

Department of Emergency Medicine

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INTRODUCTION

The Department of Emergency (DEM) represents the “front door” of the hospital. It is where the public has its first unscheduled exposure to the hospital. As such, it is important to provide the public the best possible experience. The DEM at Singapore General Hospital (SGH) has, since its inception, been providing medical care for a wide range of patients. It is a dynamic department that attends to about 120 000 patients annually. The department is a 24-hour centre for resuscitations, critical emergencies and minor ambulatory injuries which also manages a 24-bed Short Stay Emergency Observation Ward and a 7-bed Emergency Cardiac Care Unit. The practice of observation medicine is facilitated with the availability of these units. The department also houses the only semi-automated decontamination centre in the world.

The DEM has two senior consultants, 5 consultants, 2 associate consultants and 3 registrars, a pool of 20 medical officers who are rotated every 6 months, 118 nursing staff and 6 clerical staff.

Eight professional care branches have also been developed to oversee the development of these relevant areas, namely;

1. Emergency cardiac care
2. Emergency trauma care
3. Emergency prehospital care
4. Emergency toxicology
5. Disaster medicine
6. Airway management
7. Emergency observation medicine
8. General emergency medicine

The department is also active in providing advisory services, including maritime radiomedical services, drug and poisons information services and emergency preparedness services. A field medical team is available round-the-clock and can be despatched in 5 minutes with full resuscitative equipment.

THE HISTORICAL MILESTONES

“The true use of history is not to make man clever for the next time, it is to make him wise forever.”

Sir Michael Howard

The department has evolved into a state-of-the-art DEM. It would be interesting to understand the development, progress and changes implemented over the years.

Before 1964

Setting up of a “Casualty and Outpatients Department” at the “Red House” of Outram Road General Hospital (Figs. 1 and 2). More than 1 000 patients were seen each day.

1964

The “Casualty and Outpatients Department” was renamed the “Emergency Unit” and functioned as a triage unit, sorting patients with both medical and surgical emergencies for admission to the hospital as well as to the Specialist Clinics. The unit also set up Singapore’s first and only public medical ambulance service.

1966

The “Emergency Unit” posting was accorded recognition by the Royal College of Surgeons of England, Edinburgh and Dublin for training in internal medicine and surgery.



Fig. 1. Staff of the "Casualty and Outpatients Department" in the 1960s.



Fig. 2. The "Red House" of the Outram Road General Hospital with the ambulances parked outside.

1972

Medical officers' posting to the Unit was increased from 2 to 6 months.

1976

The public emergency ambulance service was amalgamated with the Fire Brigade's trauma ambulance, resulting in the first local emergency ambulance service under the Singapore Fire Service.

1978

The Accident and Emergency (A & E) Department handled its first mass casualty disaster when the Greek tanker, Spyros, exploded. A total of 75 casualties was admitted for serious burns and blast injuries (Fig. 4). Eleven were discharged while 5 were dead on arrival.

1979

The National Combined A & E Teaching Programme was launched, with SGH performing the co-ordination and organisation.



Fig. 3. Registration in the old days.



Fig. 4. Receiving a casualty from the Spyros Disaster.

1980

The use of salbutamol nebuliser was started in the department.

Radiomaritime medical services (which was previously handled by the Port Health Authority) was taken over by the department. This comprised telephonic and telex services providing medical advice to ships at sea.

1984

Emergency medicine was recognised as a distinct medical specialty by the Ministry of Health (MOH).

1985

The A & E registration process was computerised (Fig. 3).

The department played a leading role in MOH's campaign to educate the public on the proper usage of emergency services. This campaign resulted in a 25% reduction in A & E attendance.

The first 2 A & E trainees were appointed by MOH.

1987

MOH's Civil Disaster Plan was extensively revised and the basis of the current medical management of casualties in disasters was put in place. The Disaster Site Medical Command was also set up, with SGH A & E Department as the national coordinator for disaster medical support in the community.

The Advanced Cardiac Life Support Course was introduced to all A & E doctors. This has become a permanent feature and training for doctors posted to the A & E Department.

The first Advanced Training Health Manpower Development Programme (HMDP) in Emergency Medicine was awarded to an SGH A & E registrar.

The first consultant in A&E Medicine was appointed in SGH.

The appointment of Field Medical Commander for MOH was also given to a consultant from the department.

Activated charcoal was introduced in the department for the management of poisoning cases.

Singapore's first structured 3-year basic postgraduate training programme in emergency medicine was introduced at SGH.

Singapore's first Automated External Cardiac Defibrillation Programme was initiated by the department, with the assistance of the Department of Cardiology, for the Singapore Civil Defence Force (SCDF) Emergency Ambulance Services.

The 4-tiered triage system was implemented:

1. Resuscitation
2. Critical Care
3. Minor Emergency Care
4. Non-emergency/Walk-In

The SGH A & E Department coordinated the first Basic Trauma Life Support Training Programme in Singapore. This was done in conjunction with the visit by the first HMDP expert in emergency medicine to Singapore.

The first structured advanced postgraduate training programme in emergency medicine in Singapore was initiated at SGH.

SGH A & E Department provided the medical team leader for the first SCDF-led rescue mission for the earthquake victims in Baguio City, the Philippines.

1991

The A & E department provided the leadership in managing medical support for passengers of the hijacked Singapore Airlines flight travelling to Singapore.

The department worked with MOH to set up the first Emergency Medicine Training Committee.

1992

SGH A & E department provided the leadership in the management of rescued victims of the "Royal Pacific", which sank in the Straits of Malacca.

The first Disaster Medicine Course in Singapore was organised by the department.

1993

The Society of Emergency Medicine, Singapore was formed, operating from the SGH A & E department.

