Edited by
Peter Cameron
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Textbook of Adult EMERGENCY MEDICINE

FOURTH EDITION

CHURCHILL LIVINGSTONE
ELSEVIER

TEXTBOOK OF **ADULT EMERGENCY MEDICINE**

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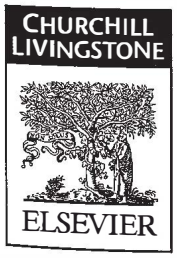

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Preface to Fourth Edition

It is wonderful that this text is now being published as a fourth edition. As editors, we have had the privilege to coordinate, probe, push and arbitrate the many contributions and ensure the success of this comprehensive textbook. The hundreds of experts involved in developing this text have generously given their time and expertise and the result has been worth this effort!

It will be evident to readers of the previous editions that we have gradually increased the subject matter over time. This reflects the growing depth and breadth of emergency medicine and the increasing expectations of emergency medicine practitioners. As well as covering the mainstream clinical subjects including resuscitation, trauma, cardiac, respiratory, gastrointestinal, neurology, musculoskeletal, infectious disease, toxicology and psychiatry – we have also emphasized the other skills and knowledge that are needed by an advanced emergency medicine practitioner. Unlike other emergency medicine texts, there are major sections on administrative issues such as staffing, overcrowding, triage, patient safety and quality. In addition, difficult topics such as death and dying, the challenging patient, ethics, giving evidence and domestic violence are covered. There is also an overview of academic emergency medicine, the foundation of clinical emergency medicine into the future.

Most governing bodies overseeing training schemes around the developed world are now realizing that simply teaching a variety of clinical strategies to front line clinicians will not ensure high quality emergency medicine. Understanding the governance, organization and training is essential. Training schemes for emergency medicine internationally are now extending beyond the 2–3 years originally required in the USA, when emergency medicine first developed as a specialty, out to at least 4–5 years. In addition to basic Board exams, Fellowships are being added in critical care, pre-hospital, administration, toxicology, ultrasound, public health and other subspecialty interests, to underpin more comprehensive training. The Australasian approach has always been to have a much longer training scheme (minimum 7 years post-graduate) to allow broad clinical exposure and a less narrowly focused curriculum. This text reflects that approach, examining a broad spectrum of issues with which emergency physicians are expected to be familiar.

This is the first edition to be developed as both a print and an electronic version. This has the advantage that electronic material can be accessed without adding multiple extra pages and making the printed text unwieldy. It also allows us the advantage of adding features such as multiple choice questions and high quality pictures. A further important feature of the electronic version is that browsers searching for material on a topic will be able to access individual chapters through the Elsevier site, allowing clinicians to look for particular topics that are not covered well by other texts or articles. We believe, however, that clinicians will still require access to one major printed text with a consensus view on major topics.

There are many people to thank for the success of this book. More than 200 contributors have ensured a broad spectrum of opinions and consensus on a huge variety of topics. No doubt their partners, children and significant others will also have their opinions on the book and the time involved! Importantly, the outstanding support from people at Elsevier led by Fiona Conn as well as Jessica Hocking at Hamad Medical Corporation in Qatar have ensured that the operational aspects of the programme ran smoothly, for which we are all indebted. Thank you.

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International Advisory Board

Introduction

The specialty of emergency medicine has become a central pillar in the delivery of acute medical services in advanced economies across the globe. Although the systems of emergency care vary in maturity in different countries, there is consensus that having skilled and dedicated staff at the 'front door' of the hospital significantly improves outcomes and improves efficiency in the system.

Definition

Emergency medicine is defined by the International Federation for Emergency Medicine (IFEM) as 'a field of practice based on the knowledge and skills required for the prevention, diagnosis and management of acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of episodic undifferentiated physical and behavioural disorders; it further encompasses an understanding of the development of pre-hospital and in-hospital emergency medical systems and the skills necessary for this development'.

This definition is deliberately broad and encompasses both the pre-hospital and in-hospital domains of practice. It is important to note that, in many countries, elements of emergency medicine are practised under other specialties, such as anaesthesia, general practice and internal medicine. There is a strong belief among emergency physicians that, although there will always be a cross over between different specialty training, the emergency medical system will only be optimized by having a strong cadre of physicians trained specifically to provide emergency care available 24 hours every day.

The Franco-German model of emergency care has traditionally involved doctors in the pre-hospital sphere initiating resuscitation and assessment and then transporting the patient directly to inpatient services (without a formal emergency department). This model of care is becoming more difficult to sustain as inpatient services become more specialized and a greater emphasis is placed on early diagnosis, treatment and discharge. Many patients with potentially complex presentations can be fully 'packaged' within hours of arrival and discharged home. The idea of a consultant/professorial ward round the following day is difficult to justify. Triage from the roadside to an inpatient bed is predicated on accurate pre-hospital diagnosis. When patients are placed on the wrong pathway, there are dangers for the patient and inefficiencies in the system.

