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ORIGINAL RESEARCH

The optimal location and time for paramedics to wear personal protective equipment that minimize delay in dispatch to cardiac arrest patients

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Abstract

Wearing level D personal protective equipment (PPE) after the first outbreak of coronavirus disease 2019 (COVID-19) has become mandatory in Korea. However, PPE use worsened paramedics' on-scene dispatch. A delayed response to patients experiencing cardiac arrests, could cost them their lives. This study was therefore conducted to determine not only whether PPE wearing affects the dispatch time but also the time difference between wearing PPE inside the ambulance while en route to the scene and wearing PPE outside the ambulance before departure to ascertain the optimal location for paramedics to wear PPE. The response times of paramedics for reaching the cardiac arrest patients before (pre-PPE group) and after (post-PPE group) PPE wearing became mandatory were compared. Forty-five paramedics participated in a PPE-wearing simulation. The total amount of time spent by them wearing PPE was measured outside the ambulance, in the passenger seat, and in the patient care compartment. The median response time for the post-PPE group was 1–1.5 min longer than that for the pre-PPE group for dispatches within 10 km. The average time for PPE suit-up was the shortest outside the ambulance (140.53 s). It was 178.47 s in the passenger seat, whereas it was 151.22 s in the patient care compartment. The response time increased after wearing PPE. PPE suit-up time was shortest outside the ambulance. Considering the wearing time, prognosis, safety of the paramedics, the location at which PPE are worn should be appropriately determined.

Keywords

Disasters; Out-of-hospital cardiac arrest; Emergency medical services; Pandemics; Personal protective equipment

1. Introduction

The COVID-19 (coronavirus disease 2019) outbreak first occurred in Wuhan, China, and the World Health Organization declared it as a pandemic in March 2020 [1]. Since South Korea diagnosed its first case in January 2020, COVID-19 had infected 17.5 million people by May 2022 [2]. The COVID-19 pandemic has triggered a significant concern in health care systems around the world [3]. The SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) virus, which causes COVID-19, spreads to the respiratory tract and is highly infectious. Among all medical personnel, first responders such as paramedics are particularly vulnerable to encountering a COVID-19-infected patient. Therefore, paramedics must exercise extreme caution not only for their safety but also to prevent secondary infections to others. Hence, cardiopulmonary resuscitation (CPR) guidelines recommend that paramedics wear personal protective equipment (PPE) during the COVID-19 pandemic when medical dispatchers suspect patients to have cardiac arrest symptoms [4].

In February 2020, the National Fire Agency of South Korea established guidelines for all paramedics to wear level D PPE when transporting patients showing COVID-19-like symptoms. However, the use of level D PPE according to the stipulated guidelines has caused problems in that it may delay paramedics' on-scene dispatch or response time. A few minutes' delay will not significantly affect the prognosis of most patients; however, a slower response could have severe consequences in cardiac arrest, for which the golden time of treatment is only 4–5 min, a few minutes of CPR delay is known to directly affect patients' neurological prognosis [5, 6]. Therefore, this study was conducted to (i) determine if there were changes in the response time of cardiac arrest patients during the COVID-19 pandemic when PPE-wearing guidelines were put in place and (ii) measure the difference in time required by paramedics to wear PPE inside the ambulance while en route to the scene and when done outside the ambulance before departure to establish the optimal location and time for wearing PPE.

