

Emergency medicine in Malaysia

馬來西亞的急症醫學

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The concept of emergency medical health care systems in Malaysia has existed since the 1950s. As in other countries in Asia, their functions and important contributions to the overall healthcare system have been much underestimated compared to other specialties. Historically, the concept of prehospital care management was almost non-existent and the casualty (accident & emergency department) was considered as a dumping place for under-performed medical officers. Postgraduate training in Emergency Medicine in Malaysia is still at its infancy and a lot more effort is required to improve the training program. The establishment of a structured residency training program and certified emergency physicians have revolutionized the emergency services that were neglected for so many years. Many challenges have been encountered since the start of the first program but each of the problems was tackled with great enthusiasm. It is hoped that in time Emergency Medicine and emergency health care in the country would be placed equal or even higher than any other specialty. (*Hong Kong j.emerg.med.* 2005;12:246-251)

馬來西亞的緊急醫療衛生護理系統概念，自 1950 年代已存在；如同其他亞洲國家，相對於其他專科，急症醫學對整體衛生護理系統的功能及重要貢獻一直被過份低估。以往，院前護理管理的概念幾乎並不存在，而急症室被認為是表現欠佳醫生的傾棄地。馬來西亞的急症醫學專科訓練仍處於初步階段，還需很大的努力去改進訓練課程。建立駐院醫生訓練課程的結構及急症科專科醫生證書的認可，已大大地改革了被忽視多年的急症服務。自首個課程開始以來，已遇到不少挑戰，但每個難題都以熱誠去解決。盼望假以時日，馬來西亞國家的急症醫學及緊急衛生護理的地位可媲美或甚至超越其他專科。

Keywords: Emergency medical services, medical education, physicians, professional education

關鍵詞：緊急醫療服務、醫療教育、醫生、專業教育

Introduction

Emergency Medicine is a relatively new specialty still at its infancy but is rapidly expanding in Malaysia. The specialty is being increasingly recognised within the

health care system in the country. It follows the Anglo-American model of emergency care.¹⁻³ This article reviews the overall health care system in Malaysia, as well as the development of Emergency Medicine and its postgraduate training in the local medical school as a new specialty. It also describes the challenges in program development, emergency patient care, and emergency medicine management systems. In 1998 the first structured academic postgraduate training programs were introduced by one of the local medical schools. This provides a good model for the future development of emergency medicine programs in other institutions in Malaysia.

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Demographics of Malaysia

Malaysia is located in South East Asia, internationally bordered by Thailand in the north and Singapore in the south. It is divided into the Peninsula of Malaysia and East Malaysia (Borneo), consisting of 15 states and a democratic government. It is comprised of multi-ethnic groups, with the Malay group being the majority (65%) and others such as Chinese (20%), Indian (10%), indigenous people (4%) and immigrants (less than 1%). The Malaysian language is the official language though English is widely used as a second language. The land area is 330,252 square kilometres with a population of just over 24 millions. Life expectancy at birth in 2002 for males was 70.3 years and for females, 75.2 years.⁴

Health facilities such as hospitals and clinics are provided by the Ministry of Health (MOH), Ministry of Education (MOE) university hospitals, and the private sector. Each of the 15 states is provided by the MOH with a general hospital that functions as a tertiary referral centre. Table 1 shows the allocation of health facilities in Malaysia in 2002. The ratio of doctors to population in 2002 was 1 to 1,474 with a total number of doctors of 17,442. The total MOH allocation from the national budget was 6.33%, amounting to Malaysian Ringgit (RM) 5,765,553,410, 80% of which was for operational purposes and the other 20% for development. The principal causes of

hospitalisation and causes of death in MOH hospitals in Malaysia in 2002 are shown in Tables 2 and 3 respectively.⁵

