



The Health Boards Executive (HeBE)

Introduction of Emergency Medical Technician
Advanced (EMT-A) in the Irish Ambulance Service

Report

July 2004

Foreword

I am pleased on behalf of the Working Group, to submit this report on the Introduction of Emergency Medical Technician Advanced (EMT-A) in the Irish Ambulance Service and hope it deals adequately with the terms of reference set.

The development and implementation of an enhanced grade of Emergency Medical Technician (EMT-A) was recommended in numerous national reports on the Ambulance Service.

On the 7th March 2003 the Minister for Health and Children, Mr. Michael Martin formally announced policy approval for the introduction of the Emergency Medical Technician (EMT-A) programme. This was a very welcome development for both patients and health care providers. The Minister stated that once the programme for education and training is complete, the public can expect a level of pre hospital emergency care comparable with the most advanced standards found anywhere in the world.

On the 15th October 2003, the Minister launched the 'Report of the National Task Force on Medical Staffing' (the 'Hanly Report'). This report (Hanly) reinforced the recommendations outlined in previous national reports and made a number of key recommendations in relation to introduction and deployment of EMT-A.

The Working Group examined the implications relating to the introduction of the grade of EMT-A, and makes a number of recommendations relating to deployment, selection criteria and working arrangements.

While four possible models of EMT-A deployment were identified, the group also concluded that there will be a need for flexibility in the introduction of any new and varying model of deployment. In delivering the appropriate model of deployment, consideration will have to be given to local influences, such as:

- Location and infrastructure of Hospital Networks
- Demographics
- Geography

The Working Group also concluded that funding and resource priorities for Ambulance Service need to be established in order to develop a quality and effective system of pre-hospital emergency care. The position in relation to funding for the first and subsequent courses should be clarified before training and deployment of trainees commence.

Finally, I would like to thank my colleagues on the Working Group for the vast amount of time, energy and expertise they contributed and I look forward to the introduction of this enhanced grade of Emergency Medical Technician in the Irish Health Service.

John Cregan

Chairperson

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1. Introduction

1.1 Terms of Reference

The CEO Group (Health Boards/ERHA) in July 2003 established a Working Group to consider the introduction of the grade of Emergency Medical Technician (EMT-A) in the Irish Ambulance Service. The Working Group met for the first time on 17th September 2004, and held a further four meetings.

The Terms of Reference were as follows:

- To examine the implications relating to the introduction of the Grade of EMT-A and to make recommendations relating to:
 - Deployment, activation and response
 - Working Arrangements
 - Relationships with Medical Advisors
 - Terms and conditions of employment
 - Estimated costs of introducing the grade
 - Suggested selection criteria for first cohorts of EMT's

1.2 Membership of the Working Group

The members of the group were:

Mr. John Cregan (Chair) – Deputy Chief Executive Officer, MHB

Mr. Larry Bane, Director of Human Resources, MHB

Mr. Ray Bonar, Chief Ambulance Officer, WHB

Mr. Mark Doyle, A&E Consultant, Waterford Regional Hospital

Mr. Pat Grant, Chief Ambulance Officer, NEHB

Ms Ann Kelly, A&E Clinical Nurse Manager

Mr. Philip Lane, Project Manager, HeBE

Mr. Pat Mc Creanor, Chief Ambulance Officer, ECAHB

Mr. Barry O Sullivan, Head of Corporate Services – PHECC

Ms Raymonde O Sullivan, Director of Finance, SHB

Mr. Jim Reilly, Senior Administrative Officer, NEHB

The Working Group would like to record its gratitude to Katrina Dolan, MHB and Linda Hynes, HeBE for their valuable assistance in preparing this report.

1.3 Background

The development and implementation of an enhanced grade of Emergency Medical Technician (EMT-A) was recommended in the 'Report of the Review Group on the Ambulance Service' which was published in 1993. It recommended that a paramedic (EMT-A) pilot project be established and that an evaluation programme be conducted on the effectiveness of a paramedic service in Ireland. It also stated that the future development of paramedic services in Ireland should be considered in the light of the results of this evaluation programme. The 'Strategic Review of the Ambulance Service, 2001', further endorsed the recommendation in relation to EMT-A training and proposed that field trials should take place before full implementation. Apart from the obvious benefits of field trialing the protocols from a clinical perspective; it would also be a very useful exercise in determining the operational deployment of these grades.

On the 7th March 2003 the Minister for Health and Children, Mr. Michael Martin formally announced policy approval for the introduction of the Emergency Medical Technician (EMT-A) programme. This was a very welcome development for both patients and health care providers. The Minister stated that once the programme for education and training is complete, the public can expect a level of pre hospital emergency care comparable with the most advanced standards found anywhere in the world.

On the 15th October 2003, the Minister launched the 'Report of the National Task Force on Medical Staffing' (the "Hanly Report"). This report reinforced the recommendations outlined above and emphasised the need for having a well organised ambulance service capable of meeting the needs of emergency patients rapidly. This task force made a number of recommendations in relation to EMT-A, which are outlined in detail in section 3 of this report.

Following the announcement by the Minister for Health and Children of policy approval for the introduction of an Emergency Medical Technician (EMT-A) programme, the CEO Group established the Working Group to examine areas such as deployment, resourcing, selection criteria and competencies.

1.4 Executive Summary

The following summarises the conclusions and key recommendations of the Working Group under each of the headings outlined in the terms of reference.

1.4.1 Deployment, activation and response

As there is convincing evidence of a direct relationship between speed of response and good outcomes in life-threatening emergencies the Working Group **recommends that a formal set of response time standards be developed which would include activation and response times. (As recommended in Strategic Review of the Ambulance Service, 2001)**

The following four methods of EMT-A deployment have been identified:

- **Model One - Solo Response Model** – EMT-As are dispatched as solo responders to life threatening and serious emergencies.
- **Model Two – EMT-A on each frontline line A&E Vehicle** – All frontline line A&E Vehicles are staffed with an EMT-A
- **Model three – EMT-A based in Hospital Emergency Department** - EMT-A would be based in the local receiving A & E department. They would be supernumerary members of the A&E, Trauma and Cardiac Resuscitation teams. On being allocated an appropriate call by Ambulance Control the EMT - A would immediately respond by appropriate vehicle.
- **Model Four - EMT-A based in Primary Care Centre** – the EMT-A would work as part of the primary care team, both at the centre and in domiciliary settings. On being allocated an appropriate call by Ambulance Control the EMT-A would immediately respond by appropriate vehicle.

Another possible model of EMT-A deployment, which is not currently available in Ireland, is the Helicopter Emergency Medical Service. (HEMS). In this model the EMT staff would be a primary response to life-threatening and serious emergencies. This model was not considered at present as a report is currently being prepared in relation to HEMS in Ireland.

1.4.2 Working Arrangements

In line with the above recommendation, the Working Group **recommends that national operational standards which would be consistent with the model of deployment be developed.** There will be a need for flexibility in the introduction of new and varying models of deployment. In delivering the appropriate model of deployment, the local ambulance service will need to give consideration to local influences, such as:

- Location and infrastructure of Hospital Networks
- Demographics
- Geography

Ambulance services may determine that more than one model of deployment is required within their functional area or hospital network.

The Working Group **recommends that there is a need for a comprehensive workforce projection plan to align ambulance staffing requirements with future models of pre hospital emergency care.**

1.4.3 Relationships with Medical Advisors

The working group **recommends that clinical groups consisting of the Medical Advisor, senior clinicians and senior management of the ambulance service (Chief Ambulance Officer and Training and Development Officer) be established in each region / hospital network, (whichever emerges as the functional area for the ambulance service).**

This group will be responsible for audit, monitoring and reviewing of the field protocols developed by the Pre-Hospital Emergency Care Council (PHECC). To achieve this, the relationship between the Medical Advisor and the Ambulance Service will need to be formalised and standardised.

