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INTERNATIONAL EMERGENCY MEDICINE

International emergency medicine: How to train for it

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Abstract

This article provides background information about the emerging field of international emergency medicine (IEM) and how emergency physicians in Australasia can participate in its practice and development. It reviews the seven key areas of knowledge and skills involved in the practice of IEM as put forward by US fellowship programmes: (i) Emergency Medicine Systems Development; (ii) Humanitarian Relief; (iii) Disaster Management; (iv) Public Health; (v) Travel and Field Medicine; (vi) Programme Administration; and (vii) Academic Skills. Current obstacles to the development of similar programmes in Australasia are explored and identified as primarily financial. Means by which individuals can fund and engage in IEM activities are proposed. This article provides a reference of domestic and international IEM training resources that can be obtained by Australasian emergency physicians and trainees today.

Key words: *curriculum, emergency medicine/education, fellowship and scholarship, international educational exchange.*

A background to international emergency medicine

During the past two decades interest in and demand for emergency medicine (EM) services and training has increased internationally.[1] There are currently more than 30 countries that recognise EM as a distinct specialty and offer training programmes.[2] These include the hugely populous countries of China and India. Population growth, increased urbanisation, ageing, socioeconomic development, worsening healthcare issues and mass casualty incidents due to natural disasters have fuelled international interest in EM.[3,4] The World Health Organization (WHO) recognises that more than 100 million people worldwide sustain injuries annually and that 90% of the global burden of violent or injury-related deaths occur in middle- and low-income countries. The WHO also believes that additional efforts should be made globally to strengthen the provision of trauma and emergency care so as to ensure timely and effective delivery to those who need it in the context of their overall healthcare system.[5]

There is currently no single definition of international emergency medicine (IEM), but it has been described by Arnold as 'the area of emergency medicine concerned with the development of emergency medicine in other countries'.[1] The umbrella term covers two main areas: (i) EM Specialty Building (EMSB) and (ii) Humanitarian Assistance (HA). HA forms part of the larger discipline of Global Health, which is multidisciplinary and includes fields besides medicine, such as law and engineering. The need for HA globally is likely to increase in the future and remain with us indefinitely. EMSB, by contrast, focuses on the development of specialist EM training programmes and falls wholly within the realm of EM; indeed, this is core to the mission and goals of

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the International Federation for Emergency Medicine (IFEM).[6] It is possible to envisage a time when all countries will have a formal EM system and therefore the need for EMSB might be finite.

Defining the key areas of international emergency medicine training

Even before the recent inception of IEM, emergency physicians (EPs) had been participating effectively in international relief and EM development work either as independent agents or within the structure of academic institutions, governmental or non-governmental organisations (NGOs).[1,7–9] Although EPs have many qualities that make them particularly suited to the practice of IEM, such as broad-based medical knowledge and tolerance for working in unpredictable and stressful environments,[10] most have little or no training in public health, tropical medicine, strategic planning or health administration.[11–13]

To address the growing interest in and demand for international healthcare, in 1997 a group working in the USA convened and made recommendations towards a curriculum for EPs in a proposed international health fellowship.[12] In 1999, this was further refined by VanRooyen *et al.* into a proposed fellowship training programme in IEM.[11] The proposal set out the goals, objectives and skills believed to be core in the training of EPs to be more effective practitioners of IEM. The suggested curriculum was divided into domestic and international aspects of four key areas of training: (i) Clinical Practice; (ii) Education; (iii) Research; and (iv) Additional International Curriculum.

Since then, many EM residency programmes in the USA have incorporated elements of IEM training into their curriculum. Currently, over 30 institutions offer a formal IEM fellowship programme for US EM residency graduates.[14] In 2010, Bayram *et al.* reviewed all available curricula and descriptive online materials of IEM fellowships in the USA to describe and categorise their common education goals and elements.[15] The objective was to provide a resource for the development of IEM training for other interested institutions. Categorisation of components considered key to all IEM fellowships yielded seven discrete knowledge and skills areas: (i) Emergency Medicine Systems Development; (ii) Humanitarian Relief; (iii) Disaster Management; (iv) Public Health; (v) Travel and Field Medicine; (vi) Programme Administration; and (vii) Academic Skills. Strategies for knowledge attainment and methods for the evaluation of training are also described (Fig. 1).

