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Implementing the recommendations of Reducing the Risk: A Strategic Approach The Report of the Task Force on Sudden Cardiac Death has demanded work and engagement from many individuals and organisations. While the Health Service Executive (HSE) was charged with coordinating the implementation of the recommendations many stakeholders played their part. Although the Implementation Steering Group comes to an end after three years of concentrated and dedicated effort, the Group hands over tangible achievements and improved groundwork on which to continue improving heart health and salvage from cardiac arrest. We hope the HSE and partners will continue the impetus to implement ongoing and remaining recommendations in a country with still high mortality from heart disease compared with many of our neighbours.

I wish to thank the members of the Implementation Steering Group and its sub groups who gave unstintingly of their time and enthusiasm and particularly to Dr. Brian Maurer, Chair of the Task Force, who was a tremendous guide and support to me and to the Group. Also the chairpersons of the subgroups devoted considerable time to the detail required to bring work to fruition – Dr. Joseph Galvin and Mr. Frank McClintock. I am especially appreciative of Brendan Cavanagh, project coordinator, to whom no task was too big.

Lastly, I would like to mention and appreciate the many people around the country who volunteer their time and expertise to reduce the risk of sudden cardiac death to their fellow man through training in Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) use as well as involvement in first responder programmes.

Dr. Siobhan Jennings
Chairperson,
SCD Implementation Steering Group

August 2010
Following the launch of Reducing the Risk: A Strategic Approach The Report of the Task Force on Sudden Cardiac Death by the Tánaiste and Minister for Health and Children, Mary Harney in March 2006, the Health Service Executive set about coordinating the implementation of the recommendations in conjunction with partner agencies. The purpose of this second report is to inform the Minister, the HSE Executive and the public of the progress of implementation after three years of dedicated focus.

In coordinating the task of implementing the 75 recommendations, a Steering Group and four subgroups, comprising many of the original Sudden Cardiac Death (SCD) Task Force members, were formed to maintain continuity with the work of the Task Force. A modest resource was made available from cardiovascular funding as well as the secondment of a project coordinator. In 2008 and 2009 focus was brought to bear on surveillance of SCD with many new partners coming on board.

**Improving First Response to a cardiac event**

Priority was given to improving first response to a cardiac event. Considerable progress has been achieved with the launch of a ‘How to’ guide for communities and groups wishing to set up a first responder group (see section 4.1), the publication of a guide for purchasers of an AED, spatial analysis of current ambulance provision resulting in clarity on priority locations for development, initiation and evaluation of co-responder pilot programmes and the finalising of the Cardiac First Response Report (CFRR) form which will inform the national out of hospital cardiac arrest Register (OHCAR) instigated in late 2007. Agreed universally recognised AED signage for use in Ireland was finalised and promoted by the Pre Hospital Emergency Care Council (PHECC).

In spite of these achievements there is a lack of development in national and regional structure for coordinating first response in Ireland. The result is patchy progress in advancing priority first responders, linked co-responders and community first responders as well as the lack of an AED register linked to the Emergency Medical Service (EMS). A focus on auditing response times and agreeing guidelines for the management of cardiac arrest survivors are also outstanding areas.

The second area for attention was improvement in resuscitation training which was instigated through a number of programmes. Successes include: a) the development of standards across six levels of responders and practitioners by PHECC and the progressive introduction of these standards since 2007, b) the jointly resourced training of General Practitioners (GPs) in 450 practices in resuscitation and AED use with PHECC in association with pre-hospital Emergency Medical Technicians (EMTs) and paramedics, c) the training by the Irish Heart Foundation and other voluntary organisations, such as, Croi (West of Ireland Cardiology Foundation) which has trained over 1,000 people in CPR/AED usage and a further 1,500 in CPR and d) the recent ‘Citizen CPR’ public awareness campaign by PHECC raising awareness of calling for the emergency services and learning CPR.

Also important is the finding in a survey in 2008 that almost a quarter of the population (over 16 years of age) report that they have undergone CPR training in the previous five years – a very good base on which to build going into the next decade.
A novel programme, CPR 4 Schools, set up by the Irish Heart Foundation deserves mention as it is targeted at improving CPR awareness and skill in schoolchildren and from there to families. In 2009, around 27,000 transition year students from 367 schools have been trained in CPR using a DVD and personal easily-portable mannequins supplied to students. The follow-on training within the students’ families resulted in another 28,000 people trained.

However, improving the provision of training of health care staff especially in the community and enhancing the support they give to first responder programmes has not been further advanced.

**Risk assessment of those involved in sports or exercise**

The assessment of those involved in sports or exercise, who may be at risk of SCD, is an evolving area. Nonetheless it was possible to reach a consensus between the key agencies - Irish Sports Council, Irish Cardiac Society, Irish Heart Foundation and Irish College of General Practitioners - such that an agreed Advisory Statement has been developed and is available (with background information) in Appendix 3 of this document. Accompanying guidance for GPs has also been developed and is being considered by the ICGP.

**Detection of those at high risk of SCD**

Following discussion with the Coroners’ Society of Ireland (CSI) and the Faculty of Pathology a guidance document has been finalised and adapted by the CSI. It is for use by Coroners when dealing with a death due to SCD so that first degree relatives are alerted to the need for family assessment as soon as possible. The follow up of family members following a death from SCD is available through two voluntarily funded family screening clinics in Dublin.

However, outstanding areas include the appointment of cardiac pathologists and a geneticist, standardised reporting of post mortems in cases of non-coronary SCD as well as a