Postgraduate training in global emergency care: international experience and potential models for Australasia

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2014 Churchill Fellow

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Rob Mitchell
17 April 2015
The newly trained global health-competent physicians will not only have improved clinical skills and knowledge, but will be better equipped to serve the populations of our country and, indeed, of the world.
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- Alex Markwell, Director of Emergency Medicine Training at the Royal Brisbane and Women’s Hospital, who has been a thoughtful advisor throughout my EM training and assisted with the application for this project
- Rebecca Iser, my fiancée, who was an exuberant travel companion and navigator extraordinaire

Undertaking this Churchill Fellowship was a wonderful experience. I had the opportunity to meet many inspiring individuals who are involved with highly innovative global emergency care (GEC) projects across the globe. I am humbled and honoured to have met such incredible people, and to have been welcomed into their communities.

I hope that this report, in some small way, contributes to our understanding of what constitutes safe and effective global health training. In particular, I hope it inspires the development of a career pathway for Australasian clinicians committed to global equity in emergency care. This is in the interests of a highly skilled GEC workforce, and improved healthcare access and outcomes for acutely unwell patients, wherever in the world they may be.

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Executive summary

Global emergency care (GEC) is a subset of global health (GH) concerned with acute and urgent aspects of illness and injury. The discipline is centred on capacity development for emergency care (EC) services, but also includes aspects of disaster health and humanitarian assistance.

As the burden of non-communicable disease and injury grows in low- and middle-income countries (LMICs), demand for EC services is increasing. This has catalysed the global expansion of emergency medicine (EM) as a specialist discipline, which is now recognised in over 40 countries. International emergency medicine (IEM) is the sub-specialty of EM concerned with global EM development and the broader field of GEC.

Clinicians involved in GEC activities require skills, knowledge and attributes that may not be acquired in the course of a conventional health professional education. IEM training programs have emerged to equip emergency physicians (EPs) with the competencies required for EC practice in international and cross-cultural environments.

In the United States of America (USA), EPs have the option of undertaking an IEM fellowship following completion of specialty training. These programs provide an opportunity for junior specialists to rapidly develop skills and experience in GEC. Fellowships typically last 12-24 months, during which participants undertake a range of activities including domestic clinical practice, overseas fieldwork, research and postgraduate studies in public health and/or tropical medicine. GEC career pathways are not as well established in the United Kingdom (UK) and Canada.

This project reviewed models of IEM training in these countries with a view to informing the development of a GEC training pathway in Australasia. A literature review was performed alongside a series of interviews at institutions with experience in IEM training and GH education more broadly.

There are many strengths to the IEM fellowship model as it has evolved in the USA. The most valuable components of these programs include opportunities for mentoring and role-modelling; supervised and supported clinical experiences in diverse settings; observation of experienced IEM practitioners working in the field; immersion in successful GEC projects; participation in academic activities such as teaching and research; grant writing in collaboration with senior faculty members; and funding models that support a salary for the fellow. Areas for further development include enhanced coverage of certain curriculum components and greater emphasis on community-facing outcome measures.

While the North American fellowship model is appealing, healthcare and medical education structures differ greatly between the USA, Australia and New Zealand and it is not clear that discrete, department-based, post-specialisation fellowships represent the best option for the Australasian context. Few local emergency departments are likely to be able to support
fellowship programs akin to those in the USA because of the requirement for a critical mass of international projects and faculty.

Other factors to be considered in the development of an Australasian pathway include the absence of formal recognition and credentialing arrangements for EM sub-specialties and the potential value in a multi-disciplinary approach. Ideally, any model would also be adaptable to other specialties looking to develop GH training pathways.

For these reasons, this report proposes a centralised model that leverages off the significant number of EC clinicians and projects brought together by the Australasian College for Emergency Medicine (ACEM) International Emergency Medicine Network (IEMN). This would maximise educational value and enhance sustainability. An important first step would be to define GEC competencies relevant to local systems and regional priorities.

A single, longitudinal fellowship program could be developed that provides access to mentoring, supervised fieldwork, research opportunities and didactic education. In relation to the latter, a GEC short course could be developed in conjunction with the annual International Emergency Care Symposium (IECS). Course convenors could apply for this to be recognised towards existing public and international health degree programs. Over time, a standalone degree (such as a Postgraduate Certificate or Diploma in GEC) could be developed that brings together many of the training experiences currently incorporated in IEM fellowship programs in the USA.

This model is practically feasible, and would give ACEM trainees and fellows the opportunity to participate at any stage of their training. It would also allow participation by other health professionals, including nurses and paramedics.

Roll-out of this type of program would provide a pathway for recognising and credentialing those clinicians who are actively engaged in GEC activities. It would enhance the academic profile of GEC in Australia, and potentially assist with GEC development projects in collaboration with overseas partners.

Alongside development of a training pathway, other mechanisms to enhance Australasia’s contribution to GEC are recommended. For instance, ACEM should investigate the feasibility of launching an international consulting and project management service focussed on GEC development. This would create a mechanism for aid agencies, donors and governments to commission advice, research and projects from experienced GEC practitioners. Any revenue derived from elements of this service could supplement other GEC development activities co-ordinated through the IEMN, as well as the GEC training program. A regionally relevant GEC research agenda should also be developed to establish priority areas and enhance co-ordination.

Implementation of these recommendations will allow Australasian GEC clinicians to develop the skills, knowledge and attributes to work with international partners to improve emergency care systems. This will enhance Australasia’s capacity to contribute to regional development, and positively impact on the global burden of disease attributable to acute illness and injury.
Introduction

Global health training

Global health practice

Global health (GH) is an area of study, research and practice that places a priority on improving health and achieving health equity for all. It emphasises transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences; and synthesises population-based prevention with individual-level clinical care.\(^2\)

Although global health is firmly established as an academic discipline in its own right,\(^3,4\) the principles of GH practice apply to each and every field of healthcare. Countries are interdependent in all aspects of health, and there is increasing recognition that international co-operation and co-ordination are required to tackle global disease threats.\(^5,6\) The concepts of mutuality and co-development have emerged to describe countries working in partnership to strengthen health systems and improve health outcomes.\(^5\)

Clinicians working in GH require skills, knowledge and attributes that may not be acquired in the course of a conventional health professional education. This has given rise to the concept of global health training, a process by which health professionals develop the competencies necessary for practice in international and cross-cultural environments.\(^1,7\)–\(^11\) Some of these are generic, but others are discipline-specific.\(^8,11,12\)

Training pathways

Pathways to GH practice are poorly defined.\(^10,13,14\) Although GH is multidisciplinary, much of the work to date integrating GH training and clinically based health professional education has occurred in medicine.

It is increasingly acknowledged that all medical students should have a foundation understanding of GH principles, irrespective of their career intentions. Core global health competencies have been defined, and relate to topics such as the global burden of disease, the social and economic determinants of health and the health impacts of globalisation.\(^11\)

Much of the innovation in GH training has taken place in North America, where primary and specialist medical education programs increasingly provide opportunities for students and trainees to undertake rotations abroad.\(^1,8\)–\(^11,15\)–\(^17\) More mature programs incorporate a broader range of GH learning activities, including teaching in public and international health as well as participation in research projects.

A growing number of post-specialisation GH training opportunities are also available in North America. These typically take the form of fellowship
programs, which are generally undertaken immediately after specialty training and last at least 12 months.\textsuperscript{18} Although GH is not exclusively concerned with low- and middle-income countries (LMICs), most clinically oriented GH training programs have a focus on resource-limited environments.

The evolution in GH training is in keeping with a broader movement towards greater social accountability in medical education, including the development of networks of training institutions that specifically prioritise health equity objectives.\textsuperscript{19–24} In support of this trend, a recent \textit{Lancet} commission has called for greater emphasis on transformative and interdependent learning in order to produce health professionals who are equipped to face the global challenges of the 21st century.\textsuperscript{6}

\textbf{Australasian experience}

As with most parts of the world, there is limited integration in Australasia between GH training and medical education.\textsuperscript{14} Although medical schools are increasingly incorporating GH curricula and experiences into their programs, there has been little progress at a postgraduate level. Only recently has one College Faculty drafted a specific GH curriculum,\textsuperscript{25} and opportunities for accredited training in LMICs are relatively rare.\textsuperscript{14} There is however increasing national discussion around the value of GH experiences during specialty training.\textsuperscript{26}

An example of innovation in this area is a partnership between the Royal Australasian College of Physicians and Médecins Sans Frontières (MSF), which allows infectious diseases registrars to undertake a 12-month capacity building placement in a tuberculosis control project in Uzbekistan. Through a remote supervision arrangement, trainees are able to have six months accredited towards their non-core training.\textsuperscript{27}

Among Australasian medical colleges, the Australasian College for Emergency Medicine (ACEM) has been relatively progressive in supporting trainees to undertake accredited rotations in resource limited settings. These opportunities are discussed below.

\textbf{Benefits and risks}

While some aspects of GH training can be undertaken in high-income settings, many trainees will eventually seek practical clinical experiences, including international placements. Although rotations abroad are just one component of a comprehensive GH education, they are the most highly valued. The potential benefits of placements in resource-limited environments are well described in the literature, and are summarised in \textbf{Table 1}.\textsuperscript{1,7,14}
Table 1: Potential benefits associated with international rotations and global health training

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Benefit</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Host community</strong></td>
<td>Education and training</td>
<td>• Clinical and non-clinical education delivered by visiting doctors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Knowledge exchange between trainees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Resources for enhanced training and supervision provided by Australian partners</td>
</tr>
<tr>
<td><strong>Research capacity</strong></td>
<td></td>
<td>• Enhanced capabilities based on mutually beneficial partnerships</td>
</tr>
<tr>
<td><strong>Systems enhancement</strong></td>
<td></td>
<td>• Systems improvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Additional workforce via a visiting trainee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development of long-term, mutually beneficial relationships</td>
</tr>
<tr>
<td><strong>Australian community</strong></td>
<td>Improved standards of healthcare</td>
<td>• Complex health care delivered by clinicians with improved clinical, cultural and sociopolitical awareness</td>
</tr>
<tr>
<td></td>
<td>More equitable healthcare</td>
<td>• Service delivery targeted at disadvantaged populations</td>
</tr>
<tr>
<td><strong>Trainee</strong></td>
<td>Personal development</td>
<td>• Improved cultural safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Enhanced personal awareness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Opportunities for leadership</td>
</tr>
<tr>
<td><strong>Professional development</strong></td>
<td></td>
<td>• Exposure to different pathology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Refinement of diagnostic skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Appreciation of unique challenges within different healthcare systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rationalisation of healthcare resources</td>
</tr>
<tr>
<td><strong>Training institution and health service</strong></td>
<td>Enhanced clinical practice</td>
<td>• New skill and knowledge sets that can be applied locally</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Systems improvement based on experience abroad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Greater exposure to inter-professional training and practice</td>
</tr>
<tr>
<td><strong>Recruitment and retention</strong></td>
<td></td>
<td>• Attract and retain trainees with an interest in GH</td>
</tr>
<tr>
<td><strong>Mutually beneficial partnerships</strong></td>
<td></td>
<td>• Establishment of international exchanges, offering new training, clinical improvement, and research opportunities</td>
</tr>
</tbody>
</table>

Adapted from Mitchell et al.14
Despite their potential benefits, GH placements are not without risk to the host (or receiving) community, the trainee and their training institution (Table 2). Similar issues apply to short-term medical missions undertaken outside of mature and sustainable partnerships, a phenomenon commonly referred to as ‘voluntourism’. The potential for harm means that programs must be carefully designed and implemented. A variety of guidelines and educational resources have been developed to assist trainees and training institutions in managing their responsibilities, including recommendations from the Working Group on Ethics Guidelines for Global Health Training (WEIGHT). Host communities are vulnerable, but implementation of risk management strategies, appropriate pre-departure training and observance of ethical principles can ameliorate the potential for harm.

Table 2: Potential risks associated with international rotations and global health training

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Risk</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host community</td>
<td>Inequitable partnership</td>
<td>• Lack of involvement in decision making</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Focus shifted away from service delivery</td>
</tr>
<tr>
<td>Unacceptable and unethical practices</td>
<td></td>
<td>• Unsafe practice as a result of inexperience, inadequate supervision and unfamiliarity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Culturally unsafe practice resulting in psychological harm to patients</td>
</tr>
<tr>
<td>Human capital displacement</td>
<td></td>
<td>• Displacement of local trainees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Local health workers emigrating to Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Disincentive to invest in a local workforce</td>
</tr>
<tr>
<td>Trainee</td>
<td>Sub-optimal training</td>
<td>• Inadequate supervision or educational support</td>
</tr>
<tr>
<td>Physical and mental health</td>
<td></td>
<td>• Communicable disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Volatile environments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Limited support networks</td>
</tr>
<tr>
<td>Financial stress</td>
<td></td>
<td>• Loss of income and entitlements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Travel expenses</td>
</tr>
<tr>
<td>Training institution/health service</td>
<td>Financial loss</td>
<td>• Loss of set-up costs if partnership fails</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Opportunity cost</td>
</tr>
<tr>
<td></td>
<td>Liability</td>
<td>• Potential legal proceedings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Damage to reputation</td>
</tr>
</tbody>
</table>

Adapted from Mitchell et al.14
Global health and emergency care

International emergency medicine

Emergency medicine (EM) is the medical specialty primarily concerned with acute and urgent aspects of illness and injury. The discipline emerged approximately 40 years ago in the USA, Canada, Australia, Singapore, Hong Kong and the UK alongside significant improvements in emergency department (ED) functioning.⁴²

The scope of EM practice has been defined by the International Federation of Emergency Medicine (IFEM), an organisation founded in 1989 to promote international “interchange, understanding and co-operation among physicians practicing emergency medicine”;⁴³

> Emergency medicine is 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 prehospital and inhospital emergency medical systems and the skills necessary for this development.⁴³

Global trends of urbanisation, increased population density, changing demographics and a rising incidence of non-communicable disease and injury have prompted governments across the world to improve emergency care services. This has resulted in exponential growth in the number of countries that formally recognise EM as a medical specialty.⁴²

In response to this demand, international emergency medicine (IEM) has emerged as a sub-specialty of EM focussed on emergency care in overseas settings.⁴²,⁴⁴–⁴⁶ Although IEM been defined as “the area of emergency medicine concerned with the development of emergency medicine in other countries”,⁴⁶ the term is commonly used in relation to a wide range of global emergency care activities.