Clearly, the acquisition of skills in all the seven key areas of IEM that are included in US fellowships is not a prerequisite to engaging in any one area of EM activity internationally. This would not only be discouraging and unrealistic, it would also colour the field with a false sheen of elitism, making it seemingly beyond the capacity of most FACEMs and trainees. Instead, individuals should invest time and seek out training in the areas of IEM that most interest them or in which they intend to work. Whether it be for the occasional involvement in an overseas EMSB activity, such as skills training or

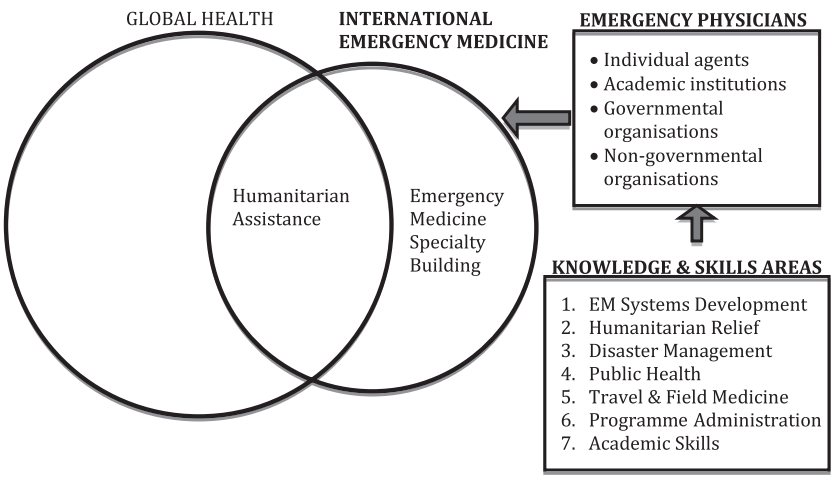

Figure 1. A diagrammatic representation of the current structure of international emergency medicine (IEM) as used in US IEM fellowship programmes.

curriculum development (which is currently the experience of most FACEMs and trainees active in IEM), or to lay the foundations for work with NGOs or the WHO, targeted training and skills acquisition is valuable.

International emergency medicine in Australasia

The International Emergency Medicine Special Interest Group (IEMSIG) of the Australasian College for Emergency Medicine (ACEM) was founded in 2004. It aims to foster the development of EM in developing countries and cultivate opportunities in IEM for ACEM members.[16] It currently has approximately 300 members and a twice-yearly newsletter reporting their activities that span many countries, from Botswana in the west to Tonga in the east. At present there is no IEM fellowship offered in Australasia nor formal guidance by the ACEM on IEM training for interested College members.

There are good reasons why the development of such guidance is now timely in Australia and New Zealand (ANZ), not least to nurture and help define an important and rapidly growing area of activity. Although philosophically European, Australasia is geographically Asian and neighbour to many low- and middle-income countries to whose socioeconomic advancement, including healthcare, it has a broad ethical obligation.[17,18] Encouraging IEM activities would provide opportunities to promote cross-cultural exchange and improve geopolitical relations. Engagement internationally also offers opportunities for academic research, the skills acquisition for which needs to be addressed. Above all, although the opportunity for fun, adventure and travel are legitimate reasons to be drawn to international activities, it is important that EPs are appropriately skilled to first do no harm and beyond that to genuinely value-add to their international environment so that their presence can be justified beyond mere medical voyeurism.

The building of a sustainable formal training programme for IEM with ACEM-recognised teaching hospitals, akin to a US fellowship, is challenged by the funding arrangements for the specialist training programme in ANZ. In the USA, IEM fellowships are generally undertaken by newly board-certified specialist EPs in teaching hospitals that are part of private universities. Within the US billing system, fellows are able to contribute financially to the institution through their ED work that justifies the institution's support of their fellowship activities, some including a Master of Public Health (MPH) degree programme.

