



Celebrating the 20th Anniversary of Emergency Medicine Specialty in Taiwan

Chen-June Seak^{1,2}, Cheng-Chung Fang^{1,3,*}

¹Taiwan Society of Emergency Medicine, Taipei, Taiwan

²Department of Emergency Medicine, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan

³Department of Emergency Medicine, National Taiwan University Hospital, Taipei, Taiwan

The year 2018 marks the 20th anniversary of emergency medicine (EM) as a medical specialty in Taiwan. Within the past two decades, Taiwan EM specialists have achieved numerous significant milestones in the development of the specialty in Taiwan, as described in this paper. The themes emerging from this paper assist in understanding the characteristics of Taiwan EM specialty, and may serve as a guiding model for other countries where the EM specialty is undergoing a similar process of development and optimization.

Key words: *emergency medicine specialty, Emergency Medical Services Act, Emergency Medical Technicians (EMT), Taiwan Society of Emergency Medicine (TSEM), Taiwan*

The year 2018 marks the 20th anniversary of emergency medicine (EM) as a medical specialty in Taiwan. EM was recognized by the Department of Health (currently known as the Ministry of Health and Welfare) on January 1, 1998.¹ Within the past two decades, Taiwan EM specialists have achieved numerous significant milestones (Table 1), of which a summary is provided below.

Establishing the Value of EM Specialists in Taiwan

In November 1994, Professor Sheng-Chuan Hu gathered the pioneers of EM in Taiwan to establish the Taiwan Society of Emergency Medicine (TSEM), and subsequently embarked on a collective effort to draft training and accreditation protocols.² TSEM also actively advocated for EM to be officially recognized as a distinct medical specialty in Taiwan, but it was not till the occurrence of the Kobe earthquake in Japan on January 17, 1995 that public and government

interest in EM was sparked. This provided an impetus to the ongoing campaign for recognition of the importance of EM in Taiwan. The 3rd Legislative Yuan passed the Emergency Medical Services Act 6 months later in July 1995, which set out the regulations for the provision of emergency medical services at the accident scene, en route to the hospital, as well as upon arrival at the emergency department. The act led to the formation of the legal foundation for the Emergency Medical Service (EMS).^{1,3} Under the persistent lobbying of TSEM and with the support of the then-Chief Director of the Department of Health Chi-Shean Chan, these efforts finally culminated in emergency physicians gaining official recognition as medical specialists on January 1, 1998. The Department of Health organized the “Board of Certification for Emergency Medicine” to certify emergency medicine specialists in 1997. In 2008, the Department of Health authorized TSEM to organize the Board of Certification for Emergency Medicine. To date, 1,756 emergency physicians have achieved board certification. The growth

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*Corresponding author: Cheng-Chung Fang, President, Taiwan Society of Emergency Medicine, 12F.-35, No. 50, Sec. 1, Zhongxiao W. Rd., Zhongzheng Dist., Taipei 100, Taiwan; Chairman, Department of Emergency Medicine, National Taiwan University Hospital, No. 7, Chung Shan S. Rd., Taipei 100, Taiwan. E-mail: conrad@ntu.edu.tw

Table 1. Chronicle of EM in Taiwan

Year	Event
1994	TSEM was officially founded.
1995	“Emergency Medical Services Act” was passed and implemented.
1996	TSEM, Society of Emergency and Critical Care Medicine, and Taiwan Society of Cardiology established the Joint Commission for ACLS, to promote the education of ACLS.
1997	The Department of Health organized the “Board of Certification for Emergency Medicine” to certify emergency medicine specialists.
1998	1. Emergency medicine was recognized by the Department of Health as a specialty. 2. The Department of Health announced the “Standards of Training Hospital for Emergency Medicine Residency.”
1999	1. “Journal of Taiwan Society of Emergency Medicine” was first published. 2. The Chi-Chi earthquake hit Nantou County; disaster medicine gained attention.
2000	TSEM became a member of IFEM.
2001	TSEM hosted the 2nd ACEM 2001.
2003	1. The outbreak of SARS impacted on Taiwan’s healthcare system. 2. TSEM organized ETTC [®] , and registered the trademark of ETTC [®] .
2004	EOCs were set up by the Department of Health, and operated by emergency medicine specialists.
2005	TSEM promoted APLS + PALS education.
2007	1. The Department of Health accredited the “Categorization of Emergency Response for Hospitals.” 2. The amendment of Emergency Medical Services Act was passed to include the system of medical director, the category of emergency response hospital, legalization of regional EOCs, and the regulations for transferring emergency patients.
2008	The Department of Health authorized TSEM to organize the “Board of Certification for Emergency Medicine.”
2009	TSEM organized the training course and registered the trademark of AILS [®] .
2010	The “Taiwan Triage and Acuity Scale” was implemented.
2012	1. The Department of Health implemented the “Program for Enhancement of Emergency Medical Care and Referral Quality.” 2. The installation of PAD at public venues was legalized.
2014	The EM Model and the “Emergency Medicine Milestone Project” were compiled by TSEM.
2015	TSEM hosted the 8th ACEM 2015.
2017	TSEM was granted a Silver Award in the National Social Welfare Group Contribution Award by the Ministry of Internal Affairs.