A significant number of national EM associations have established IEM forums and special interest groups. Examples include the American College of Emergency Physician’s (ACEP) International Emergency Medicine Section (one of the largest within ACEP)⁴²,⁴⁷ and the Royal College of Emergency Medicine’s International Committee⁴⁸. Although a number of international EM networks have also emerged,⁴⁹–⁵¹ IFEM remains the pre-eminent organisation concerned with the global development of EM as a medical specialty.
Global emergency care

EM sits within the broader field of emergency care (EC), an area that encompasses clinical service provision, capacity development and health systems strengthening for acute and urgent aspects of illness and injury. The central focus of EC is reducing preventable morbidity and mortality from time-sensitive disease processes through integrated systems of care in the community, during transportation and in hospitals.

Consistent with this objective, emergency care is delivered in a wide variety of settings by a large number of health professionals, including doctors, nurses, paramedics and medical assistants. Unlike most disciplines in health, EC is horizontal in that it integrates vertical silos of care.

Global emergency care (GEC) expands the definition of EC by incorporating the transnational aspects of disease and healthcare, the synthesis of public health and clinical care, and the pursuit of equity across populations. It is a subset of GH, in the same way as maternal health, child health and mental health are discrete fields of healthcare requiring global action and coordination. GEC practice encompasses all aspects of emergency care, including clinical service, teaching and training, systems development, quality improvement, leadership, advocacy and research.

GEC has been conceptualised to include development activities (ie, capacity building for emergency care systems) as well as aspects of disaster health and humanitarian assistance. The relationship between these inter-related disciplines is shown in Figure 1.

**Figure 1: Relationship of GEC with disaster health and humanitarian assistance**

Adapted from Phillips et al.

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This report favours GEC (rather than IEM) to describe the GH discipline concerned with global equity in EC access and outcomes. It is a more inclusive term, which emphasises that EC is team-based and multidisciplinary in nature; is relevant in community settings as well as hospitals; and is essential irrespective of whether EM exists as a specialty medical discipline. IEM remains an accurate descriptor of the subspecialty of EM concerned with EM development in other countries, but GEC speaks to a broader field of healthcare requiring multi-disciplinary engagement and solutions.

The value of EC in developing settings

Historically, development of EC capacity has not been a focus for healthcare systems in LMICs. This reflects that there are many competing interests for scarce health resources and, consistent with the Alma-Ata declaration,55 governments have generally prioritised public health activities over acute care services.53,56 Unfortunately, the need for urgent healthcare persists despite investments in preventative care.

Early medical intervention is advantageous in a large number of illnesses and injuries, including many of the leading causes of death and disability in LMICs (Table 3).57,58 There is particularly strong evidence for non-communicable diseases (NCDs) and trauma, which are growing as a proportion of disease burden in developing countries.53 The concept of EC as a public health strategy for secondary disease prevention is also gaining favour.53,59

<table>
<thead>
<tr>
<th>Causes of death</th>
<th>Causes of DALYs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>Lower respiratory infections</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>Perinatal conditions</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>Meningitis</td>
</tr>
<tr>
<td>Perinatal conditions</td>
<td>Diarrhoeal diseases</td>
</tr>
<tr>
<td>COPD</td>
<td>Unipolar depressive disorders</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>Ischaemic heart disease</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>Malaria</td>
</tr>
<tr>
<td>Road traffic accidents</td>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td>Malaria</td>
<td>Road traffic accidents</td>
</tr>
</tbody>
</table>

The causes of death and DALYs for which there is evidence of a mortality benefit related to early intervention are shown in bold.

Adapted from Razzak and Kellermann.58

Globally, many of the leading causes of death attributable to communicable diseases are also amenable to treatment with simple and affordable interventions. For instance, pneumonia, gastroenteritis and malaria (three
major contributors to global childhood mortality) can all be effectively managed in resource-limited settings with basic EC infrastructure.

Beyond individual diseases, there is evidence that implementing systems of EC can improve outcomes and enhance efficiency. A landmark study in Malawi showed that training staff in emergency skills, introducing triage and improving patient flow substantially reduced mortality and maximised throughput. Functional EC systems also build resilience, allowing for greater responsiveness in times of increased need.

In recognition of the value of EC in LMICs, the World Health Assembly has called on governments to enhance access to emergency care services (Box 1). This has further stimulated international discussion around the most efficient and effective means of improving the quality of emergency care in resource-limited environments.

Box 1: Excerpt from World Health Assembly resolution 60.22

The Sixtieth World Health Assembly,

RECOGNIZING that each year worldwide more than 100 million people sustain injuries, that more than five million people die from violence and injury, and that 90% of the global burden of violence and injury mortality occurs in low- and middle-income countries;

RECOGNIZING that improved organization and planning for provision of trauma and emergency care is an essential part of integrated health-care delivery, plays an important role in preparedness for, and response to, mass-casualty incidents, and can lower mortality, reduce disability and prevent other adverse health outcomes arising from the burden of everyday injuries;

CONSIDERS that additional efforts should be made globally to strengthen provision of trauma and emergency care so as to ensure timely and effective delivery to those who need it in the context of the overall health-care system, and related health and health-promotion initiatives.

Source: World Health Organization

GEC and international development priorities

The concept of GEC is still gaining traction in GH and international development circles. Although the value of acute humanitarian assistance and disaster response is widely acknowledged, donor resourcing of sustainable GEC development activities has been relatively limited.
This reflects that the Millennium Development Goals (MDGs) framework has predominantly driven investments in vertical programs and discipline silos, partly at the expense of horizontal strategies that focus on the health system as a whole. Attainment of the MDGs relies on functional EC systems, but policy makers and donors have been slow to acknowledge this.\(^{52}\)

There is increasing recognition of the need for health systems strengthening initiatives, including broad-based programs that enhance the capacity of primary and secondary healthcare providers to address acute health issues at the point of need.\(^{68}\) In fact, it is likely that the post-2015 Sustainable Development Goals (SDGs) will include a focus on road traffic accidents and NCDs, substance abuse, mental health, equity of access and human resources for health.\(^{69}\)

Limiting death and disability due to acute illness and injury is an important part of any strategy that aims to strengthen a health system and enhance community development. The value proposition for EC in developing settings is well summarised in the following quote from Kobusingye et al.:

> *Emergencies occur everywhere, and each day they consume resources regardless of whether there are systems capable of achieving good outcomes. With better planning, the ongoing costs of emergency care can result in better outcomes and better cost-effectiveness. Every country and community can and should provide emergency care regardless of their place in the ratings of developmental indices.*\(^{67}\)

Disaster health and humanitarian assistance

Although disaster health and humanitarian assistance (HA) are discrete disciplines, they intersect with GEC. This reflects an inextricable relationship between the strength of a country’s health system and its capacity to respond to natural and man-made disasters. In fact, whether or not a hazard (such as an extreme weather event) results in a disaster is partly determined by the capability of EC systems to address urgent healthcare needs.\(^{52}\)

There are also practical reasons for the linkages between GEC development and disaster health and humanitarian assistance. EC professionals possess many qualities that are critical in humanitarian emergencies, including generalist medical knowledge and the capacity to function in volatile and stressful environments. In addition, the requirement for international assistance following a disaster can lead to longer-term EC development projects, particularly in relation to disaster preparedness and surge capacity.\(^{70}\)

The place of EC clinicians in the field of humanitarian assistance has been clearly articulated by VanRooyen et al.:
“With proper training in the principles of public health and experience, EPs have a tremendous opportunity to affect the realm of international HA, particularly via the analysis and development of international emergency health systems and building the capacity for effective relief. EPs with training in HA can be valuable assets to relief programs in the field and administratively, especially after the initial disaster and during the transition to health system reconstruction and development.”

Recent events have highlighted deficiencies in the capacity of the international community to safely and effectively respond to international disasters. Some reviews have highlighted issues in accountability, professional ethics and standards of care, leading to calls for more comprehensive training for humanitarian workers, stronger credentialing processes and increased professionalisation of foreign medical teams (FMTs). This has catalysed the development of standards for FMTs responding to international emergencies.

Combined with the effects of climate change and the increasing frequency of natural disasters, these factors mean that there is growing demand for EC workers trained in HA and disaster response.

GEC in Australasia

Australia and New Zealand are two of few nations in the Western Pacific Region with well-developed EC infrastructure. Consistent with trends in other parts of the world, there is increasing demand for the development of EC systems in a range of countries within close proximity of Australasia.

Although GEC is multi-disciplinary, ACEM has played a lead role in bringing together individuals and organisations interested in GEC development. The College’s International Emergency Medicine Committee (IEMC) and Network (Network) have recently replaced the ACEM International Emergency Medicine Special Interest Group (IEMSIG), which was established in 2004 as a mechanism for sharing knowledge and experience in IEM. The ACEM Foundation also has a strong interest in supporting international EM activities, principally through the ACEM International Development Fund. The newly formed IEMC will advise the College and Foundation on all matters related to IEM, with administrative support provided by ACEM staff.

For many years, IEMSIG has regularly published newsletters describing the contributions of ACEM trainees and fellows to GEC initiatives. High-profile projects include the development of postgraduate EM training in Myanmar and Fiji, long-term capacity building programs in Papua New Guinea and Nepal, and the delivery of acute care short courses in Sri Lanka and Mongolia. The College has recently been approached by the Department of Foreign Affairs and Trade to provide advice on ED functioning in the Solomon Islands, but a long-term capacity building project has not yet been funded.
A majority of these initiatives have been developed and co-ordinated by individual or small groups of clinicians, often acting in a voluntary capacity. Some projects have benefited from a limited amount of administrative support provided through the IEMSIG secretariat, and a partnership between the College and Australian Volunteers International has facilitated some funding for volunteer positions in Papua New Guinea and Myanmar. A few Australasian EDs have created IEM portfolios and/or appointed Directors of International Programs, but these are not commonplace. As yet, there are no university based academic centres or institutions exclusively focussed on GEC.

There are more resources available to support disaster response. The capacity of Australia and New Zealand to provide assistance following regional disasters has recently been enhanced through the centralisation of training and deployment processes for Australian and New Zealand Medical Assistance Teams. In the last 18 months, for example, the National Critical Care and Trauma Response Centre in Darwin has facilitated deployments to the Philippines, the Solomon Islands and Vanuatu.

A large number of individuals and non-government organisations (NGOs) in Australasia are involved with humanitarian assistance. ACEM trainees and fellows tend to contribute to HA missions in a private capacity, typically through groups such as MSF and the International Committee of the Red Cross (ICRC). The Australian Government has also provided funding to a private organisation to assist with the Ebola response in West Africa, facilitating the recent deployment of Australian clinicians to Sierra Leone.

Despite this activity, IEM is not acknowledged in Australasia as sub-specialty of EM, but this reflects that there is no current mechanism whereby ACEM recognises sub-specialty fields. This may evolve in coming years, with disciplines such as toxicology and pre-hospital and retrieval medicine (PHaRM) advocating for formal acknowledgement as EM subspecialties. The relevant special interest groups are developing competency statements and credentialing processes for this purpose.

Training in global emergency care

International experience

Consistent with the availability of GH training in other disciplines, the United States of America offers a large number of educational opportunities focussed on GEC. Most of these are only available to medical graduates and are therefore badged as IEM (as opposed to GEC) programs.

At the specialty training level, an increasing number of programs offer GEC experiences during residency. However, given the density of EM training, overseas rotations tend to be short (ie, generally no more than three months and often less than four weeks).
Most of the opportunities for postgraduate GEC training are formalised through IEM fellowship programs, which are undertaken by emergency physicians following completion of specialty training. Fellowship programs typically last 12-24 months, during which participants undertake a range of activities including domestic clinical work, overseas field activities, operational research and postgraduate studies in public health and/or tropical medicine.\(^{88–92}\)

Fellowships that host physicians from other countries in the USA are relatively rare. Although a curriculum for “observational” IEM fellowships has been proposed, this model has not been widely taken up.\(^{93}\) While extremely valuable, these programs are beyond the scope of this review.

The various models of IEM training in the USA are discussed in detail in the results section below. Pathways to GEC practice are not as well established in other countries.

**Australasian experience**

The competencies required for GEC practice in Australasia have not yet been defined. There is no formal pathway that allows EC clinicians to develop the relevant knowledge, skills and attributes,\(^{94}\) however Sistenich has described how ACEM trainees and fellows can acquire these through local courses and regional activities.\(^{54}\)

Among Australasian Colleges, ACEM has been relatively progressive in supporting trainees to undertake accredited rotations in resource-limited settings. IEMSIG (now IEMN) newsletters frequently highlight the opportunities available to EM registrars, and trainees have provided reflections on accredited rotations in Papua New Guinea, Nepal and, through MSF, in South Sudan.\(^{75}\) Among these, the Visiting Clinical Lecturer Program in Madang, Papua New Guinea stands out as an example that delivers a rich IEM educational experience in the context of an established capacity building project.\(^{80}\) This placement is now formalised as part of the Australian Government’s Australian Volunteers for International Development scheme.\(^{95}\)

Theoretically, ACEM trainees can undertake up to 12 months worth of special skills terms (SSTs) in resource limited environments, which is an important difference with EM training systems in the UK, Canada and USA. This reflects that the overall length of postgraduate EM specialty training in Australasia is longer than in North America (seven versus three to five years).

Despite reasonable access to overseas placements, the process of seeking prospective approval for training overseas is not without its challenges.\(^{96}\) For this reason, the IEMC is developing a guideline for SSTs in GH & IEM. It is expected that this document will clarify supervision requirements and clearly define the expectations of trainees, supervisors and host organisations.

In the mean time, the College has produced application guidelines for the Visiting Clinical Lecturer Program in Madang\(^{95}\) and similar documents may appear for other ongoing rotations in Asia and the Pacific. EMA has also
published a checklist for trainees interested in undertaking terms in resource limited environments.\textsuperscript{94}

**Demand for GEC training in Australasia**

Despite these positive developments, the demand among EM trainees for IEM training experiences has not been quantified. There is only surrogate evidence of interest through trainee take-up of established rotations in Nepal and PNG, deployments with organisations such as MSF and attendance at relevant conferences (such as DevelopingEM\textsuperscript{97} and the International Emergency Care Symposium\textsuperscript{98}).