The ANZ situation is different from this. It seems unlikely that ANZ public hospitals will financially support Fellows of the ACEM (FACEMs) in roles abroad within a system where they cannot directly generate revenue for the public hospital they work in. It is, however, within the capacity (although perhaps not yet the inclination) of our public hospitals to support leave without pay where staffing levels allow to facilitate the pursuit of IEM training and projects. FACEMs might consider using the professional development part of their remuneration package towards IEM activities. Individuals might also job-share or lead a locum lifestyle to provide the flexibility to engage in international work. Of considerable and increasing interest in ANZ is the development of IEM skills while still in training.[16] Several ACEM trainees have recently been awarded accredited training time for IEM experience (Dr Chris Curry, personal communication, 2011). There is further potential for ACEM and training EDs to support the aspirations of trainees towards engagement in IEM.

Knowledge acquisition resources

For the purposes of interested individuals and institutions looking to develop training for areas of IEM, what follows are suggestions on how knowledge useful for IEM can be acquired. It is organised into the seven major knowledge and skills areas of IEM as outlined by Bayram *et al.* and includes Australasia-specific information in addition to their US and internationally based suggestions.[15] This is not intended to be a comprehensive list nor are the courses described ranked in any order of desirability. Rather, it is intended to be a useful resource to be shared and on which interested parties can build in the future.

Emergency medicine systems development

During training for the FACEM qualification, trainees should already have gained some knowledge in this field as stipulated by the College curriculum.[19] In addition, the College website provides an extensive collection of policies and guidelines on ED design, departmental administration and quality management methods.[20] Qualification in and gaining instructor status on recognised standardised courses is a valuable way to familiarise with the principles of clinical emergency algorithms and their limitations. These include the Advanced Life Support (ALS), Immediate Life Support

(ILS), Advanced Paediatric Life Support (APLS), Emergency Life Support (ELS), Primary Trauma Care (PTC), Early Management of Severe Trauma (EMST) and Advanced Life Support in Obstetrics (ALSO) courses. In the USA, the National Association of Emergency Medical Services Physicians (NAEMSP) offers several courses annually focusing on the effective implementation and directorship of prehospital emergency medical services.

Simple translocation of Australasian or other high-income region EM practices to lower-income systems will likely be problematic. Care must be taken that principles and resources proposed overseas are made practically and culturally applicable and acceptable to their location of use. Knowledge of the challenges and pitfalls of EM systems development internationally can be gained from experienced practitioners, field trips and by reading the available literature on individual countries. In Australia, the Remote Area Trauma Education (RATE) course offered to health workers in isolated areas of the Northern Territory, primarily Aboriginal communities, is a good example of systems adaptation for resource-limited environments.

Humanitarian relief

Field experience on missions with NGOs, such as Médecins Sans Frontières (MSF), Oxfam, Save the Children and International Committee of the Red Cross (ICRC), is valuable. Although much is learnt on the job, organisations offer training to differing levels. In ANZ, the organisation RedR trains both medical and non-medical personnel for relief work through a range of courses, such as Essentials of Humanitarian Practice, Personal Security & Communications and Humanitarian Logistics in Emergencies.[21,22] Individuals can conduct personal study on refugee health, complete modules in this and associated fields as part of wider public health studies or seek experience at an Australian immigration detention facility. The James Cook University offers a Postgraduate Diploma of Disaster and Refugee Health.

Internationally recognised courses covering core topics include the Health Emergencies in Large Populations (HELP) course offered by the ICRC and the Public Health in Complex Emergencies course organised by the International Rescue Committee (IRC). Individual institutions also run courses, such as the Global Emergency Medicine Program at the Weill Cornell Medical College in New York and the Humanitarian Studies Course conducted by the Harvard Humanitarian Initiative in Boston.[23] The Refugee Studies Centre at the University of Oxford (UK) runs a wide selection of courses, of particular note the three-week International Summer School in Forced Migration. The website for the Center for International Humanitarian Cooperation is useful for further training resources, including the more extensive International Diploma in Humanitarian Assistance.

