

Emergency medicine

EMERGENCY MEDICINE (EM) was recognised as a principal specialty in Australia in 1993, and the development of EM has had a profound effect on the way healthcare is delivered in Australia. Most major Australian hospitals now have 6–12 full-time emergency physicians. The Australian Medical Workforce Advisory Committee has estimated that more than twice the current number of EM physicians will be needed by 2007.¹ Within five years from now, major emergency departments (EDs) will have 16-hour, 7-day cover (some will have 24-hour cover). Subspecialisation will occur in toxicology, retrieval, disaster medicine, paediatric emergency medicine and hyperbaric medicine, and academic EM will grow rapidly.

Prevention. The many presentations in EM provide fertile ground for surveillance in injury prevention and other areas. Data collected and computerised at the time of attendance provide great opportunities for monitoring of disasters and epidemics and for disease identification and surveillance. Some EDs are undertaking disease prevention programs, giving telephone advice and conducting quality assurance programs related to ambulatory care that should have a major impact on disease presentation and prevention.

Training. Improvements in training and experience for emergency physicians and the reduced reliance on junior medical staff in EDs have significantly improved early diagnosis and reduced initial adverse events and times to critical therapies. Most routine ED laboratory tests and some imaging (eg, using ultrasound and portable computed tomography) will soon be performed at the bedside, although there are issues surrounding cost and reliability.

Interventions. Little has changed in cardiopulmonary resuscitation over the past 30 years. High-dose adrenaline has been found to have no advantage over the standard dose, and there is some doubt about whether adrenaline is useful at all. Time to defibrillation remains the key to advanced life support for cardiac arrest. Easy-to-use automatic external defibrillators, which will eventually be accessible to the wider community, will improve survival after out-of-hospital cardiac arrests.

EM physicians have developed great expertise in managing poisoning and envenomation, and five toxicology admitting services have been established nationally. This has reduced the frequency of the need for decontamination and antidote administration and reduced admission rates and length of stay, without increasing morbidity or mortality. Doctors managing an acute poisoning anywhere in Australia can rapidly get expert advice by calling Poisons Information Centres (on 131126), at which medical consultant support is largely provided by emergency physician toxicologists.

Modifications to hospital and ED systems in recent years have enabled earlier intervention.² For acute coronary syndromes, the early administration in the ED of aspirin, β -blockers, thrombolytic agents and platelet glycoprotein IIb/IIIa antagonists is improving outcomes. Glyceryl trinitrate and angiotensin-converting enzyme inhibitors improve out-

comes in pulmonary oedema. The use of low molecular weight heparins has enabled

most patients with venous thromboembolism to be managed at home with daily injections and has reduced mortality in patients with unstable angina. Non-invasive ventilation for respiratory conditions such as asthma and chronic airways limitation can prevent endotracheal intubation, reduce length of stay and reduce mortality.

The most significant advance in EM has been formalisation and application of triage. The Australasian Triage Scale (ATS) is now used in all Australasian EDs, usually as part of a real-time patient tracking and reporting system. It has become the cornerstone of departmental clinical management, casemix measurement and interdepartmental workload comparisons, and has been applied in incentive bonus payment schemes in New South Wales and Victoria.³ The ATS is widely used as the basis of ED audit and quality improvement.⁴ It enables comparisons of very large patient populations, and has extraordinary research potential.

System changes in EDs have led to integration of specialised teams for reception of emergency patients, and research and training in team dynamics in several areas, especially trauma. The development of clinical pathways (for asthma, chronic airways limitation and abdominal pain), chest pain units and nurse-based analgesia have reduced time to essential treatment, ED length of stay and unnecessary tests. Specialised observation medicine units run by EDs have had a significant impact on hospital lengths of stay for many illnesses.⁵

The ED is also a critical focus for developing out-of-hospital programs, integrating components of acute hospital care such as intravenous therapy, nursing support, specialist consultations and physiotherapy.

Continuing improvements in EM are likely over the next five years.

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1. Australian Medical Workforce Advisory Committee. The emergency medicine workforce in Australia. AMWAC Report 1997.1. Sydney: AMWAC, 1997.
2. Hourigan CT, Mountain D, Langton PE, et al. Changing the site of delivery of thrombolytic treatment for acute myocardial infarction from the coronary care unit to the emergency department greatly reduces door to needle time. *Heart* 2000; 84: 157-163.
3. Jelinek GA, Baggoley CJ. Financial incentives to change emergency service performance. *Med J Aust* 1999; 171: 231-232.
4. Rogers IR, Evans L, Jelinek GA, et al. Using clinical indicators in emergency medicine: documenting performance improvements to justify increased resource allocation. *J Accid Emerg Med* 1999; 16: 319-321.
5. Williams AG, Jelinek GA, Rogers IR, et al. The effect on hospital admission profiles of establishing an emergency department observation ward. *Med J Aust* 2000; 173: 411-414. □