The First South and East Asian Conference on Emergency Medicine was organised.

1995

With the renovation to the department's premises, the department now had 8 self-sufficient cubicles in Critical Care Area, 6 self-sufficient bays in Resuscitation with overhead X-ray tubes and a test station.

Seventeen victims from a Bali bus accident were transported by air to the department. The evacuation was coordinated by the department as well.

The Advanced Diploma in Emergency Nursing by the Nanyang Polytechnic was introduced with the assistance of the A& E department, which started sending nurses every year for Advanced Diploma training.

The department was renamed Department of Emergency Medicine (DEM). Several professional branches in special areas of interest — trauma care, emergency cardiac care, toxicology, disaster medicine, prehospital care and paediatric emergency care — were created.

1999

The Life Support Training Centre at SGH was launched by the hospital's Chief Executive Officer and Chairman Medical Board, with strong support from DEM.

2000

SGH came under the management of Singapore Health Services, or SingHealth. DEM worked closely with primary care partners and other emergency departments in the cluster.

The Emergency Cardiac Care Unit in the Observation Ward with commencement of a large randomised controlled, ACTION (A Coronary Disease Trial Investigating Outcome with Nifedipine GITS) was launched.

2001

DEM sent a medical team to Taiwan to assist victims of the Singapore Airlines Flight 006 crash. The team assisted with the evacuation of victims back to Singapore for treatment.

A medical team was sent to Gujarat, India, to assist victims of the earthquake that had hit the city.

The Inaugural Joint Final MMed (Emergency Medicine)/FRCSEd(A&E)/MRCSEd(A&E) Examinations were held in SGH. DEM's emergency physicians were involved in selecting clinical cases and hosting the overseas examiners.

2002

A reconnaissance mission to Afghanistan was followed by 5 separate missions from February to June. DEM worked with the Singapore International Foundation on this mission.

The world's first semi-automated decontamination centre opens at DEM.

Victims of the Bali bomb blast were evacuated to DEM.

2003

The SARS outbreak caused major changes in practice in the department. Fever and non-fever areas were set up and negative pressure rooms were expanded. The wearing of N95 masks became the norm.

Victims of the JW Marriot Jakarta bomb blast were transferred to SGH for management.

Table 1. Heads of department past and present.

Dr Colin Marcus	1948 to 1958
Dr William Fung	1959 to 1964
Dr D C Gauwn	1964 to 1967
Dr S Ayaduray	1968 to 1970
Dr P N Unni	1971 to 1976
Dr Lim Swee Keng (Appointed Chief Coordinator of A&E services, MOH in 1986)	1977 to 1994
A/Prof V Anantharaman	1994 to 2003
Dr Lim Swee Han	2003 to present

2004

The department sent a medical team to the Ayer Rajah construction site, which had collapsed. It also received and treated the casualties.

The Drug and Poison Information Service was set up.

A reconnaissance trip to Bam, Iran was made to assess Singapore's possible contributions in the rebuilding and reconstruction phase.

Emergency Medicine was recognised as a chapter by the Academy of Medicine, Singapore.

HEADS OF DEPARTMENT

The previous heads of the Emergency Department were each unique individuals, who left their mark in different ways (Table 1).

RESEARCH

DEM has maintained a strong commitment to clinical and epidemiological research in the area of emergency medicine in Singapore since the 1980s. Some researches are in collaboration with either other departments in SGH or other local hospitals. There are also international collaborations in the form of multi-centre trials with many centres and institutions throughout USA, UK and Asia. DEM is also involved in biomedical engineering projects with the Nanyang Technological University. To date, the department has many publications in Emergency Medicine and other journals, both local and international. Some of the principal investigators have bagged awards, such as the Excellent Publication Award, Best Research Paper Awards and the Young Investigator's Award. The department has also been successful in obtaining grants and sponsorship from the National Medical Research Council (Singapore), Singhealth, Department of Clinical Research and some private agencies.

TEACHING AND TRAINING

DEM is very active in various teaching and training programmes. These include:

1. Undergraduate training in emergency medicine
2. Basic postgraduate training in emergency medicine
3. Advanced postgraduate training in emergency medicine
4. Fellowship training in sub-speciality areas of emergency medicine
5. Medical officer training in emergency medicine
6. Nursing training (both basic and advanced levels)
7. Paramedical training

Senior staff of the department hold teaching portfolios and positions at the National University of Singapore. They also direct, coordinate and instruct at various courses run by the Life Support Training Centre at SGH. Some of these include Basic and Advanced Cardiac Life Support, Basic and Advanced Trauma Life Support, Cardiac Resuscitation Course, ECG Reading Courses, Community, Standard and Industrial First Aid Courses, Hazardous Material Life Support Courses (Basic and Advanced), Auscultation Courses for Nurses and Automated External Defibrillation Courses. Besides being active in these life support courses, many of the department's staff also serve on various committees of the National Resuscitation Council, Singapore.

The practice of observation medicine, protocol-based management and evidence-based emergency medicine is expanding. Both problem-based and scenario-based teaching methods are very commonly used in the department.

The staff also work closely with colleagues in primary care (outpatient primary care departments and general practitioners) and hold seminars and regular updates for them. This helps to improve interaction and communication with these parties.

In addition, DEM works hand-in-hand with organisations, such as the SCDF, the Singapore Police Force (SPF), Singapore Armed Forces (SAF) and School of Military Medicine (SMM), in many educational, teaching and joint-exercises for disaster preparedness.

CONCLUSION

DEM has indeed come a long way. It has played a pivotal role in the development of emergency medicine at SGH, in Singapore and in the region. The discipline is relatively "young", but there is potential for greater achievements and innovations in the national and international scene.

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