Medical training in Malaysia

Historically, undergraduate medical training in Malaysia has been established since the 1960's. Until the late 20th century there were three medical schools that had been producing locally trained medical doctors, all of which were governed by the Ministry of Education. At present there are seven MOE medical schools throughout Malaysia, all of which run a 5-year undergraduate course like those in the United Kingdom. Entrance into the medical school is controlled by the Higher Education Centre and is facing a very high demand from secondary school graduates. The curricular structure varies among the medical schools with most institutions practicing an integrated system exposing the students to clinical experience from the beginning of the curriculum. The government also selects a few students each year and offers them scholarship for pursuing undergraduate medical training overseas such as in the United Kingdom and Australia.⁶ After completion of basic medical training, the newly qualified doctors have to undergo a one-year internship training in government hospitals with strict supervision by consultants. After satisfactory completion of the internship, they are

Table 1. Malaysia health facilities allocation in 2002

Total number of government hospitals (MOH)	115
Total number of beds in government hospitals (MOH)	29,066
Total number of special medical institutions (MOH)	6
Total number of beds in special medical institutions (MOH)	5,456
Total number of non-MOH government hospitals	7
Total number of beds in non-MOH government hospitals	2,912
Total number of private hospitals, maternity & nursing homes	224
Total number of beds in private hospitals, maternity/nursing homes	9,949
Total number of MOH health clinics	855
Total number of MOH mobile clinics	185
Total number of medical schools (Ministry of Education)	6
Total number of medical schools offering postgraduate training	3
Number of medical schools offering training in Emergency Medicine	1

MOH = Ministry of Health

Table 2. Principal causes of admission in government hospitals in Malaysia in 2002

1	Normal delivery	18.91%
2	Complications of pregnancy	11.84%
3	Accidents	9.16%
4	Diseases of the circulatory system	6.94%
5	Diseases of the respiratory system	6.61%
6	Perinatal conditions	5.62%
7	Diseases of the digestive system	4.87%
8	Ill-defined conditions	3.57%
9	Diseases of the urinary system	3.49%
10	Malignant neoplasms	2.62%

Table 3. Principal causes of deaths in government hospitals in Malaysia in 2002

1	Heart diseases & diseases of pulmonary circulation	15.99%
2	Septicaemia	14.51%
3	Malignant neoplasms	9.16%
4	Accidents	6.76%
5	Perinatal conditions	5.56%
6	Pneumonia	4.98%
7	Cerebrovascular diseases	4.48%
8	Diseases of the digestive system	4.38%
9	Kidney diseases	3.72%
10	Ill-defined conditions	2.74%

eligible for full registration by the Malaysian Medical Council (MMC), allowing them to work as medical officers (MO) in any hospital in Malaysia. In order to pursue further postgraduate professional training, the MO are allowed to choose either entering a master specialty program run by local medical schools or fellowship training overseas such as the United Kingdom or any other equivalent training program recognised by the MMC.

Postgraduate Emergency Medicine training in Malaysia

At present, there are 16 postgraduate specialty training programs (master programs) offered by three medical schools in Malaysia and Emergency Medicine is the 14th specialty recognised by the Ministry of Health.

Historically the postgraduate master's program in medicine was initiated in 1986 in collaboration with the University of Sydney. In 2004, there was only one medical school that provided a 4-year training program in Emergency Medicine, namely the School of Medical Sciences of University Sains Malaysia (USM). The first intake was in 1998, comprising of seven candidates. The program was initially proposed by the director of the medical school and the task to run the program was given to an intensivist in collaboration with the anaesthesiology department. Structurally, the 4-year program was divided into three phases: phase 1 (year 1), phase 2 (year 2 & 3) and phase 3 (year 4/final). The general objective of the program is to provide training for medical officers to obtain adequate knowledge and skills such that they can perform as specialists in Emergency Medicine and improve the emergency services in Malaysia. Table 4 illustrates the structure of the master program in Emergency Medicine in the School of Medical Sciences, USM. The candidates are expected to gain knowledge in applied clinical and basic sciences during the first year and they sit for the first professional examination at the end of the first phase. The second phase (second and third year) involves going through rotations in other specialties with particular attention to the completion of a dissertation as partial fulfilment before sitting the final professional examination at the end of the fourth or final year. The candidates are required to complete all the life support courses, maintain a logbook, serve a minimum of 18 months of emergency department posting and receive satisfactory continuous assessment by the supervisor before sitting the final examination. Table 5 illustrates the structures of the phase one and final professional examinations.⁷

