The medicine in remote areas (MIRA)/travel and tropical medicine course: an urban NHS paramedic's experience.

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The Medicine In Remote Areas (MIRA) / Travel and Tropical Medicine Course: an urban NHS Paramedic's experience

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Introduction

Having worked for NHS ambulance services for over 11 years in urban environments I had long felt ready for a new challenge. For some time I had been considering looking into remote medicine, especially since I had listened to the stories of friends who worked in remote areas on a regular basis. Consequently I enrolled on the Medicine in Remote Areas (MIRA)/Travel and Tropical Medicine course at Ex+Med in Hereford.

WHY MIRA?

People are drawn to MIRA for a variety of reasons. They may wish to travel to remote areas which would otherwise be financially and logistically impossible [1], may be attracted to the challenge of practicing in a remote environment with limited equipment or assistance [1] or may have an interest in specific activities such as mountaineering or diving [1]. For me it was a very challenging way of hopefully gaining additional skills and experience. The Ex+Med MIRA/Travel and Tropical Medicine course had also been personally recommended by several colleagues over a period of time and was accredited by the Royal College of Surgeons (RCS), something other remote medicine courses did not offer.

Curriculum standards

Whatever the reasons for undertaking such a challenge, training and preparedness are of paramount importance. Whilst there appears to be no standard curriculum for pre-hospital MIRA [2] a review of research conducted in the United States (US) gave me a very good idea of what the course content should ideally include [2-4]. The consensus was that the following should be included [2-4]:

1. Orthodox emergency care and emergency medical techniques.
2. Extended care of the casualty, including stabilisation of body temperature, provision for food and water, elimination of body wastes, psychological support etc.
3. Wilderness rescue 'packaging' and transport.
4. Environmental illnesses and injuries, such as frostbite, hypothermia, high altitude illness, land and marine animal bites, insect stings etc.
5. Wilderness survival techniques.
6. Assessment and treatment of medical illnesses.
7. Use of prescription and non-prescription drugs including antibiotics, analgesics, gastrointestinal drugs and drugs for high altitude illness.
8. Improvisation of first aid equipment and transportation devices.
9. Wound management.
10. Realignment of displaced fractures and dislocations.
11. Modifications of standard, urban CPR protocols.
12. Modifications in standard protocols as appropriate for the wilder ness environment.
13. Use of advanced techniques, such as the insertion of thoracostomy and endotracheal tubes, cricothyroidotomy, intravenous fluids, bladder catheterisation etc.
14. Expedition medicine education, including tropical and other exotic diseases, vaccinations and sanitation, including the provision of disinfected water and properly prepared food.
15. Suggestions for contents of first aid kits.

Stasch, T (2007) Welcome to the Jungle.
Available from: http://www.careerfocus.bmj.com/cgi/reprint/334/7604/197

Background and Course content

Ex+Med was formed by three ex-military directors who, between them, have over 50 years of experience in providing pre-hospital medicine to small and large deployments of personnel in hostile and remote areas of the world [5]. The directors all served in a medical capacity with United Kingdom (UK) Special Forces units and, I learned, were currently providing the medical cover for the Long Way Down project. This project sees Ewan McGregor and his team with three months to cover the 15,000 miles from John O'Groats to Cape Town on motorcycles [6].

The course itself fulfilled all the recommended curriculum standards [2-4]. The right balance was found between both theoretical instruction and practical sessions, and the training facilities were outstanding. 'Live tissue' workstations provided an excellent basis for physiology lectures, a practice being adopted more and more commonly in many medical training institutions [7] and one with which I was already familiar after studying for a degree in pre-hospital care at the University of Wales, Swansea. Throughout the course students were coached through different moulages in Ex+Med's purpose built environment rooms, which included both jungle and desert simulations. These were incredibly realistic even down to details such as temperature and sound. Next came a search and rescue moulage in a collapsed building training area. Dark, smoky and chaotic this environment was certainly challenging, and working with only a head lamp for illumination was a disorientating experience. All the students agreed that it provided a realistic insight into collapsed structure search and rescue. A road traffic collision (RTC) simulation exercise followed. Whilst I have participated in such exercises before, my role has always been that of a paramedic attending to the needs of the casualties involved. This time was different, as I was placed in the role of incident officer by the fire fighter overseeing the moulage. Being given this alternative perspective was incredibly valuable, if somewhat stressful. I was wrenched firmly out of my comfort zone and made to concentrate on scene management and rescue whilst leaving the medical needs of the casualty to those in the role of primary medic.

The highlight of the course for us all was the 24 hour search and rescue exercise conducted in the 'field'. Without a doubt it is one of the most challenging things I have done to date and its value inestimable. The exercise was conducted at night in private dense woodlands and a camp made ready for us to use as a base. We reached camp mid afternoon and in the outdoor 'classrooms' our education continued. We learnt how to adapt to the remote environment in situations where state of the art equipment may simply not be available.

I never thought it would be possible to fashion a traction splint out of tree branches and rope but rest assured it is!

At approximately 2300 hours our team were briefed as to our assignment. We were told a young man had gone missing 12 hours previously wearing only light summer clothing and was presumed to be somewhere in the woodlands. Again, with only head lamps for illumination and in the pitch dark, we were tasked to locate, treat and evacuate our casualty to definitive medical care. Our casualty was eventually found lying unconscious on an extremely steep and slippery bank near a stream. I have to say here that the casualty simulation team did a phenomenal job for us. They were so utterly realistic and went through no small amount of discomfort so thanks guys!