2. Materials and methods

2.1 Selection of participants

The emergency medical service (EMS) system in South Korea has fire headquarters in all 17 provinces under the control of the National Fire Agency. Each time a patient is treated and transferred, an EMS run sheet is created. This study was based on the analysis of EMS run sheet data from the Gangwon Province Fire Headquarters. Nontraumatic cardiac arrest patients from Gangwon Province identified during the period of March 2019 to January 2021 were included in this study. As PPE suits became mandatory in February 2020, the data for this month, which might have been inaccurately recorded, were excluded. Patients who were analyzed during the 11-month period from March 2019 to January 2020 were classified as the pre-PPE group, and those who were analyzed during the 11-month period from March 2020 to January 2021 were classified as the post-PPE group. Traumatic cardiac arrest patients, patients whose initial requests were for reasons other than cardiac arrest *(e.g.*, dyspnea), and patients whose cardiac arrests occurred during their transportation were excluded from this study. Death-on-arrival, do-not-resuscitate, and incomplete records were also excluded. Gangwon Province has an area measuring 20,569 km^2 and a population of ~1.54 million; it consists of 18 cities and counties. The EMS system in Gangwon Province has 18 fire stations, 948 paramedics, and 127 ambulances. In 2019, 110,755 dispatches were made. In addition, ~80% of the total dispatches were carried out by teams of three paramedics. The paramedics who participated in the PPE-wearing simulation were current paramedics working in Gangwon Province. They voluntarily agreed to participate in this study.

2.2 Study design and setting

The age and gender of the patients, the situation and place of cardiac arrest occurrence *(e.g.*, trauma, witness or not, *etc*.), emergency call time, response time, and distance to the scene were investigated. The distance to the scene was measured as the actual distance traveled on the navigation route. The emergency call time was automatically recorded on the control system, and the times of dispatch and on-scene arrival were recorded on the application in the dispatch terminal carried by the paramedics—these times are automatically recorded when a paramedic clicks on a button on the application. In addition, after March 2020, all paramedics were required to wear PPE before boarding an ambulance and after receiving emergency calls from cardiac arrest patients.

2.3 Interventions and measurements

The total time required by paramedics to wear PPE was measured in a simulation. In this study, 45 paramedics voluntarily participated in the PPE-wearing simulation, who measured the time it took them to wear PPE outside the ambulance, in the passenger seat, and in the patient care compartment (Fig. 1). The PPE-wearing simulation was completed three times by each paramedic per location: outside the ambulance before boarding, in the passenger seat, and in the patient care compartment after boarding. The entire process was videotaped, and the consumed time was measured from the recording. The ambulance was driven at 50 km/h along a 1700-m course road at the Gangwon Province Fire Service Academy. In addition, correct PPE wearing was confirmed by two board-certified emergency physicians using a premade checklist while they watched the videos.

2.4 Statistical analysis

Categorical data were expressed as frequencies and percentages, whereas continuous data were expressed as mean ± standard deviation or median (interquartile range). An independent *t* test and the Mann-Whitney U test were used to compare the mean values of the pre- and post-PPE groups as appropriate. One-way analysis of variance was used to compare the mean values obtained from the three simulation locations. The χ^2 test was used to compare proportions. SPSS 26 (IBM SPSS, Chicago, IL, USA) was used for data analysis, and a p value of < 0.05 was considered statistically significant.

3. Results

During the study period, there were 186,885 emergency calls. Of these calls, 395 patients were transported by helicopter and 181,408 calls were requested for reasons other than cardiac arrest. Among the 5082 cardiac arrest calls, 1231 patients had traumatic cardiac arrest (Fig. 2). A total of 3096 patients were included; among them, 1353 (43.7%) were transferred at the pre-PPE stage and 1743 (56.3%) were transferred at the post-PPE stage. The proportion of male patients was higher (61.6%), and the average age of all the patients was 72.9 years. Statistical differences in age and sex between the pre- and post-PPE groups were not found. The distances to the scene were within 1 km in 530 cases (17.1%), 1 to 3 km in 1252 (40.4%), and 3–5 km in 615 (19.9%). The distance was within 5 km for 77.4% of all dispatches (Table 1).