After the completion of the training program, the newly certified emergency physicians can choose either to work as a clinical specialist and lecturer in the medical school or to work in general hospitals under the Ministry of Health. Table 6 shows the present number of resident intake and qualified emergency physicians since 1998 throughout the country. Subspecialties of Emergency Medicine in Malaysia are just about to develop, particularly in the field of disaster, prehospital care, critical care, hyperbaric and observation medicine. Much of the opportunity goes

Table 4. Program structure for Master in Emergency Medicine in Malaysia

Phase	Year	Curriculum
I	1	<input type="checkbox"/> Medical & Surgical based basic sciences <input type="checkbox"/> Basics in Emergency Medicine & Traumatology <input type="checkbox"/> Postings in Internal Medicine, General Surgery, Paediatrics & Emergency Department (3 months each) <input type="checkbox"/> Applied Clinical Physiology, Pharmacology & Anatomy <p>PHASE I PROFESSIONAL EXAMINATION</p>
II	2 & 3	<input type="checkbox"/> Postings in Emergency Department, Neurosurgery, Intensive Care & Anaesthesiology, Orthopaedics, Radiology, Coronary Care Unit, Obstetrics & Gynaecology, ENT & Ophthalmology (3-6 months each) <input type="checkbox"/> Completion of Basic Life Support, Advanced Cardiac Life Support, Trauma Life Support, Paediatric & Neonatal Life Support Courses <input type="checkbox"/> Preparation for Dissertation <input type="checkbox"/> Elective Posting (1-3 months)
III	4	<input type="checkbox"/> Registrar/Senior Resident in Emergency Medicine <input type="checkbox"/> Emergency Department Posting (12 months) <input type="checkbox"/> Completion & Submission of Dissertation <input type="checkbox"/> Elective Posting (1 month) <p>FINAL PROFESSIONAL EXAMINATION</p>

Table 5. Summary of assessment for postgraduate training in Emergency Medicine in University Sains Malaysia Medical School**PHASE I ASSESSMENT (YEAR 1)****1. Continuous Assessment**

- a. Log Book and Course Work
- b. Supervisor Report

2. Phase I Professional Examination

- | | |
|---|-----|
| a. Theory | 60% |
| - Multiple Choice Questions | 30% |
| - Essay | 20% |
| - Multiple Structured Examination | 10% |
| b. Clinical | 40% |
| - Objective Structured Practical Examination (OSPE) | 10% |
| - Short Cases | 15% |
| - Clinical Interview | 15% |

PHASE II ASSESSMENT (YEAR 2 & 3)

1. Continuous Assessment
2. Supervisor Report
3. Dissertation Report
4. Satisfactory Completion of all Postings

PHASE III ASSESSMENT (FINAL YEAR)**1. Continuous Assessment**

- a. Log Book and Course Work
- b. Supervisor Report

2. Final Year Professional Examination

- | | |
|---|-----|
| a. Theory | 40% |
| - Multiple Choice Questions | 20% |
| - Essay | 15% |
| - Multiple Structured Examination | 5% |
| b. Clinical | 60% |
| - Objective Structured Practical Examination (OSPE) | 15% |
| - Long & Short Clinical Cases | 30% |
| - Clinical Interview | 15% |

Table 6. Resident intake and qualified emergency physicians from University Sains Malaysia 1998-2004

Year	Number of resident intake	Number of qualified emergency physicians	Number of residents passing the Phase I examination
1998	7	None	7
1999	7	None	6
2000	9	None	9
2001	8	None	6
2002	9	6	7
2003	9	7	7
2004	9	4	Not Applicable
Total	58	17	

Note: Total number of qualified emergency physicians employed by the medical school as clinical specialist & lecturer = 3

to those certified emergency physicians employed by the medical school for reasons like the availability of grants for research and sponsorship for further studies overseas.