It is likely that that interest in this area will continue to grow. At university level, there is extensive evidence of GH engagement, with increasing membership of global health groups\textsuperscript{99} and rising attendance at the annual Australian Medical Students’ Association Global Health Conference.\textsuperscript{100} Interns and residents are also accessing global health learning and networking activities, such as the Global Health Gateway (an online resource) and Global Health Connect (an experience-sharing forum in Sydney and Melbourne).

As is the case overseas,\textsuperscript{1,7} one of the challenges for globally minded ACEM trainees and fellows is remaining engaged during their registrar and early consultant years. Even if opportunities arise, trainees face difficulties engaging in international emergency placements because of the competing demands of clinical training, exams, research and domestic commitments. Addressing these barriers is part of the challenge in creating training pathways for clinicians interested in GEC.

Not all EM clinicians with an interest in GEC will want to pursue additional qualifications, and there will only be a relatively small pool of individuals who aspire to become ‘sub-specialists’ in IEM. Although the fields of GEC, humanitarian assistance and disaster response are becoming increasingly professionalised, there are still many opportunities for participation. Figure 3 illustrates that demand for higher level IEM training is likely to be limited to a small number of people, but all ACEM fellows should have an understanding of GH principles.
Next steps

Despite the opportunities currently available to ACEM trainees and fellows, there is no defined path for those interested in pursuing GEC as a substantial component of their practice. Some may be satisfied with an informal approach to their GEC skills development, but others may be looking for more comprehensive postgraduate education. Opportunities are even more limited for other health professionals involved in the delivery of EC.

The 2014 International Emergency Care Symposium (IECS) in Melbourne facilitated a range of discussions on the future of GEC in Australasia, including the potential value in a more explicit training pathway (such as a local IEM fellowship for ACEM fellows, analogous to the USA model). Attendees were very supportive of this direction, but didn't want formalised training to become a barrier to participation in GEC activities.

This review was designed to evaluate models of postgraduate GEC training in the USA, Canada and the UK, with a view to building a pathway appropriate for Australasia. Although its development is likely to occur gradually over time, the findings of this project will hopefully inform the design and implementation process.
**Methods and program**

This project comprised a literature review as well as a series of interviews across three countries as well as Australasia. Ethics approval was not required. Although GEC is multi-disciplinary, this review was confined to medical training programs.

**Literature review**

A literature review was conducted to identify articles relevant to the research question. PubMed was searched for the keywords ‘international emergency medicine’ and ‘training’ as well as ‘global emergency care’ and ‘training’. Results were limited to English. Reference lists were scanned for relevant and accessible articles, book chapters and grey literature.

**Interviews**

The main focus of this review was the United States of America. A sample of institutions involved with IEM was selected from across the country in order to gain a cross-section of experience. Interviews were also undertaken in the UK and Canada in order to compare approaches. In these countries, more diverse organisations were selected given that IEM training is less well developed.

In advance of each interview, participants were sent a list of potential questions in order to frame the discussion. A sample interview guide used in the USA is provided at Appendix A. Interviews were predominantly conducted between November 2014 and January 2015.

**Program of visits**

The following individuals kindly made themselves available for interviews:

**United States of America**

**Department of Emergency Medicine, School of Medicine, Stanford University**

- Swaminatha Mahadevan, Emergency Physician and Director, Stanford Emergency Medicine International
- Peter Acker, Emergency Physician and 2013 IEM Fellow
- Rebecca Walker, Emergency Physician and 2009 IEM Fellow

**Department of Emergency Medicine, College of Medicine, University of Arizona**

- Brad Dreifuss, Director of Rural and Global Programs [also Director of Research, Global Emergency Care Collaborative]
Department of Emergency Medicine, School of Medicine & Health Sciences, George Washington University
• Kate Douglass, Director, IEM and Global Public Health Fellowship Program [also Vice Chair, International Emergency Medicine Fellowship Consortium]

Department of Emergency Medicine, School of Medicine, University of Maryland
• Terry Mulligan, Director, International Emergency Medicine Program [also Board Member, International Federation for Emergency Medicine and African Federation for Emergency Medicine]
• Jon-Mark Hirshon, Associate Professor [also Board Member, American College of Emergency Physicians]
• Walid Hammad, Clinical Assistant Professor, Section for Global Emergency Health

Department of Emergency Medicine, College of Medicine, Pennsylvania State University
• James Holliman, Professor of Emergency Medicine [also Professor of Military and Emergency Medicine, Uniformed Services University of the Health Sciences and President, International Federation of Emergency Medicine]

Department of Emergency Medicine, Brigham and Women’s Hospital
• Stephanie Kayden, Chief, Division of International Health and Humanitarian Programs [also Former Director, IEM Fellowship Program]

Harvard Humanitarian Initiative, Harvard University
• Michael VanRooyen, Director [also Interim Chair and Former Chief, Division of International Health and Humanitarian Programs, Department of Emergency Medicine, Brigham and Women's Hospital]

Department of Emergency Medicine, School of Medicine, Yale University
• Hani Mowafi, Chief, Section of Global Health & International Emergency Medicine and Director, GH & IEM Fellowship Program

Department of Emergency Medicine, Weill Cornell Medical College, Cornell University
• Satchit Balsari, Chief, Global Emergency Medicine Division

Department of Emergency Medicine, Alpert Medical School, Brown University
• Adam Levine, Director, Global Emergency Medicine Fellowship Program [also Chair, International Emergency Medicine Fellowship Consortium]
Canada
The 53rd Week
- Lawrence Loh, Co-Founder and Director of Programs [also Public Health Physician, Public Health Ontario and Immediate Past Deputy Chair, World Medical Association Junior Doctors Network]

Department of Emergency Medicine, School of Medicine, University of Toronto
- James Maskalyk, Emergency Physician & Program Director, Toronto Addis-Abba Academic Collaboration in Emergency Medicine

Bridge to Health
- William Cherniak, Co-Founder and Director [also Emergency Physician, Rouge Valley Health System and Markham-Stouffville Hospital and Lecturer, University of Toronto]

United Kingdom
Humanitarian and Conflict Response Institute, Manchester University
- Tony Redmond, Deputy Director [also Professor of International Emergency Medicine, Manchester University Medical School and Director, UK International Emergency Trauma Register]
- Amy Hughes, Clinical Academic Lecturer

College of Medical and Dental Sciences, University of Birmingham
- Abi Merriel, Research Fellow [also Former Deputy Chair, International Committee, British Medical Association]

Department of Emergency Medicine, Chelsea and Westminster Hospital, Chelsea and Westminster Hospital NHS Foundation Trust

Royal College of Emergency Medicine
- Ruth Brown, Chair, International Committee [also Emergency Medicine Consultant, St Mary’s Hospital, Imperial College Healthcare NHS Trust]

Intercollegiate Global Health Junior Doctors Working Group
- Colin Brown, Member [also Infectious Diseases Registrar, Hospital for Tropical Diseases and Research Fellow, Public Health England]
- Jennifer Hall, Member [also PhD Candidate, University College London and Public Health Physician]
- Clare Shortall, Member [also Vice President, Alma Mata Global Health Graduates Network]
Australasia

ACEM International Emergency Medicine Committee

- Gerard O’Reilly, Chair [also Emergency Physician and Head of International Programs, Emergency and Trauma Centre, Alfred Hospital]
- Georgina Phillips, Deputy Chair [also Emergency Physician and Coordinator of International Programs, Department of Emergency Medicine, St Vincent’s Hospital Melbourne]

In addition to these individuals, a breakout session focussed on the need for an IEM Fellowship in Australasia was held at the 2014 IECS. This generated a significant amount of discussion, and the outcomes have informed this report.
Results

The search strategy initially identified 44 articles, all of which were reviewed. A screen of reference lists identified a number of other articles relevant to GEC, IEM and GH training more broadly. These have been incorporated into the report where appropriate.

Information obtained from the literature review has been integrated with the results of interviews. Examples of good practice, based on information obtained at interview, are highlighted where appropriate. A small number of quotes from interviewees are also included.

United States of America

Medical education and training structures

All medical schools in the USA are postgraduate entry. On completion, graduates commence specialty training in a residency program accredited by the Accreditation Council for Graduate Medical Education (ACGME). There is no prevocational period as in Australasia and the UK.

EM specialty training programs are three or four years in duration. In order to gain recognition as a specialist (attending), candidates must sit board examinations through the American Board of Emergency Medicine.

After completing residency, doctors have the option of undertaking a fellowship in a sub-specialty area. These programs are usually 12 – 36 months in duration. Some fellowships are accredited by the ACGME, but many in EM are not. Programs generally require applicants to be Board-eligible or Board-certified.

More than 20 types of fellowships are available to EM residency graduates, some of which are listed in Table 4. There is greater standardisation among those programs accredited by the ACGME.

<table>
<thead>
<tr>
<th>ACGME accredited</th>
<th>Non-ACGME accredited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency medical services (EMS)</td>
<td>International EM</td>
</tr>
<tr>
<td>Medical toxicology</td>
<td>Disaster medicine</td>
</tr>
<tr>
<td>Paediatric EM</td>
<td>Emergency ultrasound</td>
</tr>
<tr>
<td>Hyperbaric medicine</td>
<td>EM research</td>
</tr>
<tr>
<td>Sports medicine</td>
<td>Health policy</td>
</tr>
</tbody>
</table>

Source: ACGME

Table 4: Examples of fellowship programs available to EM residency graduates
Postgraduate global health training

As discussed in the introduction, much of the innovation in GH training has taken place in the USA. A large number of residency programs include GH themes in their curricula, and a number of specialty areas offer GH focussed fellowships. A guidebook has been specifically developed to assist educators to incorporate GH opportunities into training programs.

The volume of training opportunities available in the USA reflects a substantial amount of academic GH infrastructure. The country is home to world’s first and largest school of international health, which was founded at Johns Hopkins University in 1961. In relation to GEC, several universities have postgraduate schools and research centres dedicated to humanitarian affairs and disaster response; examples include the Harvard Humanitarian Initiative and the Center for Refugee and Disaster Response in the Bloomberg School of Public Health.

In EM, GH training opportunities are available both during and following residency. This reflects growing national interest in IEM activities, and the establishment of international divisions in a large number of US EDs.

IEM training - during residency

Availability

As a discipline, EM has been relatively proactive in establishing GH training opportunities for US residents. Over 70% of US EM residency programs allow trainees to undertake international rotations, including all of those institutions that offer fellowship programs. A smaller number have developed formal IEM residency streams or broader educational opportunities in GH. Over 20% of EM residents undertake an international rotation during their specialty training, however most departments report that only one or two residents per year have a serious interest in IEM.

Despite widespread access to overseas rotations, there is a lack of standardisation in relation to program design, implementation, community engagement, supervision, assessment and evaluation. For instance, a 2011 survey revealed that only 20% of programs have a process for GH competency evaluation prior to departure, with less than 40% providing pre-departure training. Consensus guidelines that provide clear recommendations for programs that rotate trainees abroad have since been published.

One of the difficulties in incorporating comprehensive GH training with residency programs in the USA is the density of training and the limited number of elective opportunities. Depending on the duration of the residency, no more than three to six months is generally available to residents to undertake non-core rotations (such as a GEC placements). In a recent survey of EM residency programs, four-year programs had twice as many residents
undertaking rotations abroad (32%) compared to three-year programs (17%; p < 0.001).16

With a limited amount of time available for international rotations, risks of ‘voluntourism’ are amplified. Supervision arrangements seem to vary between programs, and many educators suggest that there is significant scope to improve on the status quo. Some have acknowledged that “the benefits for host countries of these brief stints for trainees (remain) poorly characterized.”15

“The process of supervision is crucial, and cannot be overstated. In the developing world, there is not [a strong community of healthcare providers], so any presence often interferes, a little bit or a lot, with a system that is already struggling to function. Add someone else’s ideas about what lectures they should teach, to whom and when, or what research projects should be done (instead of facilitating local research projects), and you have an ethically problematic relationship that is in exact counter to the original intention.”

Although EM educators agree on the need to improve consistency in IEM training during residency,17 little has been published about the need for enhanced engagement with host communities. Importantly, a code of conduct for EM residents rotating abroad has recently been developed.41

Models

A variety of models exist for IEM training during residency, and a number of those institutions visited as part of this project are profiled here.

Some universities have established IEM streams in the absence of fellowship programs. One example is the University of Arizona in Tucson, which has recently launched a global and rural track. This reflects the University’s proximity to Mexico; the large proportion of Hispanic residents in Southern Arizona; and an undersupply of doctors in rural and remote areas of the USA.

The program’s formal curriculum is still under development, but it is structured so that residents undertake several rural rotations outside of the two major University of Arizona hospitals. The program also includes cultural competency and Spanish language training.

Weill Cornell Medical College in New York, affiliated with New York Presbyterian Hospital, does not have a fellowship program but provides several opportunities for residents to expand their skills and knowledge in IEM. Trainees are asked to declare their interest in IEM early in their residency, and they are then invited to participate in IEM research as well as
various learning opportunities throughout their training. These residents generally use their elective time to undertake rotations abroad.

The focus of didactic teaching in GEC at Weill Cornell is the ‘Global Health Essentials Course’. The two-week program is held on an annual basis in New York and includes presentations on a range of GH topics from international experts.106

In addition to its fellowship program, Yale University also has a GH track during its residency program. This allows residents to undertake electives in resource-limited environments, some of which are funded through the Johnson & Johnson Global Health Scholars Program. The initiative provides a travel stipend for residents at selected universities to undertake rotations in South Africa, Uganda, Indonesia, Rwanda and Colombia.107

IEM training - fellowship programs

Availability

Of all medical specialties in the USA, EM has the largest number of fellowship programs focussed on GH.18 Despite the widespread take-up, however, IEM educators still have a range of unanswered questions about the effectiveness of GH training during and after residency.89

The first IEM fellowship was established at the University of Illinois in Chicago in the mid-1990s.108–111 The intent of the program at the time was to “develop leaders in the field of global health by combining clinical expertise, practical field experience, formal public health training, and research and education in international health.”109 Over the subsequent two decades, the number of programs has increased steadily, and there are now at least 34 fellowships on offer across the country.92,111 A majority of these are listed in Table 5.