1.4.4 Terms and conditions of employment

The Working Group has identified draft terms and conditions of employment and further **recommend that these issues be finalised in conjunction with the HSEA.**

1.4.5 Estimated costs of introducing the grade

The costs of training the first cohorts of EMT-As are outlined in Section 5. As Task Force (Hanly) identifies that recommendations have resource implications, the Working Group **recommends that funding and resource priorities for Ambulance Service need to be established in order to develop a quality and effective system of pre hospital emergency care.**

1.4.6 Suggested selection criteria for first cohorts of EMTs.

It is intended that the first cohort will include EMT-A Trainers who will form the faculty to teach and mentor the programme. Participation on course two will be open to operational personnel, with priority being allocated to Hanly (Phase 1) hospital networks, and remainder of faculty staff. In this context it is important that selected candidates have both the potential and commitment to support the ongoing training, development and evaluation of the programme for a period of at least three years. The position in relation to funding for the first and subsequent courses should be clarified before training and deployment of trainees commence.

The implications of having “non advanced trained” personnel from the two pilot areas (ERHA & MWHB) on the second course will be an issue to be addressed by the Training Institution and PHECC.

- **Course One – To commence 3rd Quarter 2004.**
 - Participation on course one will be confined to training and development personnel (Invitation only).

- **Course Two – To commence 4th Quarter 2004.**
 - Participation on course Two will be open to operational personnel, with priority being allocated to Hanly (Phase 1) Hospital networks, and remainder of faculty staff.

1.4.7 Other Issues for Consideration

Whichever model of delivery is chosen, the Working Group recommend that **consideration be given to the following human resource and operational issues:**

- **Introducing Priority Medical Despatch Systems**
- **Eliminating on-call**
- **Introducing National Fleet Replacement policy**
- **Reviewing ambulance estate / stations**
- **Introducing Dynamic Standby/Sector Patrolling**
- **Introducing Response Time Reliability standards**
- **Tiering the service and workload demands i.e. PTS, High Dependency Units, EMT-B units, EMT-A units**
- **Improved communications with Emergency Departments.**
- **Single worker Health & Safety issues**

2. Background to Emergency Medical Technician Advanced (EMT-A)

As a result of the high casualty / death rate amongst American soldiers during the Vietnam War, the United States Army began training personnel in Advanced Life Support (ALS) skills, such as infusion and intubation, in an effort to decrease mortality. Subsequently, many of these highly skilled personnel became employed in the Emergency Medical Services in the United States. Areas such as Seattle and Florida were among the first to develop ALS Units. These units were found to be very effective in treating patients who required advanced intervention, and as a result, further units were established throughout the United States.

During the late 1960's and early 1970's the potential benefits of providing advanced medical care, rather than just transport, during the pre-hospital phase began to emerge. In the UK in the 1980's, the Department of Health and Social Services commissioned the University of York to conduct an evaluation into extended training schemes. The university published its results in April 1984. The study had undertaken a cost benefit analysis into the benefits of advanced care, drawing on experience gained in the experimental schemes operating in England and using international literature. While uncertainties were acknowledged in terms of the likely benefits, particularly in the context of traumatic injury, it was estimated that between four and five lives could be saved each year, for every ambulance staffed by a staff with ALS skills, 24 hours per day, 365 days a year. The Department of Health and Social Services noted the "somewhat tentative" nature of the study's conclusions but nevertheless acknowledged that in principle, the extended training of ambulance staff in certain resuscitative techniques is likely to be beneficial to patients, and so the first paramedics were trained and went operational in the mid 1980's.

Evaluation by the UK services of their current advanced programme has identified the need to improve current academic standards within the services. One of the lessons learnt from the UK services is to develop closer links with Medical and Nursing professions via clinical networking and through the development of third level education programmes.

3. National Task Force on Medical Staffing (the “Hanly Report”)

3.1 Introduction

The Minister for Health and Children, Mr. Michael Martin, TD, appointed the National Task Force on Medical Staffing on 21 February 2002. The report was launched by the Minister on 15 October 2003. The key work of the task force was to:

- Devise a strategy for reducing the average working hours of non consultant hospital doctors
- Address the consequent medical staffing needs of Irish hospitals
- Analyse the practical implications of moving to a consultant –provided hospital system
- Consider the requirements for medical education and training arising from any changes to the current model of delivering services.

A central theme running through the report is that, irrespective of the amount of funding made available to the health services, there is a need to put in place the structures and systems that lead to better management information, and therefore enable a systematic evaluation of value for money to be undertaken. According to the task force, this would result in better patient care, more efficient delivery of services and measurable outcomes.

A summary of the Task Force proposals have the potential to yield considerable improvements in efficiency and speed of access to care are as follows:

- An emphasis on providing a greater number of fully trained doctors i.e. consultants, thus relying to a lesser extent on doctors who are still in training:
- The designation of pilot regions and roles for each hospital:
- The key role of the Ambulance Service
- The identification of Major Hospitals as the appropriate sites for the provision of emergency care and delivery of increased volumes of elective, diagnostic and other procedures in affiliated Local Hospitals.

3.2 Pre-Hospital Emergency Care Recommendations

The task force concluded that the Ambulance Service plays a key role in the initial care, transport and treatment of emergency patients and emphasised the need to have a well organised ambulance service capable of meeting the needs of emergency patients rapidly. The task force made the following key recommendations in relation to pre-hospital emergency care:

- Ambulance staff in the pilot regions should be facilitated in accessing EMT-A training as soon as possible.
- The emergency care stream should have the following characteristics:
 - “It should be focused on the Major Hospital, with central coordination of emergency services, including ambulance services” – (Page 76)
 - “There should be rapid access to emergency services via 999/112 calls, emergency medical technicians and primary care” - (Page 76)
 - “Seriously ill or injured patients should be brought directly to Accident and Emergency unit of the major hospital” - (Page 76)
 - “All ambulance personnel should be trained to EMT-A level and be capable of decisions about what level of service the patient requires. Nearest hospital protocols should then be set aside, with patients triaged to the appropriate service immediately” - (Page 76)
 - “Implementation Plan – Training of EMT-As identified as a medium term goal to be achieved by 1 August 2009” - (Page 116)
 - “Initiate development of regional trauma management and ambulance by pass protocols have been identified as an immediate action.”

3.3 Implications for Pre-Hospital Emergency Care

The ambulance service will play an important role in the implementation of the Hanly Report and must be seen as a key stakeholder to ensure an effective roll out the recommendations. The Working Group has identified the following implications for the pilot regions:

- “Staff in pilot regions to be facilitated in accessing EMT-A training as soon as possible” – (Page 71)
- “All ambulance personnel should be trained to EMT-A level and be capable of decisions about what level of service the patient requires”. - (Page 76)
- “Geographical considerations - how best to meet the needs of the population who for reasons of geography or distance cannot be easily accessed, resulting in longer journey times. - (Page 75.) Different models of service delivery need to be explored, i.e. 1st responder programmes, use of private contractors for non emergency workload. Integration with primary care, BLS and ALS Response models etc.”
- “Central coordination of emergency services including ambulance service by Major Hospital – links with regional emergency medical services “ - (Page 76)

- “All major trauma and medical emergencies should go directly to the Major Hospital. Nearest hospital protocols should be set aside, with patients triaged to the appropriate service immediately.” - (Page 76)
- “Need for a comprehensive workforce projection plan to align ambulance staffing requirements with future models of pre hospital emergency care.
- “As Task Force identifies that recommendations have resource” implications, priorities for Ambulance Service need to be established in order to develop a quality and effective system of pre hospital emergency care”.

The implications for other regions will require further consideration following the report of the Acute Hospitals Review Group established in January 2004 and chaired by Mr. David Hanly.

The Working Group feels that the recommendations in Hanly are aspirational at this stage. One cannot be definitive as to the number of EMT A’s that will be trained or deployed. Capacity for training, lead time and implementation modules selected will all impact the final outcomes.

4. Models of Care

4.1 Introduction

In seeking to develop any new initiatives within the pre-hospital emergency care environment, any such development must be consistent with the theme of the recent national reports on the Health Services which states services must be:

- Equitable
- Accessible
- Effective
- Efficient
- Appropriate
- Responsive

Appropriateness of care delivery is dependent, among other things, on the suitability of the receiving hospital to the particular needs of the patient. This goes beyond the availability of an Accident & Emergency Department, to considerations of available specialties such as cardio-thoracic and neurosurgery. If the Ambulance Service is to play its full part in delivering appropriate services, further developments in advanced life support are essential. This has become even more relevant with the publication of the Hanly Report.