Disaster management

The Major Incident Medical Management and Support (MIMMS) course is widely recognised and available in ANZ. Its approach is reflected in the disaster management section of the ACEM curriculum and the College also offers policies and guidelines in this area.[19,20] The Department of Health in each Australian state or territory has its own disaster preparedness and management plans, the familiarisation with which is a good way to learn about the logistics of a domestic emergency response. Getting registered with a local Australian Medical Assistance Team (AUSMAT) or Disaster Medical Assistance Team (DMAT) can provide exposure to training resources and activities. States and territories also organise extensive field disaster simulation operations involving the police, fire and medical services in which interested physicians can volunteer to participate. Less elaborate but similarly informative Emergo Train System (ETS) exercises are conducted across the country; this is a pedagogic educational simulation system developed in Sweden, which uses appealing magnetic representations on whiteboards of the personnel and equipment involved in a disaster response.[24]

A difference in resources means that the assessment and response to disasters in developing countries will be significantly different from domestically. The National Critical Care & Trauma Response Centre (NCCTRC) at the Royal Darwin Hospital, Australia runs a Needs Assessment Team Training (NATT) course to address this topic, although participation is currently by invitation only. However, many of the humanitarian relief courses and resources mentioned above include disaster needs assessment training. The NCCTRC also offers many other disaster response and management courses throughout the year open to public application.

Public health

Fundamental public health concepts, including biostatistics, epidemiology and research methodology, form the core of all MPH degrees. Most also offer modules in topics that cover or complement many key areas in IEM,

such as Health Policy & Administration, Theory of International Health and Health in Immigrant Populations.[15] Although a MPH qualification is not mandatory in those wishing to pursue IEM, and indeed is not stipulated by all of the US IEM fellowship programmes,[15] it is often the only non-clinical academic qualification sought and recognised by international agencies, such as WHO and UNICEF.[4] It is therefore highly encouraged in EPs intent on pursuing leadership and policy-making roles in EM activities internationally.

Public health knowledge and skills can also be obtained, however, through relevant courses outside of a MPH programme. There are a host of courses offered by schools of public health throughout Australasia as well as in the UK and summer school programmes in the USA. With approval from the ACEM, these may be used to fulfil the mandatory Regulation 4.10 trainee research requirement during training.[19] There are also extensive distance-learning online resources available, such as the website of the University of Pittsburgh's Supercourse in Epidemiology and Global Health.[25]

Programme administration

Development and implementation of international projects calls on skills in writing grant proposals, securing sustainable funding and managing projects.[15] If a MPH is being undertaken, relevant modules should be considered. During their training, ACEM members may also undertake a College-accredited rotation in ED Administration[26] and seek out experience in funding proposals and systems management issues. Opportunities for involvement in all aspects of grant writing, in particular on international projects, should be sought. EPs could also become familiar with and learn to search for potential sources of research and project funding, such as the websites of the National Health and Medical Research Council (NHMRC), AusAID and the New Zealand Aid Programme. The annual International Emergency Department Leadership Institute (IEDLI) course[27] provides leadership education for current and future healthcare leaders in EDs worldwide and would be particularly valuable for EMSB activities.

Travel and field medicine

Knowledge can be acquired through involvement in fieldwork, participation in travel clinics and more formally through certificate programmes or diplomas. In Australia, James Cook University offers a Postgraduate Diploma of Tropical Medicine and Hygiene. In New Zealand, the University of Otago offers a Postgraduate Diploma in Travel Medicine. Importantly, Australia also has an indigenous population with one of the worst life expectancies of all indigenous populations in the world and the highest incidence of rheumatic fever, a disease of poverty.[28] EM trainees could be encouraged to undertake part of their training in areas with a large indigenous population, such as in the Northern Territory and far north Queensland. These areas are not only interesting and beautiful, but offer domestic opportunities to experience a range and acuity of pathologies analogous to those seen in developing countries and induce a sobering appreciation of the impact of poverty on health.