3.1 Response time

Comparative analysis of response time showed the following median values: 5 min for the pre-PPE group and 6 min for the post-PPE group (p = 0.001) within a 1-km distance, 6 min for the pre-PPE group and 7.5 min for the post-PPE group ($p < 0.001$) within a distance of 1–3 km, 9 min for the pre-PPE group and 10 min for the post-PPE group ($p < 0.001$) within a distance of 3–5 km, 12 min for the pre-PPE group and 13 min for the post-PPE group (p = 0.041) within a distance of 5–10 km, 20 min for the pre-PPE group and 17 min for the post-PPE group (p = 0.002) within a distance of 10–20 km, and 30 min for the pre-PPE group and 24 min for the post-PPE group (p = 0.317) in a >20-km distance (Table 2).

Comparative analysis of EMS response interval revealed median values of 2 min within a 20-km distance and 3 min in a >20-km distance for both groups (Table 3).

Comparative analysis of EMS unit response interval obtained the following median values: 3 min for the pre-PPE group and 4 min for the post-PPE group (p = 0.005) within

FIGURE 1. Locations for personal protective equipment suit-up. (A) Outside the ambulance. (B) In the passenger seat. (C) In the patient care compartment.

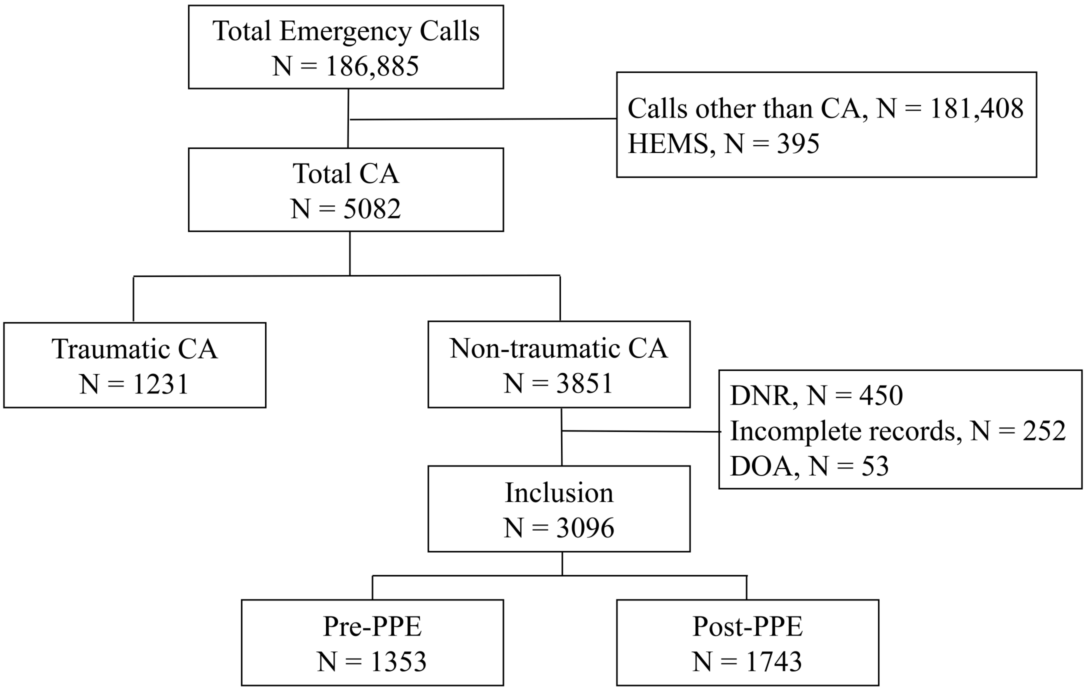

FIGURE 2. Data eligibility of the study. CA, cardiac arrest; HEMS, helicopter emergency medical service; DNR, do-not-resuscitate; DOA, death-on-arrival; PPE, personal protective equipment.

TABLE 1. Characteristics of the patients transferred by emergency medical services during the study period.