There are several elements which need to come together to improve ambulance response times and patient treatments and outcomes. The EMT-A programme should only be seen as one of these elements **The working Group recommend that the four main elements listed below would all need to be progressed in parallel to ensure that one is maximising the benefit to the patient of the EMT-A programme:**

- **elimination of on-call as a means of providing emergency cover**
- **improved fleet Replacement Programme**
- **Increased geographic reach**
- **National Command and Control Systems (to include Medical Priority Despatch Systems)**

4.2 WHO WILL BENEFIT FROM EMT-A

Ireland has the highest mortality rate from cardiovascular disease in the EU, almost twice the EU average. Ireland also has the highest mortality rates associated with road traffic accidents. Both these groups will benefit from ambulance service personnel having extended skills to treat their conditions and injuries.

Demographic issues, with a growth both in general population and in the number of older people with a resultant increase in morbidity, and a high incidence of serious road traffic accidents, all contribute to a very challenging operational environment for the Ambulance Service.

4.3 Response Time Standards

The ambulance services have no response time reliability standards. It is important to remember that response time reliability standards for emergency ambulance services were developed, not as a goal in themselves, but, rather, because of the evident relationship between response time and clinical outcome. In the context of pre-hospital cardiac arrest, Eisenberg (1) and his colleagues expressed this as follows:

*Survival rate =
67% at collapse
minus 2.3% per minute to CPR
minus 1.1% per minute to defibrillation
minus 2.1% per minute to ACLS*

In the context of major trauma, in developed countries, deaths from trauma fall into three groups:

- 50% at time of injury;
- 30% during the first few hours following injury;
- 20% during the ensuing weeks, from infectious complications or multiple organ system failure

It is from the second group that the Golden Hour concept is derived. The third group can also benefit from timely, high quality pre-hospital care. This area should be of particular concern to ambulance services as injury and poisoning is the second highest cause of death in the 0-14 and 15-34 age groups.

An additional challenge for pre-hospital care provision in rural regions is the often extended duration of the patient care episode. This places great responsibility on the ambulance crew who require a greater depth of knowledge and level of skills to meet patient's needs over longer periods of time.

1-Larsen, M.P., M.S. Eisenberg, R.O. Cummins & A.P. Hallstrom, Predicting Survival from Out-of-Hospital Cardiac Arrest: A Graphic Model: Annals of Emergency Medicine, November 1993

4.4 Models of EMT-A Deployment

Eisenberg's work on cardiac arrest has already been quoted above. His Graphic Model of survival from out-of-hospital cardiac arrest was very clear in its importance for ambulance training. It estimated that, even given the availability of defibrillation, survival rate declined by 2.1% per minute to advanced cardiac life support. This is one of the major arguments for developing an advanced life support (ALS) capacity for ambulance personnel, who are the only constant factor in the response to life threatening emergencies. Appropriate medical

priority despatch systems should be developed in tandem with roll out of EMT-A programme. In line with the above recommendation, the Working Group **recommends that national operational standards which would be consistent with the model of deployment be developed.** There will be a need for flexibility in the introduction of new and varying models of deployment. In delivering the appropriate model of deployment, the local ambulance service will need to give consideration to local influences, such as:

- Location and infrastructure of Hospital Networks
- Demographics
- Geography

Ambulance services may determine that more than one model of deployment is required within their functional area or hospital network.

There are a number of models of EMT-A deployment that would facilitate ALS provision in pre-hospital care:

- **Model One - Solo Response Model – EMT-A dispatched as solo responders to life threatening and serious emergencies.** In this model, advanced life support is delivered by a specialised tier of the Ambulance Service. EMT-As are directed at life-threatening and serious emergencies with support from an EMT-B crew and EMT-B units are directed at all other calls. The strengths and weaknesses of this and the other models are set out in the table below. This would result in EMT-B ambulances being required to support the EMT-A responder. Secondly, this model requires prioritisation of emergency calls before a crew is activated.
- **Model Two – EMT-A on each frontline line A&E Vehicle** - In this model, all ambulances have an advanced life support capability and any ambulance can respond to any call. This model requires circa 60% of emergency crew staff to be EMT-A certified. It reduces the incidence of duplicated response and provides greater geographic reach. For these reasons, among others, it can deliver higher benefits and lower risks both to the patient and the service.
- **Model Three – EMT-A based in Hospital Emergency Department** - EMT-As would be based in the local receiving hospital. They would be supernumerary members of the A&E, Trauma and Cardiac Resuscitation teams. On being allocated an appropriate call by Ambulance Control they would immediately respond by appropriate vehicle.
The transporting EMT-B crew would also be despatched. On rendezvous with the EMT-B crew, the EMT-A would assess the clinical situation with reference to the need for more advanced care, provide this care and make decisions regarding most appropriate receiving hospital.

- **Model Four – EMT-A based in Primary Care Centre**

In this model the EMT-A will work as part of the primary care team, both in the centre and in domiciliary settings. The commonest rationale for primary care attachment is to facilitate the deployment of advanced life support providers in areas of low population density. On being allocated an appropriate call by Ambulance Control they would immediately respond by appropriate vehicle. The transporting EMT-B crew would also be despatched. On rendezvous with the EMT-A, they would assess the clinical situation with reference to the need for more advanced care, provide this care and make decisions regarding most appropriate destination. This option offers great benefit in the areas of supervision and mentorship for the newly-qualified practitioners. The capacity to improve clinical outcomes is greater than in any other rural model, given that the EMT-A will see primary care as well as pre-hospital care patients. However, in strict pre-hospital care terms, intervention opportunities will be more limited than in any of the urban options.

- Another possible model of EMT–A deployment, which is not currently available in Ireland, is the Helicopter Emergency Medical Service (HEMS). In this model the EMT staff would be a primary response to life-threatening and serious emergencies. The significant weaknesses of this option are:
 - Costly to procure and operate
 - Limited in certain weather and environmental conditions.
 - Not all facilities have appropriate landing sites.
 - Not all call sites will permit landing

This model was not considered at present as a report is currently being prepared in relation to HEMS in Ireland.

The Strengths and Weaknesses of the four models are summarised below:

Model	Strengths	Weaknesses
Model 1 EMT-A Solo Response Model	<p>Minimises training costs.</p> <p>Maximises clinical experience opportunities for EMT-As.</p>	<p>High incidence of duplicated responses.</p> <p>Reduces responsiveness and equity by diluting geographic cover and requiring time-consuming pre-activation prioritisation.</p> <p>May require more units to produce acceptable response time reliability and, thus, increase costs.</p> <p>Increases risk of inappropriate response to life threatening emergencies.</p>
Model 2 EMT-A on each frontline line A&E Vehicle	<p>Improves equity and responsiveness by preserving geographic reach and permitting post activation prioritisation.</p> <p>Assures appropriateness.</p>	<p>Higher training and operating costs per unit.</p> <p>Reduces clinical experience opportunities.</p>
Model 3 EMT-A based in Hospital Emergency Department	<p>Minimises training costs.</p> <p>Maximises clinical experience opportunities for EMT-As</p> <p>Familiarity with key clinical personnel, building relationships and trust</p> <p>Deployment only to cases requiring their input.</p> <p>Involved in ongoing management of patient in the A&E phase.</p> <p>Fewer numbers required initially.</p>	<p>May be viewed as less a team member by EMTs.</p> <p>May miss first contact with the patient.</p> <p>Slower deployment to the patient, particularly in rural areas..</p> <p>May need a driver to return vehicle if EMT-A stays with the patient.</p> <p>Two responses to certain patients, EMT and EMT-A</p>
Model 4 EMT-A based in Primary Care Centre	<p>Capacity to improve clinical outcomes is greater than in any other rural model</p> <p>Advanced life support can be delivered speedily to high acuity patients in remote areas.</p> <p>Deployment only to cases requiring their input.</p> <p>Minimises training costs.</p>	<p>May be viewed as less a team member by EMTs</p> <p>May need a driver to return vehicle if EMT-A stays with the patient.</p> <p>Two responses to certain patients,</p> <p>Lack of ongoing skill maintenance.</p> <p>Lack of exposure to patient clinical management practices in receiving hospitals.</p> <p>Some primary care centre do not operate a 24/7 basis.</p>

As stated earlier, there will be a need for flexibility in the introduction of new and varying models of deployment. In delivering the appropriate model of deployment, services will need to give consideration to local influences, such as:

- Location and infrastructure of Hospital Networks
- Demographics
- Geography

Ambulance services may determine that more than one model of deployment is required within their functional area or hospital network.

