Strengthening the Chain of Survival

Advanced Paramedics are a vital part of the care of patients in the pre-hospital environment writes Seamus Clarke, GP and Declan O'Farrell Advanced Paramedic.

The Department of Health published the report by the task force on Sudden Cardiac Deaths in 2006. In this report they estimated that approximately 5,000 Sudden Cardiac Deaths occur each year in Ireland. (1)

G. Bury et al, in his paper published in 2008 found that General Practitioners (GPs) routinely will encounter emergencies during the course of their normal duties, cardiac arrest being one such emergency. (2)

Ireland has approximately 2,500 GPs divided between 900 Practices. There are 12 GP Out of Hours Co-operatives which cover most GPs outside normal hours. (3)

At present there are approximately 200 Advanced Paramedics (APs) in Ireland. With the introduction of this advanced pre-hospital responder to the National Ambulance Service in 2006, most links in the chain of survival will take place now more often than not in the pre-hospital environment.

Advanced Paramedic (AP) Skill Set

Advanced Paramedics are licensed to use a set of drugs and practical skills in the pre-hospital environment that were once only preformed in the Accident and Emergency Departments or by General Practitioners who were comfortable performing Advanced Life Support. These are outlined in Clinical Practice Guidelines (CPGs) published by the Pre-Hospital Emergency Care Council (PHECC). This is the statutory body which regulates APs. CPGs are regularly updated to reflect evidence based best practice.
GPs that have completed the Medical Emergency Responders: Integration & Training (MERIT) program run by the Centre for Emergency Medical Science, University College Dublin and the ICGP will be familiar with these. This program gives the General Practitioner the knowledge and skills to deal with cardiac and trauma emergencies, especially in co-operation with APs.

Out of Hospital Cardiac Arrest (OHCA) is one of these emergency situations. The majority of OHCAs are due to Ventricular Fibrillation.

**What can the GP and AP do together?**

It is desirable that all GPs and Practice Staff are able to provide Basic Life Support. It would also be desirable that they have access to and are trained in the use of an Automated External Defibrillator. Delay in early defibrillation reduces the chance of successful return of spontaneous circulation.

More often than not a General Practitioner will come in contact with an Advanced Paramedic at the scene of an OHCA. The General Practitioner and Advanced Paramedic must both work together and establish who will be team leader. The General Practitioner, by virtue of being the senior clinician, has without doubt final clinical governance at the scene. However they may delegate the role of team leader to the Advanced Paramedic should they feel it appropriate in the circumstances.

Setting the priorities for the resuscitation is the responsibility of the team leader. Ensuring CPR and defibrillation come early and is an important factor in the management of a patient in Ventricular Fibrillation; drug administration is a low priority at the early stage. The Advanced Paramedic/GP should at no time let any of the advanced skills take precedence over the fundamental importance of Basic Life support.

Once the team leader has ensured good quality CPR is ongoing they may at this stage ask for IV access or IO access, consider drug therapy and insert an advanced airway. The team
leader must ensure that the advanced interventions are performed with minimal interruption of CPR.

The Advanced Paramedic or GP can manage the Airway of OHCA patients with the use of either a definitive endotracheal tube or an advanced supraglottic airway devices, such as the laryngeal mask airway (LMA), King LT and the I-Gel.

Intravenous (IV) and Intraosseous (IO) therapies are the means used to deliver medication to the OHCA patient by the Advanced Paramedic or GP. IO is used when there is no feasible intravenous route available. An Easy IO drill is carried by most Advanced Paramedics.

The Advanced paramedic on arrival at an OHCA will use the defibrillator in manual mode, in doing so he will still deliver the required 150 joules of biphasic energy to the patient with ventricular fibrillation or pulseless ventricular tachycardia.

PEA is a life threatening cardiac arrhythmia as both AP and GP are to well aware. The treatment for this arrhythmia is to hunt for the cause, in doing this consider the causes and treat as appropriate. These are known as the 5H’s and 5 T’s (see Table 2).

(Table 2)  PEA Management – 5 Hs and 5 Ts

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<th>Hydrogen ion acidosis</th>
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<td>Hypothermia</td>
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<td>Hypovolaemia</td>
<td>Tamponade – cardiac</td>
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<td>Hypoxia</td>
<td>Toxins/trauma</td>
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Using the teamwork protocol, Advanced Paramedics and GPs can work together to benefit the patient. It can form the basis for a good working relationship for future encounters.

Conclusion
GPs in some areas appear to have always had to have a keen interest in pre-hospital emergency care. The role of the Advanced Paramedic in the pre-hospital environment is relatively new in Ireland and little understood by General Practitioners in general. The Advanced Paramedic has so much more clinical knowledge and skill sets than were previously available in Ireland from an ambulance emergency response point of view. Using a team approach both GPs and APs can complement each other’s knowledge and skills.

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References:
1. Ireland. Task Force on Sudden Cardiac D, Maurer B. Reducing the risk: a strategic approach. Dublin: Dept. of Health and Children; 2006
3. National Review of GP Out of Hours Services Naas: Health Service Executive; 2010