In response to this growth, the International Emergency Medicine Fellowships Consortium (IEMFC) has been established to facilitate greater co-ordination and co-operation between institutions. The group has developed a website that includes a profile of each fellowship program; this has also allowed standardisation and centralisation of elements of the application process. These reforms were catalysed by data showing that applicants have limited knowledge about the structure and content of programs to which they apply.111

In an effort to raise standards and increase rigour in IEM training, the Society for Academic Emergency Medicine (SAEM) is currently developing a voluntary credentialing process for interested fellowship programs.89 To be accredited, programs will have to meet certain criteria including academic requirements for fellows and faculty. Fellows in SAEM-accredited IEM fellowship programs will also have to achieve specific milestones. This proposal remains somewhat contentious, with some opponents suggesting
that an accreditation process will come at a financial cost with no guarantee of better training and development outcomes.

**Table 5: IEM fellowships programs on offer in 2014-2015**

<table>
<thead>
<tr>
<th>Program name</th>
<th>City</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baylor College of Medicine Pediatric Emergency Medicine Global Health Fellowship</td>
<td>Houston</td>
<td>TX</td>
</tr>
<tr>
<td>Brigham and Women's Hospital/Harvard University</td>
<td>Boston</td>
<td>MA</td>
</tr>
<tr>
<td>Brown Global Emergency Medicine Fellowship</td>
<td>Providence</td>
<td>RI</td>
</tr>
<tr>
<td>Case Western Reserve / International Medical Corps Global Emergency Medicine Fellowship</td>
<td>Cleveland</td>
<td>OH</td>
</tr>
<tr>
<td>Columbia University – New York-Presbyterian International Emergency Medicine Fellowship</td>
<td>New York</td>
<td>NY</td>
</tr>
<tr>
<td>Denver Health Medical Center / University of Colorado</td>
<td>Denver</td>
<td>CO</td>
</tr>
<tr>
<td>Duke Global Health Fellowship</td>
<td>Durham</td>
<td>NC</td>
</tr>
<tr>
<td>Eastern Virginia Medical School</td>
<td>Norfolk</td>
<td>VA</td>
</tr>
<tr>
<td>George Washington University</td>
<td>Washington</td>
<td>DC</td>
</tr>
<tr>
<td>Hennepin County Medical Center</td>
<td>Minneapolis</td>
<td>MN</td>
</tr>
<tr>
<td>Johns Hopkins University</td>
<td>Baltimore</td>
<td>MD</td>
</tr>
<tr>
<td>Loma Linda University Health</td>
<td>Loma Linda</td>
<td>CA</td>
</tr>
<tr>
<td>Mt. Sinai St. Luke's Roosevelt Global Health Fellowship</td>
<td>New York</td>
<td>NY</td>
</tr>
<tr>
<td>North Shore - Long Island Jewish</td>
<td>New Hyde Park</td>
<td>NY</td>
</tr>
<tr>
<td>Stanford University</td>
<td>Palo Alto</td>
<td>CA</td>
</tr>
<tr>
<td>SUNY / Downstate</td>
<td>Brooklyn</td>
<td>NY</td>
</tr>
<tr>
<td>SUNY / Upstate</td>
<td>Syracuse</td>
<td>NY</td>
</tr>
<tr>
<td>Tufts Baystate Medical Center</td>
<td>Springfield</td>
<td>MA</td>
</tr>
<tr>
<td>Tulane University</td>
<td>New Orleans</td>
<td>LA</td>
</tr>
<tr>
<td>UNC EM Global Health and Leadership Program</td>
<td>Chapel Hill</td>
<td>NC</td>
</tr>
<tr>
<td>University of Illinois at Chicago - UIC</td>
<td>Chicago</td>
<td>IL</td>
</tr>
<tr>
<td>University of Maryland</td>
<td>Baltimore</td>
<td>MD</td>
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<tr>
<td>University of Massachusetts</td>
<td>Worcester</td>
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<td>University of Rochester</td>
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</tr>
<tr>
<td>Vanderbilt</td>
<td>Nashville</td>
<td>TN</td>
</tr>
<tr>
<td>Yale University</td>
<td>New Haven</td>
<td>CT</td>
</tr>
</tbody>
</table>

Source: IEMFC\textsuperscript{112}
Objectives and outcomes

In 1999, a consensus group of IEM leaders proposed a set of goals, objectives and outcomes for IEM fellowship programs. They suggested four broad educational aims:

1. to develop the ability to assess international health systems and identify pertinent emergency health issues;
2. to design emergency health programs that address identified needs;
3. to develop the skills necessary to implement EM programs abroad and integrate them into existing health systems; and
4. to develop the ability to evaluate the quality and effectiveness of international health programs.

In terms of measurable objectives, it was proposed that, at the completion of their program, fellows should be able to:

1. Integrate training in EM with knowledge of international health, and apply acquired skills to clinical experience abroad by participating in at least two international experiences during the fellowship.
2. Demonstrate knowledge of public health issues as they pertain to developing countries, as demonstrated by the completion of public health coursework or supplemental training in epidemiology, maternal–child health, and community health.
3. Obtain training in critical topics in international health, including tropical medicine, infectious diseases, and general principles of disaster management.
4. Conduct research related to international health care as demonstrated by publishable research project(s).
5. Develop, coordinate, and participate in international educational exchanges for physicians, medical students, and allied health professionals.
6. Present lectures on topics relating to international EM, and participate in lectures presented by other related departments.

All universities offering IEM fellowships appear to have developed learning objectives and/or outcomes for their programs, but these vary between centres based on the focus of the particular department. While some institutions have elected to concentrate on a specific area of IEM (such as EM systems development), others have attempted to provide learning objectives across the full spectrum of GEC activity.

Examples of program outcomes and objectives from three institutions are featured in Boxes 2, 3 and 4; these are indicative of the aims of many IEM fellowship programs. Duke University, which offers GH fellowships in several specialties, has adopted an alternate approach by developing generic competencies that are relevant to all of its GH programs.
Box 2: Learning goals for the University of Maryland IEM Fellowship Program

The goals of the fellowship are to:

- Conduct original research in the field of international emergency medicine
- Investigate sources of funding and play a role in the grant-writing process
- Develop a working knowledge base of international public health
- Generate relationships with NGOs and international academic emergency medicine departments
- Learn about critical aspects of evaluation, monitoring, and development of emergency systems in other countries
- Develop skills in humanitarian aid and relief work, disaster preparedness and response, resource management, and international public policy

Source: University of Maryland School of Medicine

Box 3: Learning outcomes for George Washington University IEM and Global Public Health Fellowship Program

Upon completion of the International Emergency Medicine & Global Public Health Fellows hip, the fellow will be able to:

- Effectively conceptualize, plan, implement and sustain programs and collaborative projects in Emergency Medicine, internationally
- Successfully complete the requirements for the degree of Masters in Public Health at the GW School of Public Health and Health Services
- Display knowledge of public health issues as they pertain to developing health systems. This will include work abroad and domestic educational opportunities
- Display working knowledge of critical topics in international emergency medicine development
- Conduct research related to international emergency medicine health systems and educational interventions
- Integrate training in emergency medicine with international health and apply acquired skills to clinical experience abroad

Source: George Washington University Ronald Reagan Institute for Emergency Medicine
Box 4: Learning objectives for Harvard University / Brigham and Women’s Hospital IEM Fellowship Program

The goal of the fellowship is to train leaders in international emergency medicine who are able to:

- Advance the specialty of emergency medicine worldwide
- Lead effective humanitarian relief and disaster response efforts in conjunction with international aid organizations and local governments
- Develop, fund, implement, and evaluate international emergency medicine and health programs
- Conduct clinical and field research based on solid epidemiologic methods and biostatistics
- Maintain a working knowledge of international public health issues and government and non-governmental organizations and infrastructure around the world
- Understand international humanitarian law and human rights as they relate to conflict, humanitarian crises, and global health
- Use leadership, teaching, and clinical skills to advance the practice of international emergency medicine

Source: Brigham and Women’s Hospital

The extent to which program learning objectives and curricula should be standardised is a topic of ongoing discussion, as illustrated in this comment from Jacquet et al.:

While many IEM academicians debate whether a standardised IEM fellowship curriculum is paramount, others promote an individualised approach tailored to the institution, to the fellow or both; each host institution should instead offer training derived from their existing relationships and projects to their fellows.

Many IEM fellowship directors interviewed as part of this project had themselves undertaken fellowships. These individuals found their fellowships to be “formative” in their career development, in that they provided an “efficient” and “effective” means to develop core skills in IEM.

Curriculum and components

“A fellowship is about packaging. It’s a bundle of experiences.”
In their initial efforts to define high-level objectives for IEM fellowship programs, VanRooyen et al. stopped short of detailing a core curriculum. They did, however, provide a suggested program outline based on four areas:

- **Clinical practice**
  1. Domestic clinical practice of EM
     a. Further development of clinical skills in EM
  2. International clinical practice
     a. International clinical EM in an urban setting
     b. Practice in rural health care and community health abroad
  3. International health system evaluation
     a. Exposure to health systems in various stages of development
     b. Assessment of existing health system data
     c. Evaluation and prioritization of health needs
  4. International health system design, planning, and assurance
     a. Discussion of system structure with health officials
     b. Development of action plan with local involvement
     c. Development of evaluation plan/quality assurance indicators

- **Education**
  1. Domestic education agenda
     a. Tropical medicine coursework (optional) or assigned reading in:
        i. Tropical infectious diseases
        ii. Healthcare in developing settings
     b. Master’s training (optional) or assigned reading in:
        i. Epidemiology and statistical analysis
        ii. Community health and public health
        iii. Immunizations
        iv. Hygiene and prevention
        v. Health information systems
     c. Travel health training
     d. Study of EMS in international setting
  2. International educational agenda
     a. Assessment of educational needs in an international setting
     b. Planning of international educational objective(s)
     c. Implementation of international educational program(s)

- **Research**
  1. Knowledge of international EM literature
     a. Journal clubs and reading assignments
  2. Participate in ongoing research
     a. International EM faculty
     b. Research in additional areas of interest
  3. Develop research project in international EM
     a. Preparation and presentation of abstract
     b. Research project suitable for publication

- **Additional international curriculum**
  1. Develop an additional field of expertise
a. Refugee health  
b. International EMS and out-of-hospital care  
c. Disaster relief and complex humanitarian emergencies  
d. Advanced tropical medicine

“All programs need a didactic component, research opportunities, field time and exposure to multiple areas of GH.”

A 2005 review found that, at that point in time, most programs had adopted these core elements, namely domestic and international clinical work; didactic teaching in public health through a Masters degree (or similar); research; and additional international components related to refugee and disaster health, EMS or tropical medicine. Following on from this work, in 2010 Bayram et al. reviewed a majority of fellowship programs in an attempt to determine how the structure of IEM programs had evolved. After analysing the available curricula materials, they grouped content into seven technical areas: EM systems development, humanitarian relief, disaster management, public health, travel and field medicine, program (project) administration and academic skills. The exercise was designed to provide a template for new programs that sought to provide broad-based training in IEM.

A more recent study, published in 2014, found that less than 10% of programs are providing adequate coverage of all of these curriculum components. The authors wrote that, “after completing a 1-or 2-year IEM fellowship, it is unlikely that a graduate would master all six core curriculum areas.” They went on to ask whether “IEM fellowships are trying to achieve ‘too much’, stacking the deck with more core competencies than they can achieve within the allocated time frame.”

Despite all of this work, relatively few programs have developed detailed curricula linking overall learning outcomes with specific competencies. One exception is Brown University, which has a curriculum based on the framework proposed by Bayram et al. For many fellowships, the detailed curriculum is that of the coursework programs in which the fellow is expected to enrol (eg, a Master of Public Health).

**Domestic components**

“It is important to find a balance between flexibility and structure. A fellowship is more of an apprenticeship.”

As discussed above, some fellowships have a fairly rigid structure and are arranged into modular blocks. Others have a more liberal framework that
allows fellows to define specific objectives, develop a work plan and undertake longer-term projects. The University of Maryland, which has an emphasis on EM systems development, is an example of this approach.

Fellows generally spend approximately half of their professional time working clinically in their home department. This allows them to generate revenue, which supports their position. A 2011 survey of fellowship program directors and participants found a mean annual clinical hours obligation of 780, with a range of 650 to 850. This translates to an average of two shifts per week.

Almost all programs incorporate a Master of Public Health (or similar). Completion of the degree is generally a requirement of the program unless the fellow has previously obtained an equivalent qualification. In almost all of the institutions visited, Masters programs are offered via the same university. Fellowship programs cover the costs involved with completion of the degree; in some cases, this is made easier through in-house course subsidies for faculty members.

An exception to these arrangements is Yale University’s program, where fellows enrol in a Master of Science in Tropical Medicine and International Health through the London School of Hygiene and Tropical Medicine (LSHTM). The course is delivered in split study mode, such that fellows are able to spend blocks of time in London over the course of their fellowship. Fellows also sit the exam for the LSHTM’s Diploma of Tropical Medicine & Hygiene. The fellowship program covers fees, travel and lodging costs associated with completion of the degree.

A small number of programs have their own in-house teaching programs focussed on GEC topics. An example of innovation in this area comes from George Washington University, which has a combined fellowship curriculum that incorporates elements that are common to all of its fellowship programs. Certain programs operate GH journal clubs, and several require their fellows to deliver lectures on GEC topics to medical students and residents.

Some fellowships programs also have a research requirement. Field-based research is encouraged but is difficult for some candidates to achieve within the duration of the fellowship. It is generally expected that fellowship research is of publishable quality. The availability of research funding is discussed below.

Some programs require enrolment in other courses. Several mandate that fellows undertake the ‘Humanitarian Emergencies in Large Populations’ (HELP) course. In the Harvard fellowship, candidates are also expected to complete the ‘Humanitarian Response Intensive Course’ through the Humanitarian Academy at Harvard. This two-week course prepares participants for international disaster and humanitarian crisis response, and includes a three-day field simulation of a complex humanitarian emergency. Harvard fellows also complete a grant writing course and the International Emergency Department Leadership Institute ‘Leadership Essentials’ program.
The integrated learning model of theory (primarily through MPH subjects) and supervised practice (through overseas deployments) allows for the efficient and effective development of skills and knowledge. It also reflects the model of workplace-based learning used in medical education more broadly.