4.5 Other Issues for Consideration

Whichever model of delivery is chosen, **consideration must be given to the following human resource and operational issues:**

- **Introducing Priority Medical Despatch Systems**
- **Eliminating on-call**
- **1st Responder schemes**
- **Introducing National Fleet Replacement policy**
- **Reviewing ambulance estate / stations**
- **Introducing Dynamic Standby/Sector Patrolling**
- **Introducing Response Time Reliability standards**
- **Tiering the service and workload demands i.e. PTS, High Dependency Units, EMT-B units, EMT-A units**
- **Improved communications with Emergency Departments.**
- **Single worker Health & Safety issues**
- **Integration with Primary Care**

4.6 Quality Assurance / Clinical Audit

In common with emergency medical services throughout the developed world, ambulance services in Ireland are operating increasingly in a rapidly developing environment of medicine and medical technology. The Ambulance Service's response to this shares many common best practice characteristics with its counterparts in Europe, North America and Australasia. All services have a medical advisor, whose remit includes oversight of clinical practice. Patient care interventions are becoming increasingly protocol driven, and this will be accelerated by the development of the EMT-A programme. Whilst giving the outward appearance of restrictiveness, patient treatment protocols actually free the EMT to deliver a much wider scope of care to the emergency patient, acting under the aegis of the issuing authority.

The working group **recommends that clinical groups consisting of the Medical Advisor, senior clinicians and senior management of the ambulance service (Chief Ambulance Officer and Training and Development Officer) be established in each region / hospital network, (whichever emerges as the functional area for the ambulance service).** This group will be responsible for audit, monitoring and reviewing of the field protocols developed by the Pre-Hospital Emergency Care Council (PHECC). To achieve this, the relationship between the Medical Advisor and the Ambulance Service will need to be formalised and standardised is imperative that this group maintains close contact with PHECC as revisions may take place in light of audit, changes in medical standards and practices and feedback from users (As outlined in EMT Advanced, Performance Standard – appendix 4) .

In light of future service developments consideration should also be given towards appointing a full time National Medical Director for the ambulance service, as is the case in the Northern Ireland and Scottish Ambulance Services.

5 Implementation and Costs

5.1 Implementation Plan

As the Report of the National Task Force on Medical Staffing identified the training of EMT-As as a medium term goal to be achieved by 1st August 2009, EMT A training needs to commence in early 2004. The implications of having “non advanced trained” personnel on the second cohorts will be an issue to be addressed by the training institution and the PHECC.

The following is the proposed plan for the first two cohorts:

- **Course One – To commence 3rd Quarter 2004.**
 - Participation on course one will be confined to training and development personnel (Invitation only).

- **Course Two – To commence 4th Quarter 2004.**
 - Participation on course Two will be open to operational personnel, with priority being allocated to Hanly (Phase 1) Hospital networks, and remainder of faculty staff.

Evaluation of the first two cohorts will determine the duration and content of subsequent courses. Following this, a formal and robust training plan needs to be developed which will enable the further training of EMTs in the two initial pilot areas and also the roll out of proposals that will emerge from the Acute Hospitals Service Group (Hanly 2).

It should be further noted that there needs to be an ongoing commitment to training, revalidation, recertification and upskilling of EMTs.

5.2 Estimated Costs of Implementation

The following sets out the likely costs involved in the training of the first two courses. The staff replacement costs are calculated at flat time (based on the availability of adequate relief staff). In the event of adequate relief staff not being available, the staff replacement costs would be doubled. This would increase revenue costs from €536k to €1.072m.

The set up costs of €500k for the National Ambulance Training School include all the school revenue costs involved in running the first two courses. i.e. External instructors, university accreditation, training equipment, school fees for all students etc. The National Ambulance School will be funded by PHECC to the extent of €500k. It is important to note that for all subsequent courses there will be a further charge by the National Ambulance Training School in the region of €10k per student.

Revenue Costs

Euro m	<u>Pay</u>	<u>Non Pay</u>	<u>Total</u>
<u>Training & Development Officers - Course 1</u>			
- Travel, Subsistence		0.057	0.057
- Replacement Cost @ flat time	0.108		0.108
<u>Training & Development Officers - Course 2</u>			
- Travel, Subsistence		0.095	0.095
- Replacement Cost @ flat time	0.176		0.176
Total Costs Training & Development Officers	0.284	0.152	0.436
<u>EMTS - Course 1</u>			
- Staff Replacement @ flat time	0.144		0.144
- Travel Subsistence		0.152	0.152
<u>EMTS - Course 2</u>			
- Staff Replacement @ flat time	0.108		0.108
- Travel, Subsistence		0.114	0.114
Total EMT Costs	0.252	0.266	0.518
Total Revenue Costs	0.536	0.418	0.954
<u>Capital Costs</u>			
Initial Set Up Costs	<u>Pay</u>	<u>Non Pay</u>	<u>Total</u>
- Agency Training Equipment		0.080	0.080
- Agency Response Vehicles		0.126	0.126
- National Ambulance School		0.500	0.500
Total Capital Costs	0.000	0.706	0.706
Total Revenue & Capital Investment	0.536	1.124	1.660

Appendix 1

The following scenarios detail the variation of skills that EMTs / EMT-As will use in responding to a variety of emergency calls. Below each scenario is a narrative identifying need for EMT-A deployment.

SENARIO 1

A road traffic accident with one causality who is not trapped and is fully alert but because of the mechanism of injury will require to be spinally immobilized.

	EMT	EMT-A
Scene safety and BSI	Yes	Yes
Open patients airway if required	Yes	Yes
Immobilize the patients head	Yes	Yes
Check breathing and put on 100% oxygen	Yes	Yes
Check circulation, no haemorrhage	Yes	Yes
Put on cervical collar	Yes	Yes
Put on Kendrick Extrication device	Yes	Yes
Remove patient from vehicle and place on back board	Yes	Yes
Get a full set of vital signs	Yes	Yes
Do a head to toe survey on the patient and treat any injuries	Yes	Yes
Put patient on monitor	Yes	Yes
Continue to monitor the patient	Yes	Yes
Transport to appropriate hospital	Yes	Yes

In this case, control staff using a medical priority despatch system would, interrogate the caller, provide pre arrival instructions and identify the appropriate response, which in this case is an EMT crew, as no advanced life support is required.

SENARIO 2

A road traffic accident with one causality who is trapped and is unresponsive and has severe injuries and is in third degree shock. The Fire Service states that it will take at least 10 minutes to remove the patient. This will mean that the patient will have been trapped for at least 45 minutes.

	EMT	EMT-A
Scene safety and BSI	Yes	Yes
Open the patient airway	Yes	Yes
Patient cannot maintain their own airway		
Insert oropharyngeal airway	Yes	Yes
Airway still cannot be maintained because of vomit		
Suction the patient and use bag valve mask	Yes	Yes
Put on cervical collar		
Intubate the patient thereby securing the patients airway and ventilate the patient with BVM connected to tube if needed	No	Yes
Control haemorrhage	Yes	Yes
Canulate patient and start IV of Hartman's 500mls to maintain systolic BP @ 80–90 repeat to 2,000mls	No	Yes
Put on Kendrick Extrication device or do rapid extrication unto spinal board if indicated	Yes	Yes
Get a full set of vital signs	Yes	Yes
Do a head to toe survey on the patient and treat any injuries	Yes	Yes
Put patient on monitor	Yes	Yes
Continue to monitor the patient	Yes	Yes
Transport to appropriate hospital	Yes	Yes

In this case, control staff using a medical priority despatch system would, interrogate the caller, provide pre arrival instructions and identify the appropriate response, which in this case is an EMT-A crew as advanced life support is required i.e. secure airway and IV access.

SENARIO 3

A 55-year-old man is found collapsed in his house by a neighbour he is a known cardiac patient. The neighbour calls for an ambulance.