	Total	Pre-PPE group	Post-PPE group	*p*
No. of patients	3096	1353 (43.7%)	1743 (56.3%)	n/a
Male	1908 (61.6)	855 (63.2)	1053 (60.4)	0.119
Age (yr)	72.9 ± 16.2	72.8 ± 16.1	72.9 ± 16.3	0.085
Distance to scene				
<1 km	530 (17.1)	233 (17.2)	297 (17.0)	0.838
1–3 km	1252 (40.4)	548 (40.5)	704 (40.4)	
3–5 km	5 (19.9)	256 (18.9)	359 (20.6)	
5–10 km	524 (16.9)	240 (17.7)	284 (16.3)	
10–20 km	162 (5.2)	70 (5.2)	92 (5.3)	
>20 km	13 (0.4)	6 (0.4)	7 (0.4)	

Data are shown as N (%) or mean ± standard deviation. PPE, personal protective equipment.

TABLE 2. Comparative data on response time between the two study groups.

	Response time (min)			p
	Total	Pre-PPE group	Post-PPE group	
<1 km				
N	530	233	297	
Mean	6.59 ± 3.69	5.99 ± 3.11	7.07 ± 4.04	0.001
Median	6 (4–7)	5 (4–7)	6 (5–8)	
1–3 km				
N	1252	548	704	
Mean	7.87 ± 3.89	7.35 ± 3.50	8.27 ± 4.13	<0.001
Median	7 (6–9)	6 (5–9)	7.50 (6–9)	
3–5 km				
N	615	256	359	
Mean	10.41 ± 4.82	9.51 ± 4.44	11.06 ± 4.98	<0.001
Median	9 (8–12)	9 (7–11)	10 (8–13)	
5–10 km				
N	524	240	284	
Mean	13.90 ± 6.47	13.27 ± 6.70	14.43 ± 6.23	0.041
Median	12 (10–16)	12 (10–15)	13 (10.25–17)	
10–20 km				
N	162	70	92	
Mean	19.09 ± 6.53	20.97 ± 7.32	17.65 ± 5.48	0.002
Median	18 (15–22)	20 (16–25.25)	17 (14–19.75)	
>20 km				
N	13	6	7	
Mean	25.62 ± 11.02	27.33 ± 7.09	24.14 ± 13.98	0.317*
Median	25 (18.50–31)	30 (21–32.50)	24 (16–27)	

*Data are shown as mean ± standard deviation or median (interquartile range). PPE, personal protective equipment. *Analyzed using the Mann-Whitney U test due to small sample size.*

TABLE 3. Comparative data on EMS response interval between the two study groups.

	EMS response interval (min)			p
	Total	Pre-PPE group	Post-PPE group	
<1 km				
N	530	233	297	
Mean	2.12 ± 1.56	1.94 ± 1.31	2.26 ± 1.76	0.018
Median	2 (1–2)	2 (1–2)	2 (1–3)	
1–3 km				
N	1252	548	704	
Mean	2.19 ± 1.71	2.01 ± 1.51	2.33 ± 1.84	0.001
Median	2 (1–2)	2 (1–2)	2 (1–3)	
3–5 km				
N	615	256	359	
Mean	2.40 ± 1.97	2.05 ± 1.71	2.66 ± 2.10	<0.001
Median	2 (1–3)	2 (1–2)	2 (1–3)	
5–10 km				
N	524	240	284	
Mean	2.55 ± 1.99	2.49 ± 2.18	2.60 ± 1.83	0.542
Median	2 (1–3)	2 (1–3)	2 (2–3)	
10–20 km				
N	162	70	92	
Mean	3.12 ± 3.68	3.67 ± 4.78	2.71 ± 2.51	0.127
Median	2 (2–3)	2 (2–3)	2 (1–3)	
>20 km				
N	13	6	7	
Mean	2.85 ± 1.46	2.50 ± 0.84	3.14 ± 1.86	0.624*
Median	3 (2–3)	3 (1.75–3)	3 (2–3)	

*Data are shown as mean ± standard deviation or median (interquartile range). EMS, emergency medical service; PPE, personal protective equipment. *Analyzed using the Mann-Whitney U test due to small sample size.*

a 1-km distance, 5 min for the pre-PPE group and 5 min for the post-PPE group (p = 0.003) within a distance of 1–3 km, 7 min for the pre-PPE group and 7 min for the post-PPE group (p = 0.008) within a distance of 3–5 km, 10 min for the pre-PPE group and 11 min for the post-PPE group (p = 0.044) within a distance of 5–10 km, 18 min for the pre-PPE group and 14 min for the post-PPE group (p = 0.014) within a distance of 10–20 km distance, and 28.5 min for the pre-PPE group and 22 min for the post-PPE group (p = 0.316) in a >20-km distance (Table 4).