**International components**

All fellowships include overseas field deployments, usually to a total of three to six months per year. A 2011 survey of current and recent fellows found that 23% spent more than six months abroad.

The focus of these deployments differs between programs, depending on the particular department’s priorities and expertise. In some cases, fellowship programs advertise that they are affiliated with particular projects to which the fellow will be deployed; in other cases, it is up to the fellow to negotiate field placements on commencement of their fellowship.

Some programs mandate a number of different deployments focused on various elements of GEC. An example of the latter is the Harvard University program, which requires three overseas deployments in different areas: EM systems and/or capacity development, disaster response and a humanitarian emergency involving displaced persons.

Other fellowships tend to focus on a particular aspect of GEC. At GWU, for instance, the central focus is EM education and training, principally through a long-term educational project in India (Box 5). Fellows rotate to India and deliver teaching modules to local EM trainees across multiple teaching sites.

As another example, fellows from Stanford University have generally been deployed to projects centred on EMS in countries such as India and Nepal. This reflects the Department’s strong focus on EM systems development.
Box 5: Description of George Washington University’s India Master of Emergency Medicine Program

Many health care institutions in India have recognized the need to train highly-skilled physicians to treat patients presenting with acute medical conditions. The Ronald Reagan Institute of Emergency Medicine at the George Washington University (RRIEM/GWU) hopes to partner together with the medical faculty at institutions throughout India to support a three-year Post-Graduate Program in Emergency Medicine (PGPEM). In partnership, this program can train up to 12 residents per year; this program will prepare these residents to practice in the complex and challenging arena of emergency medicine at the highest levels.

Through the collaborative work of faculty from RRIEM/GWU and Emergency Medicine Faculty at the host medical institution, residents will have continuous guidance and education in the specific topics and skills that constitute the field of emergency medicine. The faculty will provide lectures, seminars, simulations, and clinical teaching to the residents. The quality of the education programs will be maintained through continuous assessments of the residents, the faculty, and the overall program.

The three-year Post Graduate Program in Emergency Medicine will place sponsoring institutions at the forefront of emergency medicine in India, and it will prepare a new generation of leaders in medicine who will expand the field of emergency medicine throughout India.

Source: George Washington University Ronald Reagan Institute of Emergency Medicine

At most centres, fellows’ field assignments are determined by the department’s overseas activities at that point in time. Most departments offering fellowships have multiple projects operating simultaneously, which provides several options for fellows.

Brown University, for instance, is engaged in a number of long-term development projects. These provide several outlets for fellows to develop field experience as part of longitudinal programs. One of these projects, the Human Resources for Health Initiative in Rwanda, is profiled in Box 6. This program has also been described in the African Journal of Emergency Medicine.

Several programs rotate fellows through an initiative in Uganda operated by the Global Emergency Care Collaborative, an NGO founded by US Emergency Physicians to improve access to EC in sub-Saharan Africa. The organisation is profiled in Box 7. Among other projects, the organisation is delivering a comprehensive training program for nurses providing advanced EC in health centres and district hospitals.
Almost all departments include at least one deployment that has a training focus, and most fellows are strongly encouraged to develop their skills in teaching and supervision.

**Box 6: Description of the Human Resources for Health Program in Rwanda**

The Government of Rwanda aims to build a high quality and sustainable health system. Rwanda currently faces a severe lack of physicians and other health care workers, and one underlying cause of this shortage is a lack of faculty to train future physicians. There are very few trained specialists, and residency training programs in Rwanda, begun in 2005, are still developing. This is a particular issue for the specialty of Emergency Medicine, as there are currently no practicing Emergency Physicians in Rwanda.

The Ministry of Health in Rwanda developed the Human Resources for Health (HRH) Program in collaboration with US schools of medicine. The primary goal is to support clinical faculty in Rwanda and strengthen targeted clinical residency programs, with an added impact on the quality of the clinical educations for interns and medical students. As part of this program, US schools will hire expatriate physician mentors in specialties and subspecialties in the following areas: Internal Medicine, Pediatrics, Obstetrics/Gynecology, Surgery, Anesthesiology, Family and Community Medicine, and Emergency Medicine. Brown University is the lead US school for Emergency Medicine.

The goals of the partnership between the Ministry of Health and the affiliated US schools in the Rwanda HRH consortium include the following:

1. Support the development of the clinical, teaching, and research skills of current and future faculty
2. Support the creation of a strong cadre of specialists to meet patient care needs at district, provincial and referral hospitals

Source: Brown University Alert Medical School

Certain fellowships provide the option for fellows to deploy in emergency humanitarian response teams. This is often arranged through established relationships or personal connections with NGOs. Examples include International Medical Corps and MSF. Humanitarian deployments are generally short-term, and usually limited to a couple of months.

There is wide variation in the logistic arrangements that support these deployments. While humanitarian missions are often co-ordinated by third party NGOs, many development projects are managed in-house. Some universities have well-developed pre-departure training, health and safety and insurance arrangements, but this is not universally the case.
Box 7: Description of the Global Emergency Care Collaborative

The mission of the Global Emergency Care Collaborative (GECC) is to improve global health by enhancing access to quality EC in the developing world by collaborating with local and national organizations. The shortage of acute care services in Sub-Saharan Africa results in a large burden of preventable morbidity and mortality, precluding the region from achieving the health-related MDGs. The majority of children who die in Sub-saharan African hospitals do so within 24 hours of arrival.

GECC, an NGO founded by emergency physicians in the USA, addresses these problems by developing a sustainable horizontal acute care system and training providers from multiple health cadres in acute care delivery for the full continuum of illness and injury. By performing assessments of community needs, working alongside medical practitioners, and directly caring for patients, GECC is improving access to EC by training local providers and introducing appropriate medical technology.

GECC-affiliated health services see approximately 30,000 patients per annum, and are involved with several research projects concerning the effective delivery of emergency care in resource-limited environments. The organisation’s main focus is training nurses to become Emergency Care Practitioners, who will provide high-quality emergency care in advanced health centres and district hospitals.

Source: Global Emergency Care Collaborative\textsuperscript{66,122}

For fellows, international deployments are extremely beneficial. The most valuable components include opportunities for mentoring and role-modelling; supervised and supported clinical experience in diverse settings; observation of experienced GEC practitioners working in the field; immersion in successful IEM projects; participation in academic activities such as teaching and research; grant writing in collaboration with senior staff; and reflection and debriefing with senior colleagues.

Supervision and mentoring

In parallel with the development and expansion of IEM fellowship programs, the profile of IEM within US EDs has also grown. A large number of departments now have formal divisions of IEM, with significant numbers of EPs with international EM as their designated portfolio.

Most departments offering fellowships have at least a handful of faculty members active in IEM. For instance, Stanford has six EPs whose primary area of interest is international EM, and there are more than fifteen at
Harvard-affiliated Brigham and Women’s Hospital. Fellowship program directors report that appropriate staffing levels are essential to providing supervision for fellows.

“You need at least three full-time people with international interests to maintain a fellowship. And at least one should be a graduate of a fellowship program.”

In most cases, fellows are initially deployed alongside a senior faculty member from their department. This ensures that they are appropriately supervised in the early stages of the fellowship, and have access to feedback regarding their performance. It is acknowledged by some educators, however, that there remains room to optimise supervision arrangements for trainees as well as fellows:

“Over the years I have watched undersupervised global health fellows come to sensitive environments in a developing country with no clinical staff experience, acting as global health experts rather than students. [This is] a challenge to be overcome through attention.”

Given that most programs are of 12-24 months duration, supervision can be tailored to the needs of the fellow at various stages of the fellowship. This allows fellows to assume increasing responsibility and independence through the course of the program.

For fellows, one of the major advantages of participating in a fellowship program is access to role models and experienced mentors. This facilitates the exchange of advice in a semi-formalised manner, and allows for personal and professional development in a “nurturing” environment.

**Funding**

Fellows derive a salary while completing their fellowship. This is paid by their department, and is approximately half that received by a full-time junior specialist (attending). Based on a 2011 survey of IEM fellowship program directors and participants, the mean annual salary for first year fellows is $USD85,590 with a range of $USD55,000 to $USD140,000.111

Departments generally fund this salary through revenue derived from the fellow’s clinical shifts in the ED. In some instances, alternative funding sources are available to cover additional components of the fellowship (such as course costs, travel and insurance). These funds often come from charitable trusts or organisations that are linked with individual EDs.
Some departments have been successful in accessing project grants that contribute to costs associated with fellowship programs. At least one department has obtained ongoing philanthropic funding towards its program, which provides the fellow’s salary.

Departments with larger IEM programs and faculty seem to experience greater success in accessing donor funds. Overall, there has been limited success in accessing funds for GEC activities through government aid and development agencies.

“The problem with USAID funding is that a lot of it is too big. It is out of our league.”

There are several examples of IEM projects being funded by major donors and corporate philanthropic funds. Examples include the Human Resources for Health project in Rwanda (of which Brown University is the EM lead), supported by the Clinton Global Initiative and USAID;121,123,124 a major clinical and educational EC initiative in Dar es Salaam sponsored The Abbott Fund;125 and a series of EC systems projects in Cambodia, led by Stanford University and funded through USAID.126

A small number of Departments have successfully achieved research funding through the National Institutes of Health’s (NIH) Fogarty International Center. Examples include a Brown University study to develop new clinical and ultrasound-based methods for diagnosing severe dehydration in children with diarrhea in resource-limited settings,127 and a University of Maryland project to deliver injury prevention research training in Egypt and the Middle East.128 The University of Michigan has also received a Medical Education Partnership Initiative (MEPI) grant to “develop an innovative, interdisciplinary, sustainable, team-based medical training program to improve the management of injury and acute medical conditions, while retaining skilled health care providers, in Ghana.”129

Notwithstanding these positive examples, nationwide there is limited understanding of the depth and breadth of funding for GEC research activities.130 This is despite extensive efforts to specifically define research priorities for emergency care in LMICs.63,130–132

“Unfortunately there is next to no NIH money for GH work. We need to get more from Gates, Clinton and other major donors.”

Many programs emphasise the value of skills in writing grant proposals, and some require fellows to develop a funding application as part of their fellowship.
**Assessment and appraisal**

Few program have adopted rigorous assessment processes for determining whether candidates have achieved specified IEM competencies. Although many have regular appraisals in order to review learning needs and objectives, most rely on coursework programs as the basis for formal assessment. Research or operational projects sometimes contribute to an overall assessment of a candidate’s performance. Bayram et al. have provided suggestions about how IEM competencies can be assessed in relation to the seven core elements of fellowship programs.91

**Outcomes**

Arguably the most important evaluation metrics for IEM fellowship programs relate to patient and community outcomes. Assessing the impact of educational interventions is difficult however, especially in developing settings. These challenges are summarised in the following quote from Martin et al.:

“As with all training programs, the challenge is to show the efficacy of the educational effort and meaningful impact to the intended, as well as unintended, targets. The effects of global EM training are wide-ranging and often are extremely difficult to measure, especially because one needs to evaluate the program’s effect on the fellow’s productivity and success and effects both at home and abroad.”89

It is challenging to draw any conclusions about the extent to which community-facing evaluation occurs, mainly because of substantial variation in the type and duration of fellowship projects on offer. In addition, fellows often contribute to longer term projects involving multiple individuals and organisations, making it difficult to attribute outcomes to a fellow or fellowship program. Interviews conducted as part of this project failed to identify any rigorous methodologies for measuring the long-term impact of IEM fellowships.

Measuring the broader impact of fellowship programs on patients and communities has been recognised as a research priority for IEM educators. During the 2013 Academic Emergency Medicine consensus conference on global health and emergency care, a group was convened to generate a research agenda in this area. Several key questions were identified, including:

- What is the long-term impact to patients (both domestically and abroad) under the care of IEM fellows?
- What is the long-term impact (of completing of an IEM fellowship program) to IEM fellows?
Simplistically, the direct impact of fellowship programs could be measured in two ways: the effects of specific programs in which a fellow is involved, and the effects of long-term international partnerships that involve a series of fellows and other faculty members.

Broader questions raised at the 2013 meeting relate to the following areas:

- What is the best way to train emergency care providers around the world?
- What is the long-term impact to non–EM trained clinicians receiving additional training in emergency care?
- What is the long-term impact to patients under the care of these clinicians providing emergency care?

The group proposed a variety of methodologies that could be used to measure both community- and fellow-facing outputs and outcomes.

**Career prospects**

Little has been published about the outcomes of IEM fellowships in terms of career trajectory and employment opportunities. This is consistent with other GH fields, where there is a limited understanding of the career and employment options for GH practitioners.

Directors of fellowship programs report that fellows end up in a wide variety of jobs, but the majority find academic positions with an IEM focus. Consistent with this, a 2011 survey of fellows found that over 70% planned to pursue a faculty position at an academic institution with international projects. A recent paper has described how IEM practitioners can translate their GH teaching and research work into "academic currency" and enhance their career prospects in academia.

> "Department Chairs all want fellowship trained people. They value skills in grant writing, research and education."

Some IEM fellowship graduates go on to positions with international intergovernmental and non-governmental organisations – such as the World Health Organization and the International Committee of the Red Cross – but the number has not been quantified.

Interestingly, the vast majority of US EPs active in GEC have not completed a fellowship. In a recent survey of self-identified EPs working in GEC, more than half (53%) of the respondents had not pursued any formal training or advanced degree in GEC or public health. Among those who had received further training, the most common outlet was a short course in global health (23%), followed by an MPH (20%). Only 11% of respondents had completed an IEM fellowship program.
“NGOs care about field experience, an MPH and appropriate courses. The fellowship curriculum itself doesn’t matter.”

The same survey found that the majority of respondents (73%) spent less than three months annually abroad as part of their IEM work. Self-funding was the most common primary source of funding for IEM work (47%) followed by hospital or department funds (18%). Completion of an IEM fellowship program was not statistically associated with having grant funding ($p = 0.146$). Only 16% of respondents reported having any grant support for their work.104

“If you want an ER doctor’s salary, there are very few employment options in IEM. If you are willing to downsize your salary, then you can do it.”

Canada

Canada was not originally included in the schedule of visits for this program, however it became apparent that there would be value in a brief review of Canadian GEC training opportunities.

Medical education and training structures

Training structures in Canada are similar to the USA, except that EM specialty training takes five years. EM is considered a medical specialty, and programs are accredited by the Royal College of Physicians and Surgeons.