Our casualty presented with a flail chest, compound fractured femur and lowered levels of consciousness throughout. As a team we dealt with the injuries systematically whilst the instructors took turns to pop up from their hidden observation posts to apply even more pressure by subjecting us individually to intense bouts of questioning. With the casualty eventually 'packaged' and ready to move we began the long hard journey carrying the casualty to the rendezvous point where we were told a helicopter was waiting. Twice during the evacuation we were told the casualty had taken a turn for the worse, firstly requiring the insertion of a surgical airway and secondly requiring needle thoracocentesis followed by the insertion of a formal chest drain. At these points we were taken aside where pre-prepared live tissue skill stations were waiting and had to perform the interventions 'for real'. The pressure was immense.

The following morning after a night in camp we were given a triage exercise where approximately 15 casualties had to be located and assessed using formal triage scoring systems. It is of interest to note that on bespoke MIRA courses it is at this point a real helicopter arrives. Students are given the chance to

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experience the challenges involved in treating and monitoring casualties whilst in helicopter transit, where vital signs such as pulse and respiratory rate are extremely difficult to assess.

Remote Medicine versus Urban Practice

MIRA is based upon the same principles of anatomy, physiology and pathophysiology as is orthodox emergency care [2]. However, Wilkerson sums up the difference very well by saying that the emphasis is not on what to do until the doctor comes, but rather on what to do for remote situations to which the doctor is not coming [8]. It is of value to consider at this point how remote medicine differs from medicine in an urban environment. The considerations discussed below really became apparent on the MIRA/Travel and Tropical Medicine course. Bowman states that by informal agreement among physicians experienced in remote medicine, specific ways that pre-hospital remote medicine differs from urban emergency care can be categorised as follows [2]:

1. It is practised in the remote, outdoor environment, where extreme conditions of heat, cold, altitude and storm are common and difficulties in obtaining food, water and shelter are significant. Physical hazards such as snow avalanches, rock falls, flash floods, wildfires and lightning may be present.

Hazardous micro-organisms, insects, marine animals, land animals and plants may endanger the health of remote travellers and pre-existing medical conditions may recur or flare at awkward times.

2. Definitive medical care may be hours or days away because of distance, adverse environmental conditions, lack of transportation or difficulties in communication. Urban protocols that assume rapid transportation to a medical facility may be irrelevant.

3. Illness rarely seen in the urban environment, such as acute mountain sickness and deep frostbite, may be encountered.

4. The emergency medical service requirement that there be routine physician control by telephone or radio may be unrealistic or impractical. More reliance on field protocols is necessary.

5. It may be desirable to train intelligent and motivated non-professionals to carry out advanced procedures for common injuries and illnesses, in which a treatment delay of more than a few hours may cause adverse effects which outweigh the possible risks of the procedures.

6. There is a need for rescuers to learn basic nursing and subsistence care for an injured or ill person in order to sustain the casualty for days before medical assistance can be reached (Emergency Care Practitioners would have a distinct advantage here).

7. Certain standard urban treatment protocols, such as that for cardiac arrest, may be unrealistic or even hazardous to rescuers.

8. The amount of medical equipment that can be carried by the average remote medic, or even the best equipped remote search and rescue group with helicopter support, is limited.

Improvisation will be necessary. There are many other considerations to take into account. Coupled with the challenges of a remote environment, the area may also be hostile with grave threats to safety.

Medical supplies and equipment may have to be sourced locally as replenishment from the UK may either be impossible or too time consuming. Different countries have different legislation concerning specific drugs, for example morphine, and alternatives may have to be found. Additionally, a drug produced in the UK may have a very different presentation to that of one produced abroad.

Even for paramedics working in the UK, MIRA education is of value. Although this may not seem to be the case, Bowman points out there is an analogy to disaster emergency care, where medical supplies, food, water and medical facilities may be destroyed, the number of casualties overwhelming and triage essential [2]. This has become very apparent recently in light of the severe flooding to hit parts of England.

Additionally, there are currently nine mountain rescue regions in England and Wales [9]. Although inside the UK, mountain rescue medics practice remote medicine on a day to day basis. In 2004, 804 casualties were assisted by mountain rescue teams in England and Wales [10].

Varley, J (2006) Bites, Blisters and Botflies: Nine weeks in the Belizean Rainforest. Available from http://www.careerfocus.bmj.com/cgi/reprint/332/7546/148.

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This figure consisted of 609 incidents, 376 persons injured and 25 fatalities [10]. Military search and rescue incidents can also be considered. In 2006 there were 1767 incidents resulting in 1948 callouts of Royal Navy and Royal Air Force helicopters [11]. Of this, 96% of callouts were in or around the UK and 95% to civilian incidents [11].

It can be seen then that MIRA education and training is of value to even NHS paramedics working in the UK. One does not have to be working abroad to benefit. As Stasch points out, survival skills ought to transfer to any situation where leadership, teamwork and risk assessment are called for [12]. Skills essential for medical practice, such as decision making, communication skills and self reliance will be developed [1]. For those wishing to experience expedition medicine, participation is seen by many employers as a very good indicator of personal development [1].

Whilst extremely challenging this is an experience I would not have missed. I'm certain I was lucky to be with a really great bunch of fellow students from varying backgrounds who were all happy to support and coach each other. Additionally, the instructors, whilst not averse to applying pressure, were approachable, supportive and left everyone with a real sense of belonging. By sharing my experience of the MIRA/Travel and Tropical medicine course I hope others may be encouraged to give it a whirl. Go on, you might learn something!

For further information on MIRA/Travel and Tropical Medicine courses contact Mr. Steve Benbow SR Para, FRSH at sbenbow@exmed.co.uk.

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