	EMT	EMT-A
Scene safety and BSI	Yes	Yes
Open the patient airway	Yes	Yes
Check breathing and secure airway with oropharyngeal airway	Yes	Yes
Not breathing, give two ventilations via BVM	Yes	Yes
Check pulse, no pulse begin CPR	Yes	Yes
Attach defibrillator, VF on screen defib 3 times if necessary	Yes	Yes
VF still on screen		
Airway cannot be secure with oropharyngeal airway, intubate	No	Yes
Give Epinephrine 1mg IV repeat every 3-5 minutes	No	Yes
CPR x 1minute	Yes	Yes
Defib x 3 shocks	Yes	Yes
VF still on screen give amiodarone 300mg IV	No	Yes
CPR x 1minute	Yes	Yes
Defib x 3 shocks	Yes	Yes
Give Epinephrine 1mg IV	No	Yes
CPR x 1minute	Yes	Yes
Defib x 3 shocks	Yes	Yes
Still in VF load and transport to hospital	Yes	Yes

In this case, control staff using a medical priority despatch system would, interrogate the caller, provide pre arrival instructions and identify the appropriate response, which in this case is an EMT-A crew as advanced life support is required i.e. secure airway, IV access and administration of cardiac medication.

SENARIO 4

A 55-year-old man is found collapsed in his house by a neighbour he is a known cardiac patient. The neighbour calls for an ambulance.

	EMT	EMT-A
Scene safety and BSI	Yes	Yes
Open the patient airway	Yes	Yes
Check breathing and secure airway with oropharyngeal airway	Yes	Yes
Not breathing, give two ventilations via BVM	Yes	Yes
Check pulse, no pulse begin CPR	Yes	Yes
Attach defibrillator, PEA on screen continue CPR	Yes	Yes
Airway cannot be secure with oropharyngeal airway intubate	No	Yes
Give Epinephrine 1mg IV repeat every 3-5 minutes	No	Yes
CPR x 1minute	Yes	Yes
PEA still on screen give Atropine 1mg if bradycardic repeat up to 3mg if persistent Bradycardia	No	Yes
CPR x 1minute	Yes	Yes
Give Epinephrine 1mg IV	No	Yes
CPR x 1minute	Yes	Yes
If persistent PEA load and transport to hospital	Yes	Yes

In this case, control staff using a medical priority despatch system would, interrogate the caller, provide pre arrival instructions and identify the appropriate response, which in this case is an EMT-A crew as advanced life support is required i.e. secure airway, IV access and administration of cardiac medication.

SENARIO 5

A neighbour finds a 55-year-old man in his house. He has severe chest pain that is not relieved by rest or when he takes his GTN. He is a known cardiac patient. The neighbour calls for an ambulance.

	EMT	EMT-A
Scene safety and BSI	Yes	Yes
Ensures ABCs	Yes	Yes
Administer oxygen	Yes	Yes
Attach 12 lead monitor and follow protocol	Yes	Yes
Give GTN x 1repeat after 1 minute if indicated	Yes	Yes
Gain IV access	No	Yes
If persisting pain give morphine 2mg IV and repeat if pain persists every 2 minutes up to 10mg	No	Yes
Continue assessment and transport	Yes	Yes

In this case, control staff using a medical priority despatch system would, interrogate the caller, provide pre arrival instructions and identify the appropriate response, which in this case is an EMT A crew as advanced life support is required i.e. secure airway, iv access and administration of medication.

SENARIO 6

A 24-year-old man is found collapsed in the street and he is found fitting by a neighbour. The neighbour calls for an ambulance.

	EMT	EMT-A
Scene safety and BSI	Yes	Yes
If not fitting check ABCs	Yes	Yes
Gain IV access	No	Yes
Check blood glucose	Yes	Yes
If seizures reoccurs consider 2.5mg Diazepam IV	No	Yes
If fitting persist or reoccurs repeat diazepam IV to max of 10mg at 1-2 mins	No	Yes
Transport to hospital	Yes	Yes
If patient is seizing on arrival of EMT and episode > 4min Diazepam 10mg rectal	No	Yes
Repeat if IV access is unobtainable and fitting persist	No	Yes
Gain IV access	No	Yes
If fitting persist or reoccurs repeat diazepam IV to max of 10mg at 1-2 mins	No	Yes
Transport to hospital	Yes	Yes

In this case, control staff using a medical priority despatch system would, interrogate the caller, provide pre arrival instructions and identify the appropriate response, which in this case is an EMT-A crew as advanced life support is required i.e. secure airway, IV access and administration of appropriate medication.

Appendix 2

Job Description - - *Requested the DHR Group to draft a job description.*

Appendix 3

Proposed Template for Selection Criteria & Competency Profile

Selection Criteria - (first two cohorts)

It is intended that the first cohort will include EMT-A Trainers who will form the faculty to teach and mentor the programme and operational staff from the two pilot areas. (MWHB & ERHA). In this context it is important that selected candidates have both the potential and commitment to support the ongoing training, development and evaluation of the programme for a period of at least three years.

The skills and experience required for these initial courses will be invaluable in developing the final EMT-A programme. There will be a significant emphasis on developing and proving an Irish course in addition to mentoring new trainees. Therefore both of these courses will require a level of candidates who can absorb the educational and practical components of the programme, whilst evaluating each area in terms of its potential clinical and operational effectiveness.

The criteria set out below should be considered in line with the agreed principle of **“Train the Trainers”** as a prerequisite to initiating the operational EMT-A Course and deployment nationally.

It is intended that the criteria outlined below will attract candidates with both the potential and commitment to support the ongoing training, development and evaluation of the programme for a period of at least three years. Therefore, self-selection and de-selection for these particular courses by candidates themselves will support the overall process. It is recognised that such a commitment presents a number of challenges for candidates, however, in order for the programme to be effectively sustained through its embryonic stage and consequently meet the expectations of both patients and the service, these criteria is deemed to be essential.

Person Specification

These areas are essential candidate requirements.

- Currently, actively involved in the delivery of both cognitive and psychomotor training to EMT's
- Membership on the PHECC database.
- Minimum of three years fulltime operational involvement within the Irish Ambulance Service.
- Leaving Certificate or equivalent

- **Undertake to comply with PHECC's-**
 - Clinical Practice Guidelines (CPG's)
 - Continuing Professional Development Requirements
 - Best Practice initiatives
- **Provide evidence of supporting professional excellence and advancement in the following areas:**
 - Facilitate the mentoring and coaching of EMT trainees
 - Document Patient Report Forms as routine practice (PRF's) [With the exception of fulltime Training and Development Staff]
- **Commitment to Excellence and Development - In order to be considered for selection for interview potential candidates must give an undertaking for a minimum of three years to: -**
 - Participate in evaluation projects relating to the deployment and modelling of EMT-A distribution, as and when required.
 - Endorse a commitment to maintain tutor/trainer competence and provide EMT-training for a minimum period of three years.
- **Commit to the development of the profession through: -**
 - Contributing to the EMS knowledge base
 - Enhancing clinical audit within the profession
 - Write and peer review pre-hospital emergency care articles and papers

Selection Process (Details of Job, Person Specifications and duties and responsibilities are outlined in Appendix 2)

An interview board will consider only candidates who meet all of the Person Specification areas. The selection process by the interview board will focus on: -

- Communication skills
- Strong Initiative.
- Interpersonal effectiveness.
- Team worker capable of working independently.
- A Proven track record of personal development within the Ambulance Service
- Leadership Skills
- Teamwork

- Sound judgement
- Assertiveness
- Flexibility

Additional Experience and Qualifications:-

Recognition will be given for additional experience and following qualifications: -

- Paediatric Advanced Life Support (PALS)
- Emergency Paediatric Life Support (EPLS)
- Advanced Life Support (ALS)
- Pre-Hospital Trauma Life Support (PHTLS)
- Advanced Paediatric Life Support (APLS)
- Basic Trauma Life Support (BTLS)
- Geriatric Education for Emergency Medical Service (GEMS)
- Advanced Medical life Support (AMLS)
- Paediatric Education for Pre-hospital Professionals (PEPP)
- Manual Handling and Lifting
- Major Incident Medical Management and Support (MIMMS)

Composition of Boards

All interview boards for selection of EMT-A should be benchmarked and standardised to consist of at a minimum the following –

- Service Manager
- Medical Advisor to Service
- Management Representative
- Training and Development representative.

