

Supplementary Materials

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Emergency Medical Service System in Taichung

Taichung City, located in Central Taiwan, is approximately 2215 km² large. Among Taiwan's 20 cities, it is the second most populous, with approximately 2.8 million people. According to the annual statistical report published by the Taichung City Fire Bureau in 2018, the emergency medical service system of Taichung comprises one dispatch center, nine groups (including 52 branches), and one special search and rescue team. The bureau has 1466 firefighters, including 817 emergency medical technicians (EMTs). In Taiwan, EMTs are categorized into three levels in increasing order of competence: EMT-1, EMT-2, and EMT-paramedic (EMT-P). Specifically, the national standard training program for EMT-1 personnel is 40 h in length, and it covers traumatic bandage technique, fixation and transportation procedures, basic life support skills, and automated external defibrillator operational capabilities. The training program for EMT-2 personnel is 280 h in length, and it covers insertion of the laryngeal mask airway and the intravenous route. The training program for EMT-P personnel is 1280 h in length, and it covers intubating a patient with cardiac arrest and administering medication under medical direction. The bureau has 4 EMT-1 personnel, 756 EMT-2 personnel, and 57 EMT-P personnel. In 2018, more than 120,000 calls were made, including 2597 for cases of out-of-hospital cardiac arrest. In 2018, a total of 3 dedicated medical directors and 10 part-time medical directors were responsible for training EMTs in Taichung City, for establishing the protocol for first aid at the scene, and for monitoring the quality of rescue cases.

Table S1. Univariate and multivariate logistic regression for factors associated with survived with favourable neurological function

Variables	Survived with favourable neurological function (%)	Univariate		Multivariate	
		OR (95% CI)	<i>p</i> -value	OR (95% CI)	<i>p</i> -value
*Age	57.72 ± 14.89	0.96 (0.94-0.98)	<0.001	0.96 (0.94-0.98)	<0.001
Male Gender	28/747 (3.75)	1.89 (0.88-4.04)	0.101	1.30 (0.57-2.94)	0.535
Location-Home	15/967 (1.55)	0.15 (0.07-0.29)	<0.001	0.26 (0.13-0.54)	<0.001
Witness of collapse	29/458 (6.33)	6.14 (2.78-13.54)	<0.001	5.30 (2.19-12.87)	<0.001
AED shock	19/331 (5.74)	2.85 (1.48-5.51)	0.001	1.94 (0.93-4.01)	0.075
Bystander CPR	25/710 (3.52)	1.43 (0.71-2.87)	0.316	1.19 (0.55-2.57)	0.660
*EMS response time (seconds)	334.70 ± 137.27	0.99 (0.98-0.99)	0.007	0.99 (0.98-0.99)	0.010
Rescuers > 2	8/295 (2.71)	0.86 (0.39-1.89)	0.976	-	-

After multivariate logistic regression, age, cardiac arrest occurred at home, witnessed collapse and EMS response time are still related to favorable neurological function, with statistically significant.

Abbreviations: OR: odds ratio, CI: confidence interval, CPR: cardiopulmonary resuscitation,

AED: Automated external defibrillator, EMS: Emergency medical service

*: continuous variables, presented with mean ± standard deviation

Figure S1. Prehospital management for out-of-hospital cardiac arrest before and during the COVID-19 pandemic in Taichung

