic diagram of COVID-19 Screening Center, Hanam City.

2. Screening center

After the first case of COVID-19 was reported in South Korea, the Hanam PHC postponed non-urgent services, and diverted its function to serve as the local headquarters for the response to COVID-19. Of the 49 personnel at the PHC, 42 were reassigned tasks to directly respond to COVID-19.

The PHC developed a Screening Center directly in front of its building (Figure 3). A COVID-19 suspected case could either walk through or drive through the Screening Center, be triaged, COVID-19 tested, and receive to-do information (i.e., quarantine, health monitoring; Figure 4).

3. Respiratory clinic

The primary care clinics, serving day-to-day clinical care in the community, are at the frontline of the COVID-19 response. However, seeing a patient with respiratory symptoms in a clinic amid a local COVID-19 outbreak is not practical because of the potential risk of transmission of COVID-19 that may lead to closure of the service. Indeed, there are patients with respiratory illnesses ranging from allergic rhinitis to chronic bronchitis who require clinical service. To meet this need, a

partnership between the PHC and the local physician group in Hanam City was made, and the Respiratory Clinic was established.

An agreement was made between the Hanam PHC and the Hanam Medical Association, comprising internal medicine clinics (22 members), pediatric clinics (22 members), ear-nose-throat clinics (18 members), and family medicine clinics (4 members). The PHC provided the infrastructure of the Respiratory Clinic including medical facilities, supplies, and administrative support. A total of 11 registered physicians from the local physicians group agreed to participate in clinical service at the Respiratory Clinic (Figure 5). Any citizens with COVID-19 respiratory symptoms can call the COVID-19 hotline and visit the Respiratory Clinic. Local clinics can refer the patient with respiratory symptoms to the Respiratory Clinic. The 24/7 COVID-19 hotline receives calls asking the whereabouts of COVID-19 testing, and the PHC-registered doctor triages patients based upon epidemiological linkage to COVID-19 confirmed cases (Figure 4). If there are no evident epidemiological linkages to a confirmed COVID-19 case, but the caller has respiratory symptoms, this warrants clinical assessment, then the COVID-19 hotline refers this person to the Respiratory Clinic. If the physician at the Respiratory Clinic is concerned with COVID-19 symptoms based on clinical assessment (i.e., pneumonic crackles), then the patient can reroute to the Screening Center to get tested (Figure 4).

Figure 4. COVID-19 triage system incorporating the Screening Center and Respiratory Clinic, Hanam City.

Figure 5. Schematic diagram of Respiratory Clinic, Hanam City.

Between March 12th to May 6th, 2020, a total of 145 patients with respiratory symptoms attended the Respiratory Clinic resulting in 142 prescriptions being written, 20 referrals made to the Screening Center, and 12 referrals to the local clinics. None of these patients had an epidemiological linkage with a confirmed case of COVID-19 and were managed according to their clinical diagnosis.

Discussion

Responding to COVID-19 outbreaks will be a continual process for the foreseeable future, a screening system is essential to support public health intervention in responding to a possible surge capacity [3]. One of the biggest challenges in responding to COVID-19 is the similar profile of symptoms compared with other respiratory illnesses, and this can be misleading at triage [4]. Triageing possible COVID-19 patients, and allergic rhinitis patients to be tested and quarantined, will result in unnecessary cost to society, and a heavy burden on the public health system. Collateral damage has been reported in essential clinical care [5]. During these critical times, the PHC and local physicians' group in Hanam City, South Korea, have mobilized and joined together to partner in a unified response against the spread of COVID-19. There may have been an interpersonal level of trust which positively affected partnerships. Well known actors emphasized mutual trust, program budget, and treatment implementation, expressing their private views on consideration of duty to the community and openly expressing their trust in the professionalism of those responding to the public health crisis [6]. This openness and partnership in the public health domain may help to optimize the response measures to COVID-19 at a local level,

in the communities affected. Practicing more openness in preparing to, and responding to a public health crisis should be implemented widely [7]. In this study a model for public-private partnership response to COVID-19 is proposed to minimize the postponement of routine clinical services for patients with respiratory illnesses.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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