Internationally, a variety of qualifications in tropical medicine are available. Renowned and widely recognised courses are offered by the Liverpool School of Tropical Medicine (UK), the London School of Hygiene and Tropical Medicine (UK) and the Gorgas Course in Clinical Tropical Medicine (Peru). Other institutions running programmes include Johns Hopkins and Tulane Universities (USA), the Royal Tropical Institute in Amsterdam (the Netherlands), University of the Witwatersrand (South Africa) and the Bangkok School of Tropical Medicine (Thailand).

Academic skills

Some research skills would have been gained during undergraduate degrees and through individual study or participation in academic projects. The ACEM Regulation 4.10 trainee research requirement stipulating completion of a research project or a choice of postgraduate university subjects provides an excellent opportunity to develop academic skills.[19] Particular attention should be given to learning about study design, data gathering and analysis, literature search and review methodologies and effective scientific writing. The academic faculties associated with many training EDs can be valuable in providing resources and guidance in the acquisition of academic skills.

A further important academic skill is that of teaching. Instructing on standardised emergency courses (ALS, APLS, PTC, EMST etc.) is a good way to learn about and practice clinical teaching. The Teaching On The Run (TOTR) programme teaches principles of adult learning and aims to improve the quality of teaching and supervision of trainee doctors and students.[29] It is run nationally in Australia and also has an accredited facilitator training programme. Trainees in EM might

also consider undertaking one of the College's accredited rotations in Medical Education or Simulation, which include training on how to teach adults.[26] Participation at the annual Prevocational Medical Education Forum is a further useful way to familiarise with current issues concerning postgraduate medical education in ANZ.

Conclusion

Engagement with EM in international arenas is an important and rapidly growing area of interest. Many EPs and EM trainees in Australasia are already involved in IEM activities and interested ACEM members number into the hundreds. The development of guidance to skill acquisition and of a coherent approach to project involvement would be useful. Funding and employer flexibility are significant issues to be addressed towards developing an IEM fellowship programme in Australasia, the establishment of which would be welcomed not only to provide training structure but also because it would endorse IEM as a particular field of interest in ANZ. Nevertheless, the knowledge and skills areas core to IEM have been well characterised through study of existing fellowship programmes in the USA. Domestic and international resources for knowledge acquisition in each key area have been provided here and will continue to expand and evolve. Using these resources, it is possible to train for work in IEM today.

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Competing interests

None declared.