Consideration should be given to having a national interview board, with nationally agreed selection criteria and marking system.

Conditions of Employment

. The issue of remuneration / rates of pay will be dealt with by the Health Service Employers Agency (HSEA).

Appendix 4

EMT – ADVANCED

TRAINING PROGRAMME TABLE OF CONTENTS

EMT- Advanced: Performance Standard

Enhanced Clinical Practice

Professional Development

EMT- Advanced: Training Structure

- I General Rules Governing Courses for *EM -Advanced*
- II Training Modules
- III Evaluation
- IV The Accreditation Cycle
- V Regional Clinical Support

Appendix Field Treatment Protocols

EMT - Advanced: Performance Standard

The *EMT - Advanced* is competent to carry out all of the duties of the EMT and has an enhanced range of abilities, which permit the safe delivery of advanced care within the framework and limits specified by field treatment protocols of the Pre Hospital Emergency Care Council (P.H.E.C.C.). The scope and content of the advanced care to be delivered by the *EMT - Advanced* is specified by these protocols.

There are two main elements: **Enhanced Clinical Practice** and **Professional Development**.

I **Enhanced Clinical Practice**

The *EMT - Advanced* will have the following capabilities, in relation to both adults and children, in knowledge, skills and professional values.

i) **Knowledge**

The *EMT - Advanced* must know:

Drug Treatment:

- ❖ The indications, contra-indications, side effects, methods of administration and modes of action of drugs to be used in a range of emergency situations.

These include:

Drugs:	Aspirin (PO)
	Atropine (IV or ET routes)
	Benzylpenicillin (IM,Slow IV)
	Cefotaxime (IV)
	Diazepam (PR or IV)
	Entonox (Inhalation)
	Epinephrine (1: 10,000 IV or ET Routes)
	Epinephrine (1: 1,000 IM)
	Glucagon (IM)
	Glucose (PO or IV)
	Glyceryltrinitrate (SL)
	Hydrocortisone (IV)
	Lignocaine (IV or ET routes)
	Morphine Sulphate (IV)
	Naloxone (IV)
	Oxygen (Inhalation)
	Prednisolone (PO)
	Cyclizine (IV)

Salbutamol (via Inhalation)
Heplok/Hepsal (IV)

Fluids: Hartmanns Solution
Normal Saline
Dextros 5%

Amendments to this list will be required in the light of patient care developments.

- ❖ The content of all Field Treatment Protocols approved by the P.H.E.C.C. for use by *EMT-Advanced*.
- ❖ That drug treatment must be clearly understood as only one part of the treatment of these emergencies. All other treatment procedures must be equally well known.
- ❖ Monitoring and record keeping procedures for use in association with drug treatment.

Advanced Airway Management

- ❖ The limited range of medical and trauma emergencies in which the *EMT - Advanced* may attempt endotracheal intubation / Laryngeal Mask Airway (LMA) use.
- ❖ The indications, contra-indications, complications and techniques of endotracheal intubation / LMA.
- ❖ Indications, techniques and complications of extubation.
- ❖ Monitoring and record keeping procedures for use in association with endotracheal intubation / LMA.
- ❖ All the other techniques of airway maintenance and ventilatory support available to the EMT as alternatives to or supports for endotracheal intubation / LMA.

Parenteral Access

- ❖ The situations in which the *EMT - Advanced* may establish access.
- ❖ The indications, contra-indications, techniques and complications of parenteral access and administration of drugs and fluids.

- ❖ All appropriate techniques for the assessment of circulatory status in a pre-hospital situation.
- ❖ Monitoring and record-keeping procedures for use in association with parenteral access and fluid and drug administration.

Skills

The basic skills acquired in EMT training remain the cornerstone of emergency medical care and should be re-enforced in the *EMT - Advanced* training programme.

EMT Skills: The EMT already has the ability to:

- ❖ Perform a primary and secondary assessment in all illness and injury situations.
- ❖ Carry out the full range of procedures for basic airway management and ventilatory support.
- ❖ Manage cardiac arrest, including defibrillation.
- ❖ Manage trauma, medical and surgical emergencies in both adults and children.
- ❖ Use extrication, spinal immobilisation and extremity splinting techniques.
- ❖ Be an effective team member and communicator.
- ❖ Document all work appropriately.
- ❖ Work safely and efficiently.

EMT- Advanced Skills:

The *EMT - Advanced* must have the ability to select and prepare appropriate patients for:

- ❖ Advanced airway management (including endotracheal intubation/ LMA). The *EMT - Advanced* must be capable of carrying out the procedures safely and providing monitoring and continuing care until handover.
- ❖ IV catheter placement; fluid and drug administration. Rigorous adherence to all procedures relating to IV catheter and fluid / drug selection, use and monitoring.

- ❖ Administration of indicated drugs and fluid in correct dosages by intravenous, intramuscular, subcutaneous, endotracheal, oral, sublingual, transdermal, inhaled, rectal and intraosseous routes.

Additional Skills include the ability to:

- ❖ Use additional clinical and information technology safely and effectively.
- ❖ Make safe and effective clinical and problem-solving decisions.
- ❖ Deliver effective neonatal and paediatric advanced life support.
- ❖ Deal effectively with common complications of advanced airway management, IV catheter placement and administration of the limited range of drugs and fluids.
- ❖ Make effective triage and leadership decisions in a multiple casualty incident.
- ❖ Maintain the *EMT - Advanced* procedures logbook for review as part of the *EMT -Advanced* re-accreditation procedures.

A summary of enhanced practice for the *EMT - Advanced* includes:

1. Assessment of airway, breathing and circulatory status to a standard that permits decision-making about the use of advanced techniques.
2. Endotracheal intubation / LMA in an apnoeic patient.
3. Respiratory support of the intubated patient whether apnoeic or breathing spontaneously.
4. Endotracheal extubation.
5. Use of pulse oximeter.
6. Use of an end-tidal CO2 monitor.
7. Use of a peak flow meter.
8. Intravenous, intramuscular and intra-osseous access.
9. Administration of drugs by the oral, rectal, intramuscular, intravenous, endotracheal, intraosseous and nebulised routes.

10. Use of a glucometer .
11. Patient monitoring and use of clinical records.
12. Triage and leadership skills.

Professional Values

The *EMT - Advanced* will:

- ❖ Understand and respect the autonomy, consent to treatment and confidentiality of patients.
- ❖ Be committed to high-quality, pre-hospital emergency care.
- ❖ Observe the limitations and procedures imposed by P.H.E.C.C. field treatment protocols.
- ❖ Appreciate the necessity to fully maintain all clinical documents.
- ❖ Demonstrate leadership, initiative and ability to work within the healthcare team.
- ❖ Appreciate the importance of clinical and procedural audit.

II Professional Development

A key element of any EMT -Advanced training course is the commitment to professional development. Completion of each of the following professional development components is part of the programme.

- i) Instructional techniques / Work based assessor**
- ii) Dispatch and Control techniques**
- iii) Management and Supervisory skills**

EMT - Advanced: Training Structure

1 General Rules governing courses leading to *EMT - Advanced* qualification

(i) Education Goals and Process

The *EMT - Advanced* is competent to carry out all of the duties of the EMT and has an enhanced range of abilities that permit the safe delivery of advanced care within the framework and limits specified by the P.H.E.C.C. field treatment protocols. The advanced care delivered by the *EMT -Advanced* is specified by these protocols.

Characteristics of the educational process:

- 1.** The educational content should reflect the epidemiology of pre - hospital emergencies.
- 2.** The educational process should, as much as possible, reflect a student-centred and adult-oriented approach, which draws on the existing training, experience and motivation of candidates.
- 3.** Graduates should attain all of the objectives specified in the performance standard. The *EMT -Advanced* should be competent in all the field treatment protocols approved by the P.H.E.C.C.
- 4.** The curriculum should include components dealing with appropriate knowledge, skills and professional values. Clinical practice development should be pursued through an appropriate combination of classroom teaching, laboratory practice and supervised clinical settings of acute injury and illnesses both in the field and in the Emergency Department, Theatre, Neonatal ICU and other appropriate hospital departments.
- 5.** Skills in problem-solving and clinical decision-making should be developed using suitable theoretical and practical exercises, which may include paper-based and simulated problems.
- 6.** The curriculum should promote commitment to delivery of high quality pre-hospital emergency care and to lifelong learning and professional development. Graduates should gain an appropriate confidence in the management of emergencies while maintaining respect for the autonomy, consent to treatment, confidentiality and broader needs of their patients.