The history of accident & emergency medicine

Historically, "casualty" was the name given to the unit in the hospital that received and treated acutely ill patients. It was the most neglected clinical area of the hospital for many years since the country gained independence from the British rule in 1957. At present the term accident & emergency department is known to the public who attend for any acute illness. Before the availability of qualified emergency physicians, the department was staffed by orthopaedic surgeons, general surgeons or generalists such as senior medical officers. Many departments are still understaffed and patients are poorly managed by under-trained or even untrained junior medical officers and nursing staff. For the hospital administrators, it was a place for dumping those medical staff with attitude problems or without career aspiration. Fortunately, health administrators and the public are gradually changing this bad perception and foresee the necessity for good training programs and services in emergency health care. Certain facilities and services have been improving since the introduction of fully qualified emergency physicians in the country, though others are still struggling for providing optimal emergency care.

In general, prehospital care is still underdeveloped with mixed involvement from non-governmental

organisations such as the Red Crescent and St. John Ambulance services. There is no certified paramedic or emergency medical technician (EMT) qualified personnel in Malaysia and most of the ambulances are manned by nursing staff with untrained ambulance drivers. The ambulances are not fully equipped for Advanced Cardiac Life Support or Advanced Trauma Life Support management in the field. The contributions of the Civil Defence Department towards prehospital care training and ambulance services to some extent provide some eye opener for improvement in prehospital care. Public awareness regarding the importance of effective and quality prehospital management is still very poor. Some of the acutely injured patients are brought by "Good Samaritans", using their own vehicles without knowing that they can possibly create more harm and further endanger the victims. This attitude is very difficult to change since efforts to educate the public and train the ambulance personnel are still very new.

National and international links

At present there are only two organisations in Malaysia that are actively promoting and attempting to improve emergency health care, namely the Malaysian Association of Emergency Medicine (MAEM) and Malaysian Society of Traumatology & Emergency Medicine (MASTEM). Extra effort is also being done by the Emergency Medicine Training Program in University Sains Malaysia Medical School to internationalise the program and create networking with international bodies and emergency practitioners.

For example, annually the centre invites external examiners from overseas such as Japan, Singapore, Australia and the Middle East to attend its professional examinations.

Future development in Emergency Medicine in Malaysia

There are a few areas in the emergency medicine services that are facing some developments and improvements. The number of locally trained and certified emergency physicians increases each year and this indirectly reflects some improvement in the emergency care provision in the hospitals that are staffed by the physicians. Training programs for supporting staff such as life support courses and simulation training have become a regular activity for the emergency department. Continuous medical education has improved and is well supervised by highly committed staff. Issues like poor infrastructure, lack of trained supporting staff and medical equipment in the emergency department have been tackled with difficulty, but fortunately the hospital administrators and the Ministry of Health have started to realise and rectify the problems. More organised life support courses are being conducted and one of the efforts to be taken by the Malaysian Association of Emergency Medicine in the future is to establish a body like a resuscitation council with its main objective to standardise and conduct life support training in Malaysia.

More medical schools in Malaysia (at least two) have put forward proposals to the Higher Training Centre Council to start a residency training program in Emergency Medicine similar to that of the University Sains Malaysia Medical School. This effort will definitely improve the quality of the training programs with a new strategy to conjoin the residency training under a national conjoint board of the three medical schools. With the increase in the number of certified emergency physicians throughout the country, efforts

will be made by the medical schools to establish a Malaysian College of Emergency Medicine under the Academy of Medicine Malaysia. The issue of the inadequate and underdeveloped prehospital care system needs to be addressed and a proposal has been made to establish a school for paramedic or EMT training. The first emergency medical dispatcher program in the country was established in University Sains Malaysia Medical School in 2003 and this will be the basis for the EMT training program.

Conclusion

Emergency Medicine as a specialty has been gradually accepted by the health care system in Malaysia. Even though still in its infancy, the establishment of a structured residency training program and certified emergency physicians have revolutionised the emergency services that were neglected for so many years. Many challenges have been encountered since the start of the first program but each of the problems was tackled with great enthusiasm. It is hoped that in time Emergency Medicine and emergency health care provision in the country would be placed equal or even higher than any other specialty.

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