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References

1. Arnold JL. International emergency medicine and the recent development of emergency medicine worldwide. *Ann. Emerg. Med.* 1999; **33**: 97–103.
2. International Federation for Emergency Medicine. Current IFEM members. [Cited 6 Nov 2011.] Available from URL: http://www.ifem.cc/About_IFEM/Current_IFEM_Members.aspx
3. Kirsch TD, Holliman CJ, Hirshon JM, Doezema D. The development of international emergency medicine: a role for US emergency physicians and organisations. SAEM International Interest Group. *Acad. Emerg. Med.* 1997; **4**: 996–1001.
4. Anderson PD, Ashkenasy M, Lis J. International emergency medicine fellowships. *Emerg. Med. Clin. North Am.* 2005; **23**: 199–215.
5. World Health Organization. Sixtieth World Health Assembly Resolution 60.22. May 2007 [Cited 6 Nov 2011.] Available from URL: http://apps.who.int/gb/ebwha/pdf_files/WHA60/A60_R22-en.pdf
6. International Federation for Emergency Medicine. Mission & Goals. [Cited 6 Nov 2011.] Available from URL: http://www.ifem.cc/About_IFEM/Mission_and_Goals.aspx
7. Erickson TB, VanRooyen MJ, Werbiski P, Mycyk M, Levy P. Emergency medicine education intervention in Rwanda. *Ann. Emerg. Med.* 1996; **28**: 648–51.
8. Kirsch TD, Hilwig WK, Holder Y, Smith GS, Pooran S, Edwards R. Epidemiology and practice of emergency medicine in a developing country. *Ann. Emerg. Med.* 1995; **26**: 361–7.
9. Baker TD, Weisman C, Piwoz E. United States health professionals in international health work. *Am. J. Public Health* 1984; **74**: 438–41.
10. VanRooyen MJ, Venugopai R, Greenough PG. International humanitarian assistance: where do emergency physicians belong? *Emerg. Med. Clin. North Am.* 2005; **23**: 115–31.
11. VanRooyen MJ, Clem KJ, Holliman CJ, Wolfson AB, Green G, Kirsch TD. Proposed fellowship training program in international emergency medicine. *Acad. Emerg. Med.* 1999; **6**: 145–9.
12. VanRooyen MJ, Townes DA, Hart RG, Willoughby P. International health fellowship: a proposed curriculum for emergency physicians. *J. Emerg. Med.* 1997; **15**: 249–52.
13. Koch-Weser D. International health: academic specialty or humanitarian service? *Am. J. Public Health* 1984; **74**: 430–1.
14. Emergency Physicians International Issue #5. The IEM Fellowship Directory. Fall 2011 [Cited 6 Nov 2011.] Available from URL: http://epinternational.ning.com/
15. Bayram J, Rosborough S, Bartels S *et al.* Core curricular elements for fellowship training in international emergency medicine. *Acad. Emerg. Med.* 2010; **17**: 748–57.
16. Australasian College for Emergency Medicine. Special Interest Group, International Emergency Medicine. [Cited 6 Nov 2011.] Available from URL (for members only): http://www.acem.org.au/members.aspx?docId=29
17. Australian Government. AusAID. About AusAID. [Cited 6 Nov 2011.] Available from URL: http://www.ausaid.gov.au/about/
18. New Zealand Ministry of Foreign Affairs & Trade. About the New Zealand Aid Programme. [Cited 6 Nov 2011.] Available from URL: http://www.aid.govt.nz/about/

19. Australasian College for Emergency Medicine. Training & Examination Handbook. September 2011 Edition [Cited 6 Nov 2011.] Available from URL: http://www.acem.org.au/media/publications/Handbook_2011-09__Sep-11_.pdf
20. Australasian College for Emergency Medicine. Policies & Guidelines. [Cited 6 Nov 2011.] Available from URL: http://www.acem.org.au/infocentre.aspx?docId=59
21. RedR Australia. Training Courses. [Cited 6 Nov 2011.] Available from URL: http://www.redr.org.au/training-service/training-courses.html
22. RedR New Zealand. [Cited 6 Nov 2011.] Available from URL: http://www.redr.org.nz/
23. The Harvard Humanitarian Initiative. Humanitarian Studies Initiative; Humanitarian Studies Course. [Cited 6 Nov 2011.] Available from URL: http://www.humanitarianstudiescourse.org/
24. Emergo Train System. [Cited 6 Nov 2011.] Available from URL: http://www.emergotrain.com/
25. Supercourse. Epidemiology, the Internet and Global Health. University of Pittsburgh [Cited 6 Nov 2011.].Available from URL: http://www.pitt.edu/~super1/
26. Australasian College for Emergency Medicine. Special Skills Posts approved for Non-ED Training. Updated October 2011 [Cited 6 Nov 2011.] Available from URL: http://www.acem.org.au/media/docs/Accredited_Special_Skills_Posts.pdf
27. The International Emergency Department Leadership Institute. [Cited 6 Nov 2011.] Available from URL: http://www.iedli.org/
28. Carapetis JF, Wolff DR, Currie BJ. Acute rheumatic fever and rheumatic heart disease in the top end of Australia's Northern Territory. *Med. J. Aust.* 1996; **164**: 146–9.
29. The University of Western Australia. Teaching On The Run. Faculty of Medicine, Dentistry and Health Sciences. [Cited 6 Nov 2011.] Available from URL: http://www.meddent.uwa.edu.au/teaching/on-the-run