7. Applications should be made in the usual way to the P.H.E.C.C. for accreditation of the training institution and EMT - Advanced Courses. Training courses must be in accordance with this syllabus of training.

8. The minimum duration of EMT Advanced training is specified below for each module.

Links with P.H.E.C.C. / Ambulance Services.

1. New and revised field treatment protocols and education guidelines will be developed by a multidisciplinary committee, appointed by the Clinical Care Committee of the P.H.E.C.C., to assure an ongoing exchange of information from local services and educational institutions. This will allow for appropriate curriculum modification and continuous quality improvement.
2. Initial education must be linked to continuous skills maintenance. This may include periodic clinical rotations through appropriate hospital departments and field supervision by the Ambulance Officer, Training and Development.
3. Training institutions should be aware of variations in local standing orders approved by local Ambulance Clinical Care Committees. The committees will include the Medical Advisor, Chief Ambulance Office and Ambulance Officer, Training and Development. These variations will have been submitted to and approved by the P.H.E.C.C.

(ii) Criteria for entry to *EMT - Advanced* Training

The prospective *EMT - Advanced* must:

- ❖ Hold a P.H.E.C.C. approved EMT qualification or equivalent. In general, this will have been achieved by passing the new entrant or conversion course.
- ❖ Be currently entered on the register of EMTs maintained by the PHECC.
- ❖ Have at least two years experience as an operational EMT.
- ❖ Pass a PHECC approved selection process, which will include assessment in Knowledge, Skills and Professional Values.

II Training Modules

The curriculum is divided into 4 modules, indicating natural divisions in the organisation of didactic education. These modules are:

Module 1

Self directed learning module.

Appropriate core knowledge should be achieved in anatomy, physiology, pathology, pharmacology and therapeutics by the use of recommended texts and by lectures and tutorials provided under the direction of the approved training institutions.

Module 2

(i) Skills Block Teaching

- ❖ Clinical examination/assessment
- ❖ Use of adjuncts for patient assessment.
- ❖ Advanced airway management
- ❖ Techniques for catheter placement and fluid and drug administration by the IV, IM, SC, IO, ETT, inhaled and rectal routes
- ❖ Any other relevant assessment and therapeutic procedure falling within the ambit of the *EMT - Advanced* performance standard.

(ii) Clinical Practice Block Teaching

- a) Cardiovascular emergencies
- b) Respiratory emergencies
- c) Multisystem trauma and shock
- d) Altered level of consciousness
- e) Obstetric emergencies
- f) Paediatric emergencies
- g) Miscellaneous
 - Anaphylaxis
 - Poisons & drug overdose
 - Pain management
- h) Long-term illnesses and their acute complications
- i) Ethical/Legal Issues

This module may include established courses, such as PHTLS, ACLS, NRP and PALS. Modifications of these courses may be required to accommodate the approved field treatment protocols.

(iii) Clinical Rotations

This component of the module allows the opportunity, in supervised clinical situations, to apply skills and knowledge acquired in the block setting. There will be a clinical rotation through the Emergency Department, Theatre, ICU, Delivery Suite, Neonatal unit and other appropriate hospital departments.

During this rotation, there will be a range of training experiences.

These include:

Minimum number of clinical interventions (see below)

Direct supervision in the application of clinical skills

Patient assessment and presentation of case reports

Completion of the PHECC training log.

It is acknowledged that training in clinical skills incorporates communication, identification, and patient consent.

There will be direct involvement of appropriate Medical Consultant Staff and other appropriate senior clinical staff in this area of training.

Required minimum number of clinical interventions

Full patient assessment and presentation of case report **10**

LMA insertion **10**

Endotracheal intubation **10**

IV cannulation **20**

Preparation and administration of IM medication **5**

Preparation and administration of IV medication **10**

Preparation and administration of rectal medication - observe 5 Nebulised drug administration **5**

IV infusion set-up **10**

Obstetrics - attendance at delivery **3**

Patient assessment adjuncts (e.g. glucometer, PEFr, %SaO₂.) **25**

Module 3

Supervised field internship

Ongoing training and supervision will occur during the internship. This training period will comprise a three-week period as a supernumerary, in the company an *EMT - Advanced*. The intern should participate in the provision of patient care under the direct supervision of the *EMT - Advanced*.

Assessment of the internship will involve two major components:

- Training Log Book review of all cases attended
- Random direct monitoring of cases by the Ambulance Officer, Training and Development or the Medical Advisor

Module 4

Professional Development

i) Instructional techniques / Work based assessor

Aims:

- To understand the principles of the teaching-learning process.
- To acquire and practice the skills needed to prepare and deliver a teaching session and to supervise field elements of an EMT Course.
- To recognise the importance of assessment and planning.
- To know the principles of clinical audit.
- To understand the differing approaches used in teaching skills, knowledge and professional values.

ii) Dispatch and Control techniques

Aims

- To understand the principles of effective communication, using a range of media.
- To be competent with dispatch/control procedures in use by the Ambulance Services.
- To be competent in information recording procedures.
- To be familiar with strategies for prioritising requests for services.

To be familiar with major incident/disaster strategies.
To be competent in telephone assistance procedures.

(iii) Management and Supervisory skills

Aims

To understand the principles and basic strategies of effective management.
To understand the value of planning, motivation and training.
To be aware of quality assurance procedures and their effective use.
To understand quality improvement strategies in management.
To know the strength and weaknesses of different management structures.

Duration of Training

Course duration will be a minimum of 860 hours.

<i>Module</i>	<i>Hours</i>
1. Self directed learning	200
2. (i) Skills - block teaching	60
2. (ii) Clinical situations - block teaching	140
2. (iii) Clinical rotations - hospital based	240
3. Field Internship	160
4. Professional Development	60
Total	860

The hours in module 1 are guidelines. The hours in module 2, (i) and (ii) are actual hours and do not include breaks and administration. The hours in module 2(iii) and module 3 are hours of attendance. The hours in module 4 may include up to 20 hours self directed learning.

These hours are the minimum requirement for successful completion of the EMT Advanced programme.

Each of the modules should provide theoretical and practical components which achieve the aims of the course. They should reflect the settings in which these skills are to be used, use a range of relevant examples and use appropriate assessment techniques.

III Evaluation

In-course assessment is the responsibility of the accredited training institution throughout each of the modules of the course.

The *EMT - Advanced* national qualifying examination will be conducted by the PHECC on a regular basis. This will include components from all modules. Satisfactory completion of all modules will be a prerequisite.

All examinations and assessments associated with an approved course shall be monitored by extern examiner(s) appointed by the PHECC and the results of all such assessments shall be subject to approval by the PHECC.

IV The Accreditation Cycle

Reaccreditations will be required to maintain *EMT - Advanced* registration. It should not be regarded as an obstacle to continued *EMT - Advanced* practice, but as an opportunity to maintain high standards for practice. The accreditation cycle should be supportive. It should reinforce and update knowledge, skills and professional values. Every three years the *EMT - Advanced* will complete the accreditation cycle. This will be on the basis of a combination of on-going field assessment, refresher and update teaching, skills maintenance classes and knowledge / skills assessment. There will be input locally and by training institutions. It will include annual cardiac revalidation and appropriate recertification in PHTLS and other life support courses as specified. The three-year accreditation cycle will include components of continuing professional development, peer review of professional practice and skills maintenance.

The accreditation process currently recommends a minimum of twenty intravenous cannulations and ten endotracheal intubations / LMA insertions per year, performed in the field. Any shortfall will be made up by attachment to appropriate hospital departments and classroom teaching. In addition, regular assessments of advanced skills will be incorporated into the process.