ACEM: Asian Conference on Emergency Medicine; ACLS: Advanced Cardiovascular Life Support; AILS: Advanced Intoxication Life Support; APLS: Advanced Pediatric Life Support; EM: emergency medicine; EOCs: Emergency Operation Centers; ETTC: Emergency Trauma Training Course; IFEM: International Federation for Emergency Medicine; PAD: public access defibrillator; PALS: Pediatric Advanced Life Support; SARS: severe acute respiratory syndrome; TSEM: Taiwan Society of Emergency Medicine.

in the number of emergency physicians over the past twenty years is illustrated in Fig. 1.

Since its official recognition in 1998, EM specialists have proved their value on many occasions. After the Chi-Chi earthquake struck Nantou County on September 21, 1999, emergency physicians were activated and deployed to participate in the disaster response efforts. Their professionalism and efficien-

cy impressed both the government and the public, and further highlighted the importance of disaster medicine and contingency planning.^{4,5} With the assistance of emergency physicians, national and regional authorities began to establish disaster medical rescue teams for managing heavily-injured casualties, assess the public health impact of disasters, and train personnel in the handling of industrial, biochemical,



Fig. 1. Number of board certified emergency physicians in Taiwan from year 1997 to 2017.

and nuclear disasters. Subsequently in 2003, emergency physicians were at the very front line to defend against the severe acute respiratory syndrome (SARS) epidemic.⁶ Despite witnessing their colleagues succumb to this unknown infectious disease, emergency physicians remained steadfast at their posts, risking exposure to ensure that their patients received the healthcare they needed.⁷ The commitment and professionalism displayed by emergency physicians served to increase the admiration and regard from the public. The fight against SARS taught us to remain alert of emerging infectious diseases and to prioritize emergency preparedness, both of which emergency physicians play a crucial role in.⁸ The position of EM in Taiwan healthcare system was thus secured by the cumulative efforts of all contributors.

Cultivating Competent EM Specialists

To cultivate patient-centric, professional, and holistic emergency physicians, TSEM collaborated with the Department of Health to launch the “Standards of Training Hospital for Emergency Medicine Residency” in 1998. This standard regulated the EM residency training program, including hospital conditions, training protocols, supervisor qualifications and responsibilities, methods of instruction, academic activities, educational resources, and trainee-trainer assessments. To enhance the training of EM residents, TSEM further introduced the “Milestone” concept

into EM residency training program in 2011. Coupled with the Emergency Medicine Model officiated in 2014, the Emergency Medicine Milestone Project represents TSEM’s continuous efforts to promote the development of a professional and competency-based residency training program.⁹

TSEM’s efforts to produce competent emergency physicians further included the administration of several training courses for various medical conditions niche to the field of EM. Given that resuscitation is a cornerstone responsibility of emergency physicians, TSEM collaborated with the Society of Emergency and Critical Care Medicine and Taiwan Society of Cardiology to establish the Joint Commission for Advanced Cardiovascular Life Support (ACLS) in 1996. This Joint Commission strengthened the ACLS training standards and promoted the training of healthcare professionals in ACLS. TSEM additionally established the framework for the training of clinicians in Advanced Pediatric Life Support (APLS)/Pediatric Advanced Life Support (PALS) in 2005 to ensure that practitioners could rapidly identify and appropriately treat acute, life-threatening pediatric conditions. Since 2005, TSEM representatives have also been actively engaging in the formulation of international guidelines of resuscitation by the Resuscitation Council of Asia and International Liaison Committee on Resuscitation.

To limit morbidity and mortality of trauma victims, TSEM developed the Emergency Trauma Training Course (ETTC[®]) in 2003, employing a case-based

simulation approach to train EM professionals to utilize algorithmic thinking for rapid decision-making in trauma patients. This training enables emergency physicians to effectively and efficiently manage trauma patients and optimize the quality of medical care.¹⁰

Management of acute poisoning is another integral aspect of EM, since such patients are almost always sent to the emergency department first for initial diagnosis and treatment. To train emergency physicians, nurses, and other first responders in the rapid and appropriate management of these patients, TSEM developed the Advanced Intoxication Life Support (AILS®) course in 2009. The AILS textbook was published subsequently, and its 3rd edition was recently revised in 2017.