3.2 Total time spent on PPE suit-up at each simulated location

The average time it took paramedics to wear PPE outside the ambulance was 140.53 ± 21.28 s. The corresponding values for the passenger seat and patient care compartment were 178.47 ± 32.2 and 151.22 ± 23.25 s, respectively (Fig. 3).

4. Discussion

According to our results, 77.4% of the total dispatches had distances within 5 km and 94.3% had distances within 10 km. In a retrospective study conducted by Chung *et al*. [7], the average activation time and average transportation time increased by 1.4 min (1.5 ± 2.2 *vs.* 2.9 ± 4.5 min, p = 0.003) and 2.2 min (9.3 ± 3.5 *vs.* 11.5 ± 6 min, p = 0.001), respectively, for out-of-hospital cardiac arrests during COVID-19 pandemics. These increased times relative to pre-COVID-19 values were ascribed to the addition of a PPE protocol [7]. One study found that the COVID-19 pandemic added an additional minute to the standard response protocol of fire departments' basic life support teams in terms of PPE wearing and dispatch [8]. In this study, the dispatch times before and after the PPE requirements were put in place were compared. It took a median time of ~1–1.5 min longer from request call to arrival at a scene that was within 10 km.

The COVID-19 pandemic has been a significant obstacle to public health service and EMS systems worldwide. In Lombardy in Italy, New York City in the United States, and

TABLE 4. Comparative data on EMS unit response interval between the two study groups.

	EMS unit response interval (min)			p
	Total	Pre-PPE group	Post-PPE group	
<1 km				
N	530	233	297	
Mean	4.48 ± 3.25	4.05 ± 2.61	4.81 ± 3.64	0.005
Median	4 (3–5)	3 (3–5)	4 (3–6)	
1–3 km				
N	1252	548	704	
Mean	5.68 ± 3.49	5.34 ± 3.16	5.93 ± 3.71	0.003
Median	5 (4–7)	5 (3.25–6)	5 (4–7)	
3–5 km				
N	615	256	359	
Mean	8.01 ± 4.29	7.46 ± 4.05	8.40 ± 4.42	0.008
Median	7 (6–9)	7 (5–9)	7 (6–10)	
5–10 km				
N	524	240	284	
Mean	11.35 ± 5.96	10.78 ± 6.18	11.83 ± 5.73	0.044
Median	10 (8–13)	10 (7.25–13)	11 (8–14)	
10–20 km				
N	162	70	92	
Mean	15.96 ± 5.87	17.30 ± 6.54	14.95 ± 5.12	0.014
Median	15 (12–19)	18 (13–21)	14 (12–17)	
>20 km				
N	13	6	7	
Mean	22.77 ± 11.19	24.83 ± 7.36	21 ± 14.06	0.316*
Median	22 (14.50–29)	28.50 (18–29.50)	22 (14–24)	

*Data are shown as mean ± standard deviation or median (interquartile range). EMS, emergency medical service; PPE, personal protective equipment. *Analyzed using the Mann-Whitney U test due to small sample size.*