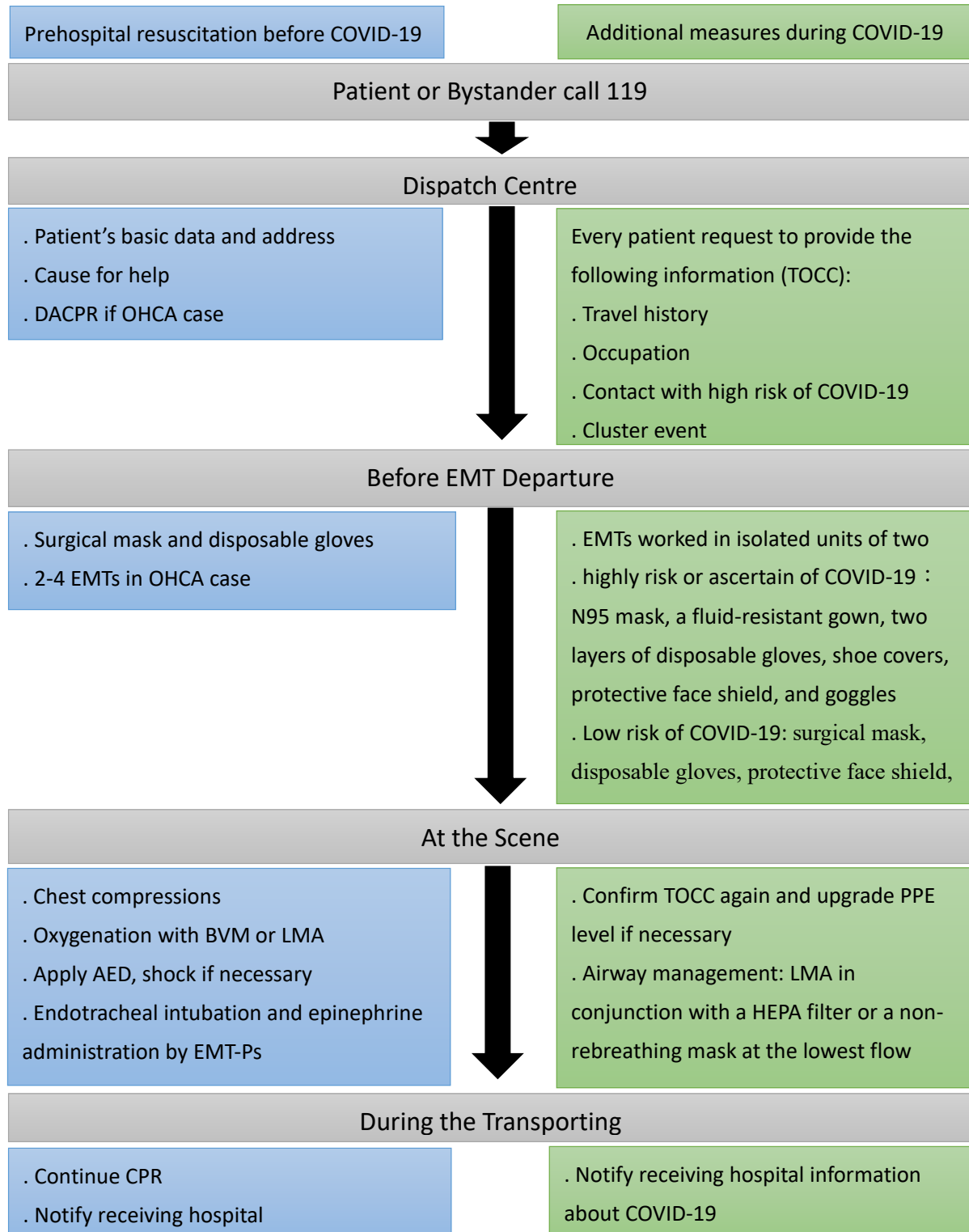


Figure legend:

The blue text boxes are the conventional protocol for prehospital management of OHCA patients.

The green text boxes list additional measures taken during the COVID-19 pandemic. Dispatchers were required to obtain information on travel history, occupation, and prior contact with those with high COVID-19 risk. Emergency medical technicians were advised to wear personal protective equipment and avoid aerosol generation procedures during the COVID-19 pandemic.

Abbreviations: OHCA: out-of-hospital cardiac arrest, CPR: cardiopulmonary resuscitation, DACPR: dispatcher-assisted CPR, AED: automated external defibrillator, BVM: bag valve mask, LMA: laryngeal mask airway EMT-P: emergency medical technician-paramedic,