V Regional Clinical Support for *EMT- Advanced*

EMT Clinical Committees will be established in each region. The committee will consist of the Chief Ambulance Officer, Medical Advisor and Ambulance Officer, Training and Development and two-elected *EMT - Advanced* personnel. Field protocols are developed by a multi-disciplinary group appointed by the Clinical Care

Committee of the P.H.E.C.C. These protocols will undergo regular review. Revision will take place in the light of audit, changes in medical standards and practice and feedback from users. EMT Clinical Committees are encouraged to maintain close contact with PHECC in relation to *EMT -Advanced* practice.

Appendix

Field Treatment Protocols

1. Field primary survey
2. Cardiac type pain
3. Ventricular fibrillation
4. Asystole
5. Pulseless Electrical Activity
6. Adult Respiratory Distress 1 Unresponsive Patient
7. Adult Respiratory Distress 2 Responsive Patient
8. Respiratory Distress 3 Endotracheal intubation / LMA
9. Adult Hypovolaemic Shock
10. Altered level of consciousness
11. Convulsions
12. Anaphylaxis
13. Pain Management
14. Neonatal Resuscitation
15. Paediatric Respiratory Distress 1 Unresponsive Patient
16. Paediatric Respiratory Distress 2 Responsive Patient
17. Paediatric Shock
18. Multiple Casualty Incident
19. Multiple Casualty Incident Patient Algorithm

Appendix 5

AMBULANCE SERVICE

GLOSSARY OF TERMS

Accident and Emergency Department (Emergency Department)

Hospital department which receives accident and emergency patients.

Activation Time

The recorded time between call confirmation (receipt of call) and mobilization (crew responding).

ACLS - Advanced Cardiac Life Support

BLS & ALS skills to includes cardiac rhythm recognition.

ALS - Advanced Life Support

The type of intervention provided by EMT - A's, to include intubation, infusion and medication.

Ambulance Control

The centre which receives all demands for the Ambulance Service in a specified area and coordinates requests and allocates resources.

AS 1 Call

Emergency ambulance call including '999' and E.U '112' immediate calls

AS 2 Call

Urgent call usually requested by General Practitioners or Hospital based doctors requesting admission for or transfers of patients (agreed response time)

Aspirator

Suction apparatus

Attendant (EMT)

A member of the ambulance crew who has primary responsibility for the patient's well being

Base Station

Home dispatch point for an ambulance

BLS – Basic Life Support

Level of intervention currently carried out by EMT's

Call Sign

A code name allocated to each transmitter/receiver (vehicles, stations & hospitals) for identification purposes

Casualty

Any victim, dead or alive, of an accident or attack of sudden illness

Cervical Collar

A piece of equipment designed to support the neck when moving patients.

Chief Ambulance Officer

The Officer responsible to a Health Board(s) for the management, organisation and planning of that Board's Ambulance Service

Computer Aided Dispatch (CAD)

A system for the receipt, registration, management, storage and analysis of ambulance calls.

Consultant

A hospital doctor who has received specialized training in a particular branch of medicine and who has full clinical responsibility for patients.

Control Procedures

Systematic and detailed procedures used in Ambulance Controls to handle ambulance calls

Conversion Training

Refresher training for long service EMT's leading to inclusion on a National Register, introduced in 1997.

Designated Hospital

- A hospital nominated to receive a particular kind of case (e.g. trauma, burns, poisoning)
- The first 'listed' hospital to be alerted by the Ambulance Service to receive casualties in the event of a major incident

Defibrillator

A device which delivers an electric current to a heart which has ceased to beat purposefully, allowing it to start pumping blood again.

Duty Officer

Officer in charge of a specific aspect of the delivery of ambulance services during a specified period

Emergency

An incident which requires an immediate response from the Ambulance Service

Emergency Ambulance

A fully equipped vehicle with qualified staff

EMT

Emergency Medical Technician (Qualified Emergency Ambulance Personnel) who responds in an Emergency Ambulance to incidents

EMC

Emergency Medical Controller - an officer whose duty is to receive requests and dispatch ambulances and other resources to emergency and other type calls.

Emergency Reserve Channel (ERC)

A radio channel used by Ambulance Services in major accidents, which may in circumstances provide a hospital to ambulance radio telephone link in emergencies

First Responder Response

Initial response by non-EMT trained person, usually a member of a local community trained to carry out basic interventions, to include defibrillation, until arrival of EMT trained personnel.

Fleet

All Ambulance response vehicles

Front Line Ambulance

An ambulance designed and used for emergency and urgent calls

General Practitioner (GP)

A doctor in general practice who is responsible for patients' medical care outside hospital.

Grid Reference (GR)

Six-figure number allowing a point on a map to be identified by reference to a system of coordinates

Health Centre

A building providing accommodation and facilities for health services and general practitioners.

Incident

An accident or any other unforeseen event requiring the presence of an ambulance

Leading EMT (LEMT)

An Emergency Medical Technician with additional supervisory duties

Liaison

The act of effecting cooperation and coordination between services

Ambulance Officer - AO

An officer responsible to the Chief Ambulance Officer for the organisation and management of the day to day function of the Ambulance Service

Mandate

A corporate requirement which an organization has either been given externally or accepted for itself

Medical Advisor

Usually Consultant in Emergency Medicine, or equivalent, who advises the local Ambulance Service on clinical issues.

Mobile Control Vehicle (MCV)

A specialist vehicle equipped to provide on scene command and control to resources at major incidents or disasters

MPDS – Medical Priority Dispatch System

A system operated in Ambulance Control to prioritise and identify the appropriate response to pre-determined categories of calls.

Non-Emergency

A patient who does not need to be moved immediately

N.A.T.S.

National Ambulance Training School

ORCON Standards (Operational Research CONSULTANTS, based at Cranfield)

A set of standards for emergency activation and response times recording, developed in the UK in 1974 and recently superseded.

Paramedic Practitioner

A new development in the UK, where Paramedics are trained to operate alongside other health professionals and to be based in the community, e.g. Health Centres, GP surgeries.

Patient Report Form

A standard paper or electronic form completed by EMT's in respect of observations, interventions and for measuring outcomes of a patient's condition (trauma or cardiac)

Patient Transport Service (PTS)

A planned ambulance service for outpatients and other scheduled journeys

P.H.E.C.C

Pre-Hospital Emergency Care Council - a statutory agency to regulate Pre-Hospital Emergency Care, overseeing the Medical Advisory Group and Clinical Care Committee.

Planned Case

A routine case, the request for which is made at least 24 hours in advance.

Protocols

A set of treatment rules developed by a Medical Advisory Group for EMT's.

R.A.C./Ambulance Control

Regional Ambulance Control Centre. Centre location for receipt of calls in respect of ambulance transport.

Response Time

The time lapse between confirmation of call and the arrival of the ambulance at the scene

Situation Report (SITREP)

An account of an accident including details of the location, the number of casualties, other services in attendance, and any special hazards.

SOP's – Standard Operating Procedures

An easy access reminder of the key issues and procedures to be addressed when dealing with specific clinical problems.

Standby

Being in attendance, in reserve, at a particular location/strategic deployment of resources to a pre-determined location.

A radio term advising an ambulance crew that control is busy and they should wait to be called

Time of Confirmation

The time taken to validate a call received

Time at Hospital

Time the Ambulance arrives at the A+E department

Transfer

A patient being conveyed from one hospital to another

Urgent Case

A case when for medical reasons a definite time limit is imposed

Appendix 6

Bibliography

1. *National Task Force on Medical Staffing – Hanly – June 2003*
2. *Health Service Reform Programme – June 2003*
3. *Strategic Review of the Ambulance Service – 2001*
4. *North Eastern Health Board Ambulance Service – Development Plan – 2003*
5. *The Future of Ambulance Services in the UK – 2000*
6. *Report of the Working Group on Ambulance Service Review – 2000*
7. *Comptroller and Auditor Generals Report on Ambulance Service – 1997*
8. *Clinical Practice Guidelines – P.H.E.C.C- 2003*
9. *Cardiovascular Strategy – 2000*
10. *Sustaining Progress - 2003*
11. *Larsen, M.P., M.S. Eisenberg, R.O. Cummins & A.P. Hallstrom, Predicting Survival from Out-of-Hospital Cardiac Arrest: A Graphic Model: Annals of Emergency Medicine, November 1993*