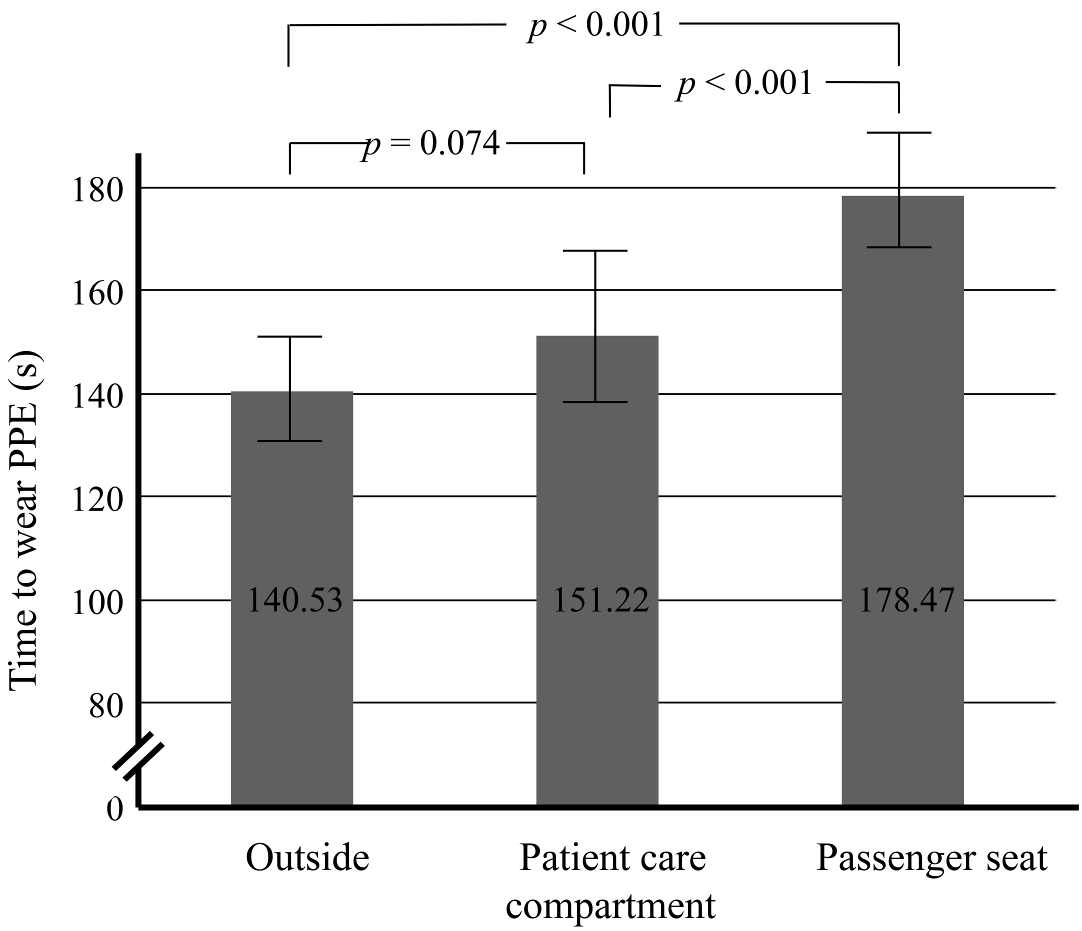

FIGURE 3. Comparative data on the total time it takes to wear personal protective equipment outside the ambulance, in the passenger seat, and in the patient care compartment. PPE, personal protective equipment.

Paris in France, the incidence rates of out-of-hospital cardiac arrests have increased significantly since the pandemic began relative to the previous years and corresponded with high mortality rates [9–12].

For cardiac arrest patients, high-quality chest compression and early defibrillation are known to be essential for their survival and for a better neurological prognosis. Especially because the golden time for treatment of cardiac arrest is only 4–5 min, if CPR and advanced resuscitation are not provided early, poor neurological prognosis and increased mortality rates will ensue. In South Korea, the survival rate of out-of-hospital cardiac arrest cases in 2010 was 3.3%. This increased slightly to 8.7% in 2019, although still falling short of 10% [13]. However, since the COVID-19 pandemic began, the rate of bystander CPR has also been reported to have decreased [9, 10].