The development of emergency medicine

In many ways, emergency medicine is the foundation of modern medicine. Going back to ancient times, patients were forced to seek the help of a physician for emergencies, such as wound management, and painful conditions, such as renal colic. Approaches to some of these conditions were quite sophisticated, even in ancient Egyptian and Chinese societies. There was, however, little attention to systems of care and final outcomes were literally in the hands of the gods.

War – although a terrible thing – can have some positive influences. From Napoleonic times, it became evident that casualties could be better managed by triaging patients – identifying those most likely to live and attending to life-threatening injuries early. In the last century, the First and Second World Wars saw huge improvements in the organization of the emergency response to injured soldiers. However, it was not until the Vietnam/American war that we saw a huge change in the way medical services responded to war casualties. With helicopter transport and well-organized paramedics, scene times were reduced to minutes and times to definitive surgery were shortened. Surgeons returning from duty on the war front realized that civilian practice in major urban centres was lagging behind services offered on the front line and set about improving response to civilian trauma.

At the same time, major improvements in medical practice meant that access to technology and skills, delivered quickly, could save lives. Examples included cardiac arrest, trauma, and sepsis. Prior to the 1950s, there were few time-dependent treatments that actually changed the final outcome for most patients.

A further influence on the development of medical systems was the transfer of industrial processes from the factory to the hospital. The lessons learnt in industry showed that if processes could be standardized with clear pathways and reduced variation, quality could be improved and costs reduced. The idea of the friendly doctor who knew his/her patients and everything that happened to them became a thing of the past. Hospitals changed from a 'cottage industry' to a 'factory' model. Emergency Medicine, when it is performed well, ensures that patients are received, assessed and treated in a standardized fashion, 24 hours per day, 7 days per week. The necessity for emergency specialists to manage this system is clear. Putting patients on the wrong 'conveyor belt' of management because of poorly trained staff in the initial assessment period can have a devastating impact on outcome and lead to major inefficiencies in the hospital.

A final influence on the development of emergency medicine is the problem of worsening access to emergency care across the Western world. It is clear that demand for

emergency care has risen at the same time that hospital bed numbers have been reduced. Governments have tried to make the best use of limited bedstock by reducing 'inappropriate' admissions and reducing length of stay. In good emergency medical systems, only those patients who are unable to be managed as outpatients will be admitted. In addition, patients will receive the right treatment from skilled practitioners at the earliest possible time. Realization of the importance of skilled practitioners to direct emergency patient management around the clock has led to a massive global investment in emergency medicine over the last 20 years.

Scope of practice

The fact that emergency physicians have general training which can act as a foundation for many subspecialties has led to a large variation in practice around the world – according to local needs and skills. There are core diagnostic and resuscitation skills that should be common to all emergency doctors. However, depending on practice location some physicians may become more expert in specific skills because of need. For example, in many underdeveloped countries, expertise in obstetrics is essential, including the ability to perform a caesarian section. Drugs and alcohol will be very important in some inner city emergency departments, whereas geriatrics may be more important in other locations. The basic skills of an emergency physician remain the same; identifying life/limb-threatening issues immediately, then prioritizing, diagnosing and treating other conditions before discharging home or admitting to an inpatient team. Finally, an emergency physician must coordinate the clinical team and the system to ensure optimal outcomes for the patient.

Emergency medicine now has a large number of subspecialties including toxicology, paediatrics, trauma, critical care, pre-hospital/disaster medicine, sports medicine, hyperbaric medicine, academic emergency medicine and many more. There are now 1–2 year fellowships available in most of these disciplines. It is important, however, that every emergency physician has a basic grounding in these subspecialties so that when confronted with the unexpected, they feel comfortable managing the situation. Having subspecialist skills is important in large departments with many specialists, so that there are expert resource people to develop the clinical service as a whole.

The future

Emergency medicine is a specialty that has developed as a result of the way modern medical treatments must be delivered. This is not static and is likely to change even more dramatically into the future. It is certain that the work pattern of an emergency specialist will be very different in 20 years time. Changes to diagnostics, therapeutic modalities, patient demographics and the work pattern of our medical colleagues will all impact on what emergency medicine practice entails. Patient expectations regarding service delivery are also changing.

There are potential threats to the quality of emergency medical care delivered, such as 'The 4-Hour rule' to push patients out of the emergency department within 4 hours (whether this is best for the patient or not). There are potential threats from other specialties, such as internal medicine physicians, wanting to undertake 'acute medicine' and replace emergency physicians. Overcrowding has made life difficult to practice good care in many emergency departments and government changes to funding arrangements have served to deny poor people access to emergency care. These potential threats and others may also represent further opportunities to streamline care and improve interaction with colleagues in acute management and demand advocacy on the part of emergency physicians. Despite these threats, there is an underlying strength in our specialty – the ability to provide the best care to undifferentiated emergency patients 24 hours per day, 7 days per week. If we focus on our core business, the specialty will continue to grow and remain a central pillar of the overall medical system.

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