An alternate route to licensure as an EP is via general practitioner (GP) training. Candidates undertake a two-year family residency program followed by a one-year fellowship in EM. The admission process to the fellowship is highly competitive, and most applicants will have undertaken EM and ICU rotations during the GP component of their training.

Postgraduate global health training

This review did not seek to comprehensively document the GH training opportunities in Canada. However, the review identified several initiatives relevant to IEM training:

The Department of Family & Community Medicine at the University of Toronto offers an enhanced skills program for general practice trainees in Global Health & the Care of Vulnerable Populations. The objectives of the program are to enhance the skills and knowledge of Canadian family physicians in GH to enable them to work more effectively in resource-limited
settings in Canada and abroad. Following six months of selectives in Canada, trainees complete a global health placement in a resource-limited setting overseas.\textsuperscript{134}

The University of Toronto also runs the Global Health Education Initiative, a two-year certificate program for medical trainees. The program combines informal mentoring with structured, evidence-based teaching in a small group format. The program includes 25 modules covering a range of GH topics, including global health governance, health economics and humanitarian emergencies.\textsuperscript{135}

The 53rd week is a North American-based organisation dedicated to improving short-term volunteerism abroad by “helping volunteers and communities turn their deeply personal investments into meaningful and lasting community health improvements” (see Box 8).\textsuperscript{136} The group aspires to “shift the balance of benefits” so that GH missions have maximal impact on host communities. The organisation’s mission and objectives are highly relevant to IEM training, in that many overseas rotations from residency and fellowship programs in the USA are only weeks or months in duration.

**Box 8: Overview of 53rd Week**

**The goal**

To improve the outcome of short-term volunteer global health experiences abroad.

**The problem**

Young health professionals from the high-income economies increasingly participate in short-term service experiences abroad. Many of these people do so with good intentions and enormous self investments, but do not realize that in their current form, such experiences have limited impact and may result in significant harm to the hosting community, which also invests much to support these volunteers.

**The proposal**

Using research and collaborative models, we can “make short-term long term” by having teams work with local leadership towards longer-term, sustainable, meaningful projects targeting the underlying determinants of health. Linking locals together with coordinated short-term efforts means that volunteers and communities get more for their investment. In that sense, short-term efforts properly done can shift the “balance of benefits” and make a greater, more meaningful impact than could be accomplished by any single visiting team alone.

Source: 53\textsuperscript{rd} Week\textsuperscript{136}
Bridge to Health is a Canadian-based NGO committed to delivering and developing primary and emergency care. Founded in Toronto, it is comprised of medical and dental professionals brought together by “a common desire to help provide healthcare to those in tremendous need”. It aims to deliver sustainable healthcare in a cost effective manner, and provides an avenue for early-career health professionals in Canada to gain GH experience in the context of a long-term development relationship.

Bridge to Health currently operates in underserved rural communities of Uganda. In collaboration with KIHEFO, a local NGO, it provides medical and dental care and trains local healthcare workers. Missions are usually short-term (approximately two week’s duration), but occur regularly throughout the year. Participants generally self-fund their travel costs.

IEM training

“The reason why we don’t have fellowships in Canada is not because we don’t recognize it isn’t possible, but because there is a feeling that one’s legitimacy comes from deep emergency medicine, research and ultrasound etc. skills, and if one is committed, there is time [during or after specialty training]...to do a tropical medicine diploma, humanitarian training...or MPH.”

There are currently no formalised EM fellowship programs on offer in Canada, but residents in certain EM specialty training programs have the option of undertaking rotations in resource-limited environments. Up to one year of the five year EM training program can be used to explore subspecialties.

One avenue is through the University of Toronto’s university-wide association with Addis Ababa University (AAU) in Ethiopia. The purpose of the Toronto Addis Ababa Academic Collaboration (TAAAC) is to assist AAU to build and strengthen capacity and sustainability in medical specialties and other health professional programs. The program includes an EM stream, which involves Toronto-based EPs and senior residents delivering blocks of teaching and training in Ethiopia (Box 9). Other North American centres have also contributed to this program.
Box 9: Overview of the Toronto-Addis Ababa Academic Collaboration in Emergency Medicine

In October 2010, with its first formal teaching trip to Black Lion Hospital in Ethiopia, the Toronto-Addis Ababa Academic Collaboration in Emergency Medicine (TAAAC-EM) was launched. Its vision is to create an enduring academic and educational collaboration whereby Ethiopian emergency specialists are trained to lead their country’s healthcare system and teach future generations of physicians.

In Ethiopia at present, life expectancy is 56 years and the nation is ranked 174 (out of 187) on the United Nations Human Development Index. Ethiopia faces the enormous challenge of providing 91.1 million people with basic health care amongst a critical health care worker shortage. Only 1800 physicians exist, resulting in 1 doctor for each 45,000 people, none of whom are emergency physicians. Up to 80% of medical graduates in recent years leave the country, often beginning, with a foreign training experience. TAAAC-EM aims to contribute to changing this situation by providing opportunities for in-country training, leading to increased retention of health professionals and encouraging a stronger system of public emergency care for the Ethiopian people, most of whom can’t afford to participate in the more developed private system.

TAAAC-EM has been developed by a group of dedicated University of Toronto volunteers from the Department of Medicine, the Department of Family and Community Medicine, and the Faculty of Nursing. It will engage the EM residents at AAU throughout their three-year program using a model similar to the TAAPP program, that of thrice yearly teaching visits by two volunteer faculty and a postgraduate resident. It will also provide academic support from afar that includes mentorship, research collaboration and curriculum development.

Source: TAAAC\textsuperscript{39}

United Kingdom

Medical education and training structures

The UK’s medical education and training structures are similar to those in Australasia. On graduation from medical school, graduates progress to prevocational training and undertake the two-year Foundation Programme. They are then eligible to apply via Local Education and Training Boards (or postgraduate deaneries, depending on the jurisdiction) to continue core and subsequently specialty training in a particular discipline.
Postgraduate training in global emergency care

EM training is overseen by the Royal College of Emergency Medicine (RCEM). It takes at least eight years following graduation to become an EM consultant. Sub-specialty training is available in paediatric EM and pre-hospital EM. Almost all training placements are undertaken in National Health Service (NHS) hospitals.

An alternate pathway to specialist registration is via the Certificate of Eligibility for Specialist Registration (CESR) route. This allows doctors with significant clinical experience to submit evidence to the General Medical Council that they have obtained specialist-level competency. It is an option for EM clinicians who have undertaken a large amount of GEC practice in preference to UK-based EM training.

Postgraduate global health training

Although the UK has been very active in GH and humanitarianism, this has not translated into streamlined training pathways for medical graduates.

Rigid rules around ‘out of program’ (OOP) experiences represent a major challenge for trainees seeking to access GH training opportunities. Since the implementation of Modernising Medical Careers, there is less flexibility to undertake rotations that are not directly linked to a local training program.

Trainees risk losing their training number if they take time away from training that is not recognised as an OOP experience. This process can be arduous, and requires sign-off at multiple levels (ie, by the local deanery or equivalent, the relevant specialist college and the General Medical Council).

For these reasons, there are relatively few examples of trainees undertaking accredited rotations in LMICs. This applies equally to EM as it does to other disciplines, although there are a few established placements in public health, infectious diseases and GP. Opportunities are emerging in paediatrics through the Royal College of Paediatrics and Child Health’s Global Links initiative.\textsuperscript{141}

Options for trainees to undertake research are more readily available, and this represents one avenue by which trainees can engage in GH. In fact, the UK has a generous suite of Academic Clinical Fellowships that provide salary support for trainees undertaking supervised research.\textsuperscript{142,143}

Despite the difficulties in accessing accredited GH experiences, there has been some important progress in GH training. The Alma Mata Global Health Graduates Network, for instance, has been formed to bring together early-career health professionals interested in GH. The group organises and promotes GH events, and aims to develop clearer GH training pathways.\textsuperscript{144}

A review of postgraduate medical education curricula has been undertaken to identify the extent to which GH competencies are incorporated into specialty training programs. Six of the 11 curricula analysed had between two and six global health competencies, of an average of nearly 500 competencies per
curriculum. GH competencies mainly covered the global burden of disease and/or global determinants of disease and policy responses.\textsuperscript{145}

In the wake of this exercise, it has been proposed that a small number of common GH competencies could be adopted across all curricula.\textsuperscript{145,146} Further, it has been recommended that “training programmes need not just to recognise the benefits to trainees, the National Health Service and host countries of appropriately planned and approved overseas experience...but to actively facilitate it.”\textsuperscript{147}

The Academy of Royal Colleges has also developed a statement on volunteering, recognising that “it is critical that UK based healthcare professionals take advantage of opportunities to engage in global health.” The statement urges those organisations “who play a role in facilitating volunteering opportunities for healthcare professionals to work together to overcome (the key challenges involved with volunteering).”\textsuperscript{148} Excerpts from the statement are featured in Box 10.

This statement follows from several high-level reports encouraging GH partnerships between the UK and LMICs, including more opportunities for health professionals to contribute to international development activities.\textsuperscript{149–151} In a recent review focussed on international volunteering among NHS employees, the All-Party Parliamentary Group on Global Health concluded that:

\begin{quote}
Voluntary partnerships and volunteering schemes have a key role to play in improving health worldwide, and bring benefits to the UK as well as to the countries where they work. The full benefits from these schemes will only be realised when they become more professional and systematic, and when better support is provided for them by employers, the NHS and government. The enthusiasm exists to make this happen, but a number of actions would help to accelerate this change.\textsuperscript{151}
\end{quote}

In relation to postgraduate GH training, the report suggested that “efforts to address inequalities in access to Out-Of-Programme Experiences across different Deaneries and Colleges would also be welcome, in addition to greater acknowledgement of these experiences contributing to key competencies.”\textsuperscript{151}

**IEM training**

There is no formal IEM training pathway in the UK. EPs interested in GEC generally complete specialty training in EM, and then develop their expertise through relevant courses and field experience. The alternate pathway is via the CESR route.
There are limited opportunities for RCEM trainees to undertake accredited placements in resource-limited settings. One of the limitations is the requirement for nominated clinical supervisors to go through specific training and credentialing processes.

Despite this, a recent International EM Study Day highlighted that a number of EM trainees have successfully undertaken OOP experiences in resource-limited settings (including Bangladesh). Some of these are profiled on the RCEM website, which also provides detailed advice for trainees seeking to go OOP.

In recent years, Chelsea and Westminster Hospital in London has developed a Clinical Fellow position in IEM. Although the position is not accredited for RCEM training, it is designated as a middle-grade (resident/registrar level) post. The position comes with an NHS salary and local clinical responsibilities, but fellows spend a proportion of the year providing EM education and training in India through the Masters of Medicine program overseen by George Washington University (Box 5).

There are also training and career options in academia, principally in humanitarian medicine. For instance, the University of Manchester has a Humanitarian and Conflict Response Institute focussed on the study of GH, humanitarianism, international disaster management and peacebuilding. Its teaching and research programs bring together medicine and the humanities, offering an integrated approach to humanitarian education that reflects the multi-disciplinary nature of aid operations.

More broadly, the Enhancing Learning and Research for Humanitarian Assistance (ELRHA) initiative supports “partnerships between researchers and practitioners to improve the effectiveness of humanitarian action”. It provides research funding for projects focussed on health in humanitarian crises, and maintains a resource hub for humanitarian workers and academics. ELRHA also hosts a large database of courses and training opportunities focussed on HA.

One avenue for UK clinicians to contribute to humanitarian and disaster assistance is through the NGO and charity UK-Med. The organisation was originally established in 1995 to facilitate UK health workers supporting Sarajevo hospitals during the Balkans war. It has since despatched teams to a range of countries and crises including Kosovo, Pakistan, Sierra Leone, Indonesia, Haiti, the Philippines and Jordan.

UK-Med hosts the UK International Emergency Trauma Register (UKIETR), which brings together surgeons, anaesthetists, EPs, nurses and other personnel who are capable of responding to sudden onset disasters overseas. More than 1600 health professionals are registered, with differing levels of deployment readiness. Through the UKIETR, UK-Med has recently played a pivotal role in recruiting NHS volunteers to work in Ebola treatment centres in Sierra Leone. The organisation primarily works with consultants, but also accepts experienced trainees.
UK-Med offers comprehensive pre-departure training, and deployments are conducted in collaboration with UK-based NGOs (Save the Children and Handicap International). For certain missions, the Department for International Development provides funding to backfill NHS posts temporarily vacated by volunteers (who continue to receive their salary).

**Box 10: Excerpts from the Academy of Medical Royal College’s Statement on Volunteering**

*Introduction*

Volunteering in low resource healthcare settings provides one of the several ways that UK healthcare professionals can increase their expertise in global health. In combination with a career in the NHS, volunteering can provide additional value to the individual and the NHS as well as making a critical contribution to improving health in developing countries. The Academy recognises that, in addition to the potential of helping improve health in resource-limited settings, individuals who volunteer often acquire personal and professional skills that are transferable to the NHS, and international health partnerships can help stimulate innovation in both settings.

*Granting of time out from training and/or employment*

There is a lack of consistency in approaches to granting time out to volunteer during training and whilst in employment. This variation could be reduced by helping to increase understanding of the existing time out of training and NHS career break policies. The provision of a decision-making support tool to assist with addressing the local differences for relevant bodies and employers across the UK may help to do so. Innovative, well-structured volunteering programmes with clear learning outcomes, alongside supportive workforce planning will enable volunteering and experience in global health, to become an integral part of all health professionals' careers in the future.

*Recognition of volunteering for professional development*

There is a lack of structured and agreed mechanisms to evaluate and accredit the skills gained through volunteering, in particular regarding experience acquired from working in developing countries. Where evaluation does exist, it is not consistently integrated into formal professional development processes. As above, ensuring clear learning outcomes for well-structured programmes will assist with this. Additionally, mechanisms, such as tools for reflective learning, to evaluate the skills acquired through volunteering, their transferability to the UK and their contribution to the personal and career development of an individual should become an integral part of professional development throughout all healthcare professionals’ careers.