The COVID-19 pandemic necessitated the modification of preexisting protocols for on-scene and emergency department CPR because emergency medical technicians (EMTs) and health care workers were prioritized with PPE recommendations [4, 14]. The SARS-CoV-2 virus, which causes COVID-19, spreads to the respiratory tract and is highly contagious. In addition, Middle East respiratory syndrome, SARS, and severe fever with thrombocytopenia syndrome have been reported as cases of transmission to medical staff during CPR [15–17]. Therefore, safety measures to prevent the infection of medical personnel or paramedics became important. Because EMTs use aerosol-producing techniques such as CPR and advanced airway management, the risk of EMTs being exposed to COVID-19 is high. EMTs must exercise extreme caution to stay free of infection not only for their health but also to prevent further spreading of the disease to others, especially to other patients. Often, EMTs are the first medical personnel to come in contact with out-of-hospital cardiac arrest patients and other patients whose medical conditions are not well known. Thus, PPE wearing before responding to suspected cardiac arrest cases was recommended.

For the safety of medical personnel, the Korean National Fire Agency established guidelines that require EMTs to wear level D PPE. However, this new regulation created a new problem: the PPE may be effective in preventing infection, but suit-up causes delays in the dispatch of the EMTs. The time delay of several minutes does not cause problems in most diseases, but it can harm patient prognosis in time-sensitive diseases. This is true especially for cardiac arrest patients, who have only a few minutes of golden time for the desired outcome.

The request call-to-on-scene arrival process can be divided into two stages, namely, from call reception to dispatch decision-making (EMS response interval) and from dispatch to arrival at the scene (EMS unit response interval). In South

Korea, after receiving an emergency call, brief information about the patient's condition and location is obtained, a decision to dispatch is made, and then the paramedics are dispatched, with the dispatch time measured with the click of a button on the vehicle terminal application. Once a decision to dispatch is made, the paramedics would wear PPE and board the ambulance afterward. Therefore, PPE wearing mainly affects the dispatch-to-scene arrival stage rather than the emergency call-to-dispatch stage. In this study, the median EMS response intervals were the same between the two study groups, although the mean times were different. However, the average or median EMS unit response intervals were higher in the post-PPE group than in the pre-PPE group within 10 km of distance.

However, long-distance missions exceeding 10 km showed different results. In 10 to 20-km distances, the median time of the post-PPE group was shorter than that of the pre-PPE group (17 *vs.* 20 min, p = 0.002), as was the case for >20-km distances (24 *vs.* 30 min, p = 0.317). This outcome can be interpreted as follows: In the case of a long-distance dispatch, even if the departure is somewhat delayed, there is enough distance to make up for the delay by accelerating the vehicle. However, in a short-distance dispatch, there would be relatively few sections that could be used to make up for a delayed departure. A study conducted in Italy also reported an increase of ~3 min in the interval from cardiac arrest dispatch to EMS arrival after the COVID-19 pandemic began [9].

Our PPE-wearing simulation showed that the shortest time was measured when PPE was worn by the paramedics before boarding the ambulance, which took 140.53 s (Fig. 3). The second shortest and longest times recorded were 151.22 and 178.47 s for the patient care compartment and passenger seat, respectively. The actual dispatch data showed a median time difference of ~1 to 1.5 min; however, in the simulation, the time taken was >2 min 20 s. We think that this discrepancy can be attributed to the fact that, because the simulation was administered in a controlled setting and the paramedics were under less or no emotional pressure, the primary objective of PPE wearing was conducted more meticulously and properly without rushing. This may explain the extra time they spent on PPE suit-up during the simulation. Conversely, in real-life cardiac arrest situations, paramedics can be under tremendous pressure to arrive at the scene quickly, which may cause them to incorrectly wear their PPE, thereby reducing the time it takes them to put it on. If paramedics dress improperly, they become vulnerable to infection. Therefore, paramedics need to take the time to properly wear their PPE to prevent the further spread of the disease. However, considering that most dispatch distances are within 5 km and that the response time is ~5 to 10 min, taking 2 to 3 min to wear PPE can have a significant impact on patients when the dispatch time is increased. Although it was beneficial for EMTs or emergency care workers to follow the changes in safety guidelines from the National Resuscitation Council for wearing PPE before CPR due to the high risk of COVID-19 infection, the outcome for cardiac arrest patients became worse [10, 11, 18].

We designed our PPE-wearing simulation to determine the appropriate time and location for wearing PPE as part of a new resuscitation strategy to improve the EMS response time delays for patients with out-of-hospital cardiac arrests during infectious disease pandemics. In our opinion, it is suitable for paramedics to wear PPE fully before embarking on a long-distance (>10 km) dispatch for their own convenience—because it is possible to make up for the lost time by driving at higher speeds. However, considering that most of the dispatches are short-distance (<5 km), it would be desirable for each country to choose the optimal location to wear PPE. Considering that the prognosis of cardiac arrest is determined by small windows of time, it would be better to wear PPE while en route to minimize time delay. Three paramedics are dispatched as a team in most areas of Gangwon Province, with one each seated in the driver's seat, passenger seat, and patient care compartment, when responding to a dispatch call. It has been noted that it takes a shorter time to wear PPE in the patient care compartment than in the passenger seat, so if the paramedic in the patient care compartment exits the ambulance first to initiate CPR, the other two PPE-suited members can sequentially exit the ambulance to assist the first paramedic in the CPR. This way, the initial CPR administration time can be sped up and the likelihood of infection can be minimized.

However, wearing it in the passenger seat or the patient care compartment may cause inconvenience to paramedics, also it may be unrestrained during the wearing because of the inconvenience with restrained, and it may be dangerous in the event of an accident. It took approximate 10 seconds more in the patient care compartment and 38 seconds more in the passenger seat than outside the ambulance, which would be undesirable if paramedics were at risk to reduce the time of less than one minute. Hence, it would be appropriate to wear it outside before the departure.

In this study, the authors cannot conclude which location is the best for wearing PPE. The prognosis of cardiac arrest patients is important, but the safety of paramedics should not be overlooked. The infectious disease, pandemic, is occurring every few years. Another infectious disease might be encountered after COVID-19, and we assume that this data can be used as basic data when selecting the appropriate time and location for paramedics to wear PPE.

This study has several limitations. First, given that the data used for this study were obtained exclusively from Gangwon Province fire headquarters, the dispatch time difference between the pre- and post-PPE groups cannot be generalized on a national scale. However, Gangwon Province's geographical area is quite large, accounting for 20.5% of the entire country's area, and had a complete set of data for the entire study period. As such, it is not difficult to assume that the time differences are similar across the entire country. Moreover, considering that the simulation was performed with the paramedics driving at 50 km/h along a 1700-m course road during simulation and not under emergency driving in real-life which could have an impact on measured time intervals. Therefore, it would be appropriate to consider the dispatch interval reported herein as the minimum interval. Finally, different countries use different EMS systems. Hence, our PPE-wearing simulation results can only be generalized to countries that have an EMS system similar to that of South Korea.

5. Conclusions

In conclusion, for long-distance dispatches of >10 km, it would be suitable for paramedics to wear PPE outside the ambulance before the departure. However, in short-distance dispatches, it would be appropriate to select the location of wearing PPE under the consideration of the prognosis of cardiac arrest, the safety, and the convenience of paramedics.

AVAILABILITY OF DATA AND MATERIALS

The datasets analyzed in this study are available from the corresponding author on reasonable request.

AUTHOR CONTRIBUTIONS

THL—Conceptualization. HIK—Data curation, formal analysis, and methodology. HIK, THL—Writing-original draft, editing and review.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval for this study was obtained from the institutional review board of Chuncheon Sacred Heart Hospital (CHUNCHEON 2022-06-012-002). Informed consent was obtained from each voluntary participant.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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