Reforming Healthcare System in Taiwan

One of TSEM's missions is to facilitate the establishment of robust, world-class prehospital care. TSEM thus collaborated with National Fire Agency and the Department of Health to organize the first Emergency Medical Technicians (EMT) Instructor Course in 1999. Selected emergency physicians and EMT instructors were then sent to Canada for further training. After the Fire Department of Taipei successfully conducted their first training course for EMT-Paramedics in 2002, TSEM was assigned by the Department of Health the responsibility of reviewing and certifying the EMT-Paramedics training course.¹

Due to the efforts of many members of TSEM, the Emergency Medical Services Act was amended in 2007, which included the position of medical director in Taiwan EMS.^{1,3} TSEM further trained many medical directors to fulfil those responsibilities, and aided county and city Fire Departments nationwide in implementing standard operating procedures to improve prehospital care.¹ TSEM also edited EMT textbooks for all three levels of EMT training. Our 976-page EMT-Paramedics textbook published in 2011 is the most detailed first-aid manual in the Chinese language.

In 2004, TSEM assisted the Department of Health to found six Emergency Operation Centers (EOCs) in Taiwan.¹¹ The EOCs, operated by emergency physicians, have the following 5 objectives: (1) provide 24/7 monitoring of disasters and accidents; (2) reinforce regional capabilities to provide rapid emer-

gency response; (3) train emergency response personnel for various disaster scenarios including biochemical, nuclear, and natural disasters; (4) improve the hardware and software of regional EMS operations; and (5) assist central and local governments with real-time information during disasters.

In 2005, TSEM initiated a taskforce to develop a five-level triage system. The Department of Health also subsequently requested TSEM to cooperate with the Taiwan Association of Critical Care Nurses in 2006 to construct the "Taiwan Triage and Acuity Scale."¹² This scale was officially adopted nationwide in 2010, enabling emergency departments to allocate medical resources effectively, to ensure the appropriateness of the treatment for each patient, and to reserve adequate resources for critical ill patients. The Taiwan Triage and Acuity Scale received the Symbol of National Quality certification in 2016.

In 2007, TSEM participated in the Department of Health's pilot project for assessing the ability of a hospital for managing critical and emergency patients. This project subsequently developed criteria to accredit three categories of emergency response hospital by assessing each hospital's emergency management protocols and quality of care. The category of each hospital was announced to the public for patients to choose during emergency situations.³

In 2012, TSEM undertook the Department of Health's "Program for Enhancement of Emergency Medical Care and Referral Quality" to improve the quality of emergency referrals. By constructing an electronic information system and implementing standard operating procedures, these measures ensure that patients in critical conditions receive swift and timely medical intervention and appropriate care during transfer. Since 2011, TSEM also assisted the Department of Health in drafting policies governing the use of Public Access Defibrillators (PAD) installed in public places. The amendment of the Emergency Medical Services Act was successfully passed in January 2013, making Taiwan a pioneer in Asia on PAD installation and Good Samaritan-related laws.³

Securing a Foothold on the Global Stage

In order to elevate the standards of academic EM research in Taiwan and gain a foothold on the international EM academia arena, TSEM initiated

the publication of the Journal of Taiwan Society of Emergency Medicine in 1999. Furthermore, due to the efforts of pioneering emergency physicians in laying a strong foundation, the Taiwan EM healthcare system was already internationally recognized for its quality of patient care and safety. TSEM joined the International Federation for Emergency Medicine in 2000 as a full member, and has participated in policy planning, training, and international research related to EM. TSEM hosted the 2nd and 8th edition of Asian Conference on Emergency Medicine (ACEM) in 2001 and 2015 respectively. ACEM is an international forum for Asian emergency physicians to network and exchange ideas. During the conference, academic scholars and emergency physicians discuss EM related policies, academic research, and various training issues in each country. The resounding success of both ACEMs organized by TSEM is a testament that the Taiwan EM community has achieved good standing on the global stage.

Looking to the Future

Within the two decades, emergency physicians have proven their value by administering prompt medical intervention to critically ill patients on a daily basis, participating in onsite medical response during various disasters, and risking their lives to serve the public in the face of the SARS epidemic; these achievements have earned emergency physicians public acceptance and affirmation. Though EM has come a long way since, there will be yet more challenges ahead. The task at hand now is to solidify the standing of EM in the healthcare system of the future. We will continue to be diligent in advancing the various sub-specialties of resuscitation medicine, pediatric emergency, trauma, clinical toxicology, emergency medical care, disaster medicine, emergency ultrasonography, infectious disease, etc. The role of emergency physicians in the future is set to become more influential to the government, more crucial to the public, and highly regarded by medical professionals.

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