Source: Academy of Medical Royal Colleges¹⁴⁸
Key findings and recommendations

Structural considerations

1. **Major differences in postgraduate training arrangements between the USA, Canada, UK and Australasia mean that models of IEM and GEC training cannot be directly transplanted from one country to another.**

   Completion of EM specialty training in Australasia takes at least seven years following graduation, compared to three to five in North America. Local GEC training pathways need to reflect the length and breadth of training opportunities available to Australasian trainees, including the option to pursue special skills terms (theoretically of up to 12 months duration) in resource-limited environments.

2. **GEC training models developed for Australasia should be structured so that they can be adapted by other disciplines interested in establishing GH career pathways.**

   Post-specialisation GH fellowships exist in a large number of disciplines in the USA. Although this is not the case in Australasia, several colleges have shown interest in expanding training opportunities for trainees and fellows interested in global health.

   Given that there are limited resources available for GH training and development activities, it may be advantageous to develop models that could be adapted by other specialty groups. This may also facilitate sharing of knowledge, teaching resources, educational opportunities and experience.

3. **Planning for a GEC training model in Australasia should account for the potential recognition of EM sub-specialties and the development of other peri- and post-specialisation training pathways in EM disciplines.**

   At least two EM-related disciplines, toxicology and PHaRM, have approached ACEM regarding formal acknowledgement as subspecialties of EM. Competency statements and credentialing processes are being created for this purpose. Although ACEM is unlikely to recognise EM sub-specialties in the immediate future, consideration should be given to the potential value in aligning post-specialisation training pathways between toxicology, PHaRM and IEM.

   Into the future, a variety of other EM special interest groups (such as geriatric EM and academic EM) may also be interested in developing post-specialisation training pathways. It might be advantageous to design a model that could be adapted by other ‘sub-specialty’ disciplines in due course.
4. **A GEC training pathway in Australasia would ideally be multi-disciplinary.**

GH and EC are inherently multi-disciplinary fields. Although the IEM fellowship model in the USA is medical-centric, there is an opportunity for Australasia to develop a pathway that facilitates the involvement of doctors, nurses, paramedics and other health professionals involved in the delivery of acute care. From a medical perspective, the pathway should allow for senior trainees as well as specialists to participate.

Anecdotally, there is significant interest among nurses and paramedics, so adopting a multi-disciplinary approach in Australasia might significantly enhance demand and viability.

5. **If an Australasian GEC fellowship program eventuates, the lead organisation (likely the IEMC) should consider developing links with the IEMFC in the USA.**

Although much of the IEMFC’s work to date has focussed on the centralisation and standardisation of the IEM fellowship application process, the group provides a mechanism for experience sharing and co-operation between programs. Linking with the IEMFC would potentially open up fieldwork opportunities for Australasian GEC fellows, and encourage cross-fertilisation of ideas, resources and personnel.

**Principles and pre-requisites**

6. **Consideration should be given to surveying Australasian EC clinicians to formally assess demand for a GEC training pathway.**

There is a lack of data quantifying demand for GEC training. It would be helpful to confirm the extent of interest among EC clinicians, including ACEM trainees and fellows, prior to launching a fellowship.

7. **A critical mass of national GEC activity is necessary to justify and support formal GEC training pathways.**

IEM fellowship programs in the USA emerged in response to a clear demand for EPs skilled in GEC development and humanitarian assistance. Ongoing expansion in the number of fellowship programs has been made possible by the formation of IEM divisions within a significant proportion of US EDs.

Arguably, there is now sufficient GEC activity across Australia and New Zealand to justify development of a more formal training pathway. Demand for regional EC development is only likely to increase.
8. **Successful IEM fellowship programs have a critical mass of faculty who are actively engaged in a range of GEC activities.**

A certain amount of local GEC activity is required to support a fellowship. Several interviewees in the USA suggested that at least three full-time faculty members with an active interest in IEM are required. Despite the extent of GEC involvement across Australia and New Zealand, few individual EDs are likely to have sufficient globally-engaged clinicians and projects to support fellowships along the US model. This may limit the value and sustainability of department-based fellowship programs in Australasia.

9. **A number of international projects are required to effectively support an IEM/GEC fellowship.**

Successful fellowship programs expose fellows to a broad range of GEC activity in terms of both focus and location. In departments supporting a number of GEC projects, fellows are given the opportunity to experience different approaches, challenges and environments. This allows for more comprehensive training, and gives fellows the option to tailor their learning.

Although involvement in GEC across Australia and New Zealand is growing, few individual EDs are likely to have the same number of globally-engaged clinicians and projects as US departments that offer fellowship programs. This reflects that healthcare funding models differ greatly between North America and Australasia, and local EDs have limited capacity to generate ‘revenue’ for the purpose of funding GEC activities.

10. **GEC competencies for Australasian GEC practitioners should be defined as a matter of priority.**

Although a major undertaking, a necessary first step is to define the skills, knowledge and attributes required of GEC practitioners. This will facilitate the development of a curriculum, teaching syllabus and, if relevant in the future, an assessment blueprint. Although it will be possible to draw on existing resources (principally from US fellowship programs), Australasian GEC competencies should have a regional focus.

11. **Growth in GEC training opportunities in Australasia will need to be gradual and iterative.**

The number of IEM Fellowship programs in the USA has expanded over many years, and only recently has the IEMFC emerged. Similarly, Australasian programs should build on established networks and educational infrastructure. There will be insufficient human and financial resources to allow a rapid expansion.
12. A number of postgraduate degree programs available in Australasia are highly relevant for GEC practitioners. Any GEC training pathway should add value beyond existing opportunities.

EC clinicians already have the option of undertaking degree programs in areas of interest, such as public and international health. Many of these courses incorporate subjects that are highly relevant to GEC practice. A fellowship program should ‘value-add’ by offering integrated and targeted teaching and learning opportunities.

13. A formal training pathway should not be an impediment to appropriate involvement in GEC activities.

Only a limited number of EPs will be interested in becoming GEC ‘sub-specialists’, and the same is likely to apply to other disciplines. A bigger group will be interested in engaging in specific areas of GEC (such as HA and disaster response), and might pursue targeted training opportunities accordingly (see Figure 3).

In the USA, only a minority of GEC active clinicians have completed fellowships (although this may change over time). While the fields of GEC and HA are becoming increasingly professionalised, appropriately qualified personnel without formal GEC qualifications should retain the option of engaging in GEC activities provided that projects are scientifically and ethically robust.


Mentoring and role modelling are integral to successful GEC training programs. These are two factors that differentiate peer-led fellowships from university-based degrees.

Proposed model

15. Post-specialisation fellowships are not well established in Australasian EM. While ‘fellowship’ may be the most appropriate term to describe a peri- or post-specialisation training program, other nomenclature options could be considered.

A wide variety of terminology is used to describe post-specialisation training in Australasia. While fellow positions exist (usually in the form of 12-month posts completed immediately after specialty training), they are generally limited to procedural specialties. Only recently have fellow positions in EM begun to emerge (mainly in ultrasound and toxicology). Alternate terminology is used by some disciplines; for instance, certain specialty colleges offer Certificate and Diploma
programs in specialty and sub-specialty areas (such as ACEM’s programs for non-EM specialists).

In the interests of global consistency in IEM training, the designation ‘fellowship’ may be most appropriate, but it is likely to take time to gain traction among the Australasian EM community. If a formal postgraduate award eventuates as per the model below, it may be possible to simply refer to the pathway by the degree title, as in a Postgraduate Certificate (PGCert) or Diploma program. The terminology options should be discussed by the IEMC.

16. The model of 12- to 24-month IEM fellowship programs, embedded in individual departments, is unlikely to be the most suitable for Australasia in the short-term. Instead, a centralised program should be developed as a first step.

Few Australasian departments are likely to have sufficient supervisors and projects to support an effective GEC fellowship program. Developing a model that is centred on individual departments will limit the number and type of EDs that can offer fellowships. Only a handful of academic tertiary centres with a track record of GEC engagement and more substantial resources are likely to be able to contribute.

A more realistic option is to develop a single, bi-national program that leverages the significant number of GEC clinicians and projects brought together by the IEMN. This would maximise educational value, and enhance sustainability. Ideally, this type of program would be modular in nature so individuals could progress through at their own pace. Clear learning objectives would need to be defined.

This model would enable a cohort of early-career GEC professionals to come together as a fellowship class (essentially be a sub-group of the IEMN). It would be similar in concept to the University of Toronto Global Health Education Initiative Certificate program discussed above.

There is precedent in Australasia for a longitudinal peri-specialisation fellowship program that incorporates theory and practical components (ie, the Royal Australasian College of Medical Administrator’s AFRAMCA program).

Given that it runs Certificate and Diploma programs for non-EM specialists, ACEM is well equipped to facilitate this type of program. It has online educational infrastructure that could potentially support e-learning and networking.

17. Ideally, a GEC training pathway would provide an option for a formal award (such as a Postgraduate Certificate or Diploma). As a first step, consideration should be given to incorporating GEC-focussed subjects within existing degree programs.
A number of university-based postgraduate qualifications in public, tropical and international health are on offer in Australasia (including PG Certificate, Diploma and Master programs). Many universities and affiliated institutes have established expertise in these areas, as well as the infrastructure to support off-campus enrolments and diverse teaching models (such as online learning and clinical placements).

It is plausible that GEC focussed subjects could be developed and then incorporated into existing degree programs. In fact, several subjects that are directly relevant to GEC already exist in several degree programs, including ‘Acute Care in a Resource Poor Environment’ and ‘Clinical Acute Care in a Resource Poor Environment’ offered through James Cook University’s School of Public Health. There are also several examples from the Burnet Institute (which are recognised towards degree programs from several universities); these include ‘Health Communications and Training’ and ‘Public Health in Refugee Settings’.

Completion of a formal degree should not be compulsory for GEC fellows, rather a viable option that could easily be undertaken as part of a fellowship program. Australian universities generally allow for recognition of external subjects (subject to certain criteria), so it is theoretically possible that a GEC course(s) could be credited towards degree programs across a number of universities.

18. The annual IECS represents a focal point of GEC activity in Australia, and is the most viable option for the initial didactic component of an Australasian GEC training pathway.

There has already been discussion around expanding the Symposium to include a GEC short course for interested trainees and FACEMs. This represents ‘low hanging fruit’ in terms of developing GEC training opportunities, and could be used as the central focus of an Australasian GEC training pathway. The venue for the IECS, at the Alfred Medical Research and Education Precinct (AMREP), raises the possibility that this course could be added to the suite of offerings provided by co-located academic centres (eg, the Burnet Institute or Monash University School of Public Health and Preventive Medicine).

As a first step, the short course could cover foundation GEC competencies and topics, and provide a platform on which EC clinicians could build further skills and knowledge. This could potentially be accredited as part of broader university-based postgraduate qualification in public, tropical and international health. For example, an introductory course on GEC might form part of a Master of Public Health.

An initial course linked with the IECS would also provide an opportunity for the IEMC/IEMN to ‘test the market’ for GEC training. If successful and sufficient demand exists, additional courses could be
developed over time covering different aspects of GEC. These could draw on the expertise of individuals involved with the IEMN, as well as the staff of key AMREP organisations (ie, the Alfred Hospital, Burnet Institute and Monash University Department of Epidemiology and Preventive Medicine).

19. If GEC-focussed subject(s) can be successfully integrated with existing short course offerings and degree programs, consideration should be given to developing a GEC-specific endpoint (such as a Postgraduate Certificate and/or Diploma in GEC).

This type of arrangement would give fellows the opportunity of crediting GEC subjects towards a GEC-focussed degree or, alternatively, a broader qualification (such as a Master of Public Health). Participants would have the option of selecting modules relevant to their learning needs.

There is precedent for this type of program among the EM community in the form of aeromedical retrieval qualifications currently available at several universities. An example is the suite of aeromedical retrieval subjects provided through James Cook University; credits can be used towards a Postgraduate Certificate in Aeromedical Retrieval or a broader public health program. In some respects, the former represents a template for GEC training in that doctors undertaking retrieval positions (eg, with Careflight or Medstar) have the option of enrolling in the PGCert and using their orientation programs (in combination with some additional academic activities) towards academic credit.

Any GEC-focussed degree program would need to incorporate core and elective subjects. These would be defined in due course.

20. Any pathway should integrate theory and practice, and therefore include opportunities for fieldwork.

A coursework-based program, in isolation, would not offer the kind of holistic experience afforded by a fellowship program along the USA model. Fellows report that a major advantage of undertaking a fellowship is the opportunity to develop skills and knowledge through didactic education (for instance, via an MPH) and then apply it in in the field.

The most valuable components of these programs include opportunities for mentoring and role-modelling; supervised and supported clinical experience in diverse settings; observation of experienced GEC practitioners working in the field; immersion in successful IEM projects; participation in academic activities such as teaching and research; grant writing in collaboration with senior staff; and reflection and debriefing with senior colleagues. Any training program should aspire to incorporate these activities.
Mechanisms for incorporating clinical placements and field deployments are discussed below.

21. A GEC training pathway should incorporate opportunities for research.

Research is an essential component of academic GH. There is significant amount of expertise in GH research in Australasia, and enormous scope to expand GEC-focused research activity. This is discussed below.

In the first instance, GEC fellows could be linked with research supervisors in relevant GH academic centres (such as the Burnet Institute or Nossal Institute for Global Health). Research projects could be credited towards a higher degree, either in GEC (should one become established) or a related discipline.

22. Incorporating clinical placements and research opportunities into university-based postgraduate degrees is feasible.

Numerous public health and associated degree programs incorporate clinical placements and research subjects. It would be feasible to develop systems whereby GEC fieldwork and research activities could be credited towards a postgraduate degree. This would also provide a mechanism to ensure appropriate supervision and compliance with ethical guidelines.

23. The extent to which an Australasian fellowship program can address each of the core elements of GEC will need to be determined over time.

Bayram et al. have nominated seven core areas for IEM training programs: EM systems development, humanitarian relief, disaster management, public health, travel and field medicine, program (project) administration and academic skills. Sistenich has outlined how clinicians in Australasia can develop skills and knowledge in each of these areas, but it is not feasible for all of the listed training options to be incorporated into a fellowship program.

In the first instance, GEC training should focus on foundation concepts, such as the evidence for EC systems in LMICs. It will take some time before education in other components (such as humanitarian assistance and disaster health) can be incorporated.

Other modular training courses will be able to be built into the program in time. Theoretically, it might be possible to arrange for certain non-university run courses to be credited towards the proposed GEC degree.

Development of a list of GEC competencies will allow the breadth and depth of the program to be mapped over time.
24. A potential end point is an integrated training pathway that combines a peer-led fellowship program (overseen by ACEM IEMC/IEMN) with a higher degree (awarded by a university).

As discussed above, a fellowship program could be designed to incorporate a number of components:
- Facilitated mentoring
- Educational modules (including a foundation subject delivered as part of the IECS)
- Fieldwork, including clinical placement(s)
- Research opportunities

With the exception of the mentoring component, these elements could be configured as modules (or subjects) such that they could be credited towards a higher degree, either in GEC (should one become established) or a related discipline (such as public health).

25. Participants in a GEC training pathway should be encouraged to pursue additional studies in public health.

This type of GEC training program would not mandate foundation public health subjects (such as epidemiology and biostatistics). Participants would be encouraged to pursue additional training in public health (for instance, by way of an MPH).

Field placements

26. Any GEC fellowship program should allow participants to undertake field placements relevant to their areas of interest.

GEC is a diverse field. Rather than mandate deployments in a particular area, fellows should the have the option of undertaking a placements(s) focussed on EM systems development and/or capacity building, humanitarian assistance or disaster response (or similar).

27. Every placement should be evaluated for potential negative impacts on the host community.

All potential deployments should be reviewed to ensure they adhere to ethical guidelines. There should be mutual and reciprocal benefits for all parties.

28. Clinical placement opportunities should build on the established opportunities for ACEM advanced trainees and fellows in Papua New Guinea, Myanmar, Nepal and beyond.

ACEM has accredited a number of SSTs in LMICs, subject to appropriate supervision arrangements. It has also worked with Australian Volunteers International to develop capacity building
positions in Myanmar and PNG. Existing field positions should form the basis of clinical placement opportunities in a GEC training pathway. GEC practitioners from non-medical backgrounds may need to identify alternative placements.

29. **Explicit supervision arrangements should be developed for each placement, and must be tailored to the individual participant and setting.**

Under the model discussed above, ACEM trainees and fellows, nurses and paramedics could all participate in the GEC fellowship program. Supervision arrangements should be tailored to individual requirements, but must be sufficiently rigorous to ensure participant, patient and community safety.

ACEM has experience in supporting ACEM advanced trainees to undertake terms in PNG, Nepal and South Sudan (through MSF) via a combination of local and remote supervision. These arrangements provide a template that could be applied to other participants and settings.

30. **ACEM guidelines for SSTs in GH & IEM should be finalised and released as soon as possible.**

An ACEM guideline on GH & IEM terms is currently being developed. Until now, SSTs in resource-limited environments have been designated ‘rural and remote’ terms because a more appropriate category has not been available. The new guideline will give IEM further prominence as a ‘subspecialty’ discipline.

31. **A comprehensive monitoring and evaluation strategy should be developed to measure community- and fellow-facing outcomes.**

Although the fellowship program itself would not co-ordinate field placements, and deploying organisations are likely to have their own evaluation arrangements, an overall monitoring strategy is important to ensure that:

- The risk of harm to host communities is minimised, and any issues are promptly addressed
- The risk of harm to fellows is minimised, and any issues are promptly addressed
- Placements meets the learning needs of the fellow and build on theoretical components of the fellowship program
- The long-term impact of fellows and fellow placements can be tracked
Financial considerations

32. **Overhead costs for this pathway should be kept to a minimum.**

It should be relatively straightforward to apportion costs involved in this type of model to the various components. The program would not have to fund a salary for the fellow, and costs associated with administration should be minimal.

Modular courses and subjects would attract registration fees. Costs involved with deployments are considered below.

33. **Course registration fees may provide salary support for faculty delivering GEC modules and subjects.**

Although course costs should be minimised wherever possible, one advantage of a user-pays model is that it might generate a small funding pool that can be used to support a fractional salary for course faculty.

34. **Alternate sources of revenue will need to be identified for field placements and other development activities.**

Although clinicians would be able to work and derive an income in Australia and New Zealand while completing domestic components of a GEC qualification, health services are unlikely to provide salary and other financial support for overseas activities. This means that alternate sources of revenue will need to be identified.

In some instances, fellows may volunteer their time abroad; this is likely to be the case if individuals deploy with NGOs such as MSF and the ICRC. In the case of the established Australian Volunteers International positions, funding is provided through the Australian Volunteers for International Development program. Other positions may be supported by in-country host organisations.

The Australasian IEM community has had limited success in attracting donor funds for overseas GEC development projects. The increased academic profile that comes with a fellowship program may assist GEC clinicians in attracting grant funding.

Building GEC capacity in Australasia

35. **Establishment of a GEC training pathway should occur in concert with the expansion of broader GEC activity in Australasia.**
There is significant scope for growing Australasia’s contribution to international EC development. Funding is a major limiting factor.

**36. ACEM should consider expanding its capacity to provide GEC consulting and project management services.**

ACEM is ideally placed to advise on regional GEC development projects. Consideration should be given to developing a subsidiary of the College with a mandate to identify and pursue funded GEC development opportunities. This would be the operational arm for any GEC activities in which the College is involved.

Revenue from this activity could be used to support other GEC activities through the new subsidiary organisation as well as the ACEM Foundation. This activity may also help subsidise costs involved with the fellowship program.

The Royal Australasian College of Surgeons (RACS) has successfully established a department concerned with international development. It has been able to attract a substantial amount of funding from the Department of Foreign Affairs and Trade, and there is no reason why ACEM could not do something similar. Establishing a subsidiary company would address some of the governance issues that stem from being a membership-based organisation.

Development of such an organisation would not preclude individual EC clinicians from establishing and operating international projects. However, it may provide a mechanism for them to access administrative support and enhance their chances of attracting funding support through external donors.

**37. Any moves to establish a GEC consulting service as a subsidiary of the College should be preceded by a thorough feasibility analysis and business plan.**

Developing a business case, including analysis of personal and corporate risk, is an essential first step.

**38. Consideration should be given to developing a regionally relevant research agenda to assist in the prioritisation, co-ordination and funding of academic GEC activities.**

There is enormous scope for scientific and operational research into EC in the Asia-Pacific region. Defining a list of key research questions would help co-ordinate and focus the efforts of the academic GEC community in Australasia.
Conclusion

GEC is gaining recognition as an important discipline of GH. The post-2015 SDGs will generate an increased focus on health systems strengthening in LMICs, and hopefully drive further investments in EC systems. At the same time, the need for skilled humanitarian workers is growing in the face of increasingly frequent natural and man-made disasters. For these reasons, demand for health professionals with skills and knowledge in GEC is rising.

IEM fellowships in the USA have sought to address this need by training EPs in EM systems development and, in some cases, humanitarian assistance and disaster response. Fellowships provide a package of experiences that integrate theory with practical learning. Other global health education models in the UK and Canada also provide examples of effective GH training.

The most valuable components of US fellowship programs include opportunities for mentoring and role-modelling; supervised and supported clinical experience in diverse settings; observation of experienced IEM practitioners working in the field; immersion in successful GEC projects; participation in academic activities such as teaching and research; grant writing in collaboration with senior staff; reflection and debriefing with senior colleagues; and funding models that support a salary for the fellow. Areas for further development include enhanced coverage of certain curriculum components and greater emphasis on community-facing outcome measures.

While the North American fellowship model is appealing, healthcare and medical education structures differ greatly between the USA, Australia and New Zealand and it is not clear that discrete, department-based, post-specialisation fellowships represent the best option for the Australasian context. Few local emergency departments are likely to be able to support fellowship programs akin to those in the USA because of the requirement for a critical mass of international projects and faculty.

Other factors to be considered in the development of an Australasian pathway include the absence of formal recognition and credentialing arrangements for EM sub-specialties and the potential value in a multi-disciplinary approach. Ideally, any model would also be adaptable to other specialties looking to develop GH training pathways.

For these reasons, this report proposes a centralised model that leverages off the significant number of EC clinicians and projects brought together by the ACEM IEMN. This would maximise educational value and enhance sustainability. An important first step would be to define GEC competencies relevant to local systems and regional priorities.

A single, longitudinal fellowship program could be developed that provides access to mentoring, supervised fieldwork, research opportunities and didactic education. In relation to the latter, a GEC short course could be developed in conjunction with the annual IECS. Course convenors could apply for this to be recognised towards existing public and international health

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degree programs. Over time, a standalone degree (such as a Postgraduate Certificate or Diploma in GEC) could be developed that brings together many of the training experiences currently incorporated in IEM fellowship programs in the USA.

This model is practically feasible, and would give ACEM trainees and fellows the opportunity to participate at any stage of their training. It would also allow participation by other health professionals, including nurses and paramedics. The model would be flexible enough to allow participation over an extended period of time.

Roll-out of this type of program would provide a pathway for recognising and credentialing those clinicians who are actively engaged in GEC activities. It would enhance the academic profile of GEC in Australia, and potentially assist with GEC development projects in collaboration with overseas partners.

Alongside development of a training pathway, other mechanisms to enhance Australasia’s contribution to GEC are recommended. For instance, ACEM should investigate the feasibility of launching an international consulting and project management service focussed on GEC development. This would create a mechanism for aid agencies, donors and governments to commission advice, research and projects from experienced GEC practitioners. Any revenue derived from elements of this service could supplement other GEC development activities co-ordinated through the IEMN, as well as the fellowship program. A regionally relevant GEC research agenda should also be developed to establish priority areas and enhance co-ordination.

The results of this review will be made available to the ACEM IEMC, and formally presented at the August 2015 International Emergency Care Conference (formerly the IECS) in Melbourne. It is also hoped that a presentation will be made at the ACEM Annual Scientific Meeting in Brisbane in November 2015. These meetings will allow discussion of the next steps, including processes for defining Australasian GEC competencies and developing an outline for a GEC short course at the International Emergency Care Conference. An article for EMA will also be produced.

Looking forward, implementation of these recommendations will allow Australasian GEC clinicians to develop the skills, knowledge and attributes to work with international partners to improve emergency care systems. This will enhance Australasia’s capacity to contribute to regional development, and positively impact on the global burden of disease attributable to acute illness and injury.
References


103. Johns Hopkins University Bloomberg School of Public Health. Center for Refugee and Disaster Response.


Appendix A: Interview guide

Key topics

- International Emergency Medicine (IEM) training in the USA
- IEM activities within your Department
- Structure and components of the IEM fellowship program at your institution
- Opportunities for residents to develop skills and knowledge in IEM during training
- Future prospects for IEM training at your institution and beyond

Indicative questions

Context and terminology

- How do you define IEM?
- What is the place for other relevant terms and concepts (such as ‘global emergency care’)?
- How does IEM intersect with the broader discipline of global health?
- Is it possible to define the knowledge and skill set required for IEM practice?

Personal career

- How did you develop the skills and knowledge required for IEM practice?
- What were the key milestones in establishing and growing your own career in IEM?
- What have been the most influential and instructive experiences in developing your expertise in IEM?

Departmental IEM activities

- What are the key IEM activities in your department?
- Does your department focus on particular aspects of IEM?
- Do departmental IEM activities focus on a particular geographical region?
- What is the governance structure for your Department’s IEM activities?
- How are departmental IEM activities resourced?
- How do IEM activities link with other global health initiatives at the university?
- How many clinicians are engaged in IEM activities?
- To what extent are nursing and allied health staff able to participate in IEM activities?
Partnerships

- Do you have partner organisations either in the USA or abroad?
- How do you manage the relationship(s) with your partner organisation(s)?
- Are there examples of successful collaborations between institutions offering IEM fellowship programs?
- What are the links between the IEM community and the broader international development sector in the USA?

Fellowship program structure

- What is the duration of your fellowship program?
- How is it structured?
- Do you offer or encourage an intercalated postgraduate degree?
- Is there flexibility in the components and fieldwork options?
- Are particular aspects of IEM emphasised?
- What percentage of their time do Fellows spend abroad?
- What percentage of their time in the USA do Fellows spend on clinical duties?
- Is there a research component?
- What is the demand for IEM fellowship training at your institution?

Curriculum

- Does your Fellowship program have a published curriculum?
- Is there a teaching program or syllabus?
- To what extent does your curriculum focus on generic global health skills (such as communication and management)?
- How do you ensure development of relevant non-technical skills (such as cultural safety)?
- How are ethical issues addressed in the curriculum?

Fieldwork

- What is the nature of the fieldwork component of your IEM fellowship program?
- To what extent is capacity development a focus of Fellows’ fieldwork activities?
- Where are Fellows deployed?
- Do you have any long-term partner institutions that act as hosts to your Fellows?
- Is research routinely undertaken as part of fieldwork activities?

Financing

- Is your Fellowship program supported by philanthropic sources?
- Are Fellows expected to contribute any costs towards their Fellowship?
- How are broader IEM activities within the Department funded?
Training and development nexus

- Is it possible to achieve development objectives in the course of IEM training experiences?
- How do you balance the educational and development objectives?
- How do you determine and define the program’s development objectives?
- To what extent do the development objectives differ from year to year?

Outcomes of IEM training

- What do successful IEM training programs look like?
- How do you evaluate and measure outcomes of your Fellowship program?
- How can IEM training and fellowship programs contribute to capacity building in global emergency care?
- Should there be targets for developing an IEM workforce, based on estimated future global demand for emergency care development and humanitarian assistance?

IEM training during residency

- How is IEM incorporated into your residency program?
- What supervision arrangements are in place (if any) for residents undertaking clinical work in IEM settings?
- Is it appropriate for trainees and junior fellows to participate in humanitarian assistance and disaster response missions?
- If so, what supervision arrangements are most appropriate?
- What are the learning outcomes for IEM training experiences during residency?
- Have there been any major ethical challenges?
- How should trainees wishing to develop skills in IEM engage with humanitarian organisations?

Reflections and recommendations

- What are the strengths in your current approach to IEM training?
- Where do you see room for improvement and/or further growth?
- Do you have any other advice or recommendations for the development of IEM training in Australia?

Other contacts

- Is there anyone you would recommend to be interviewed as part of this project?
- Do you have any suggested references that could help inform this project?
Postgraduate training in global emergency care
Australia is well-positioned to become a leader in emergency care development in the Asia-Pacific, and a generation of trainees is waiting to accept the challenge.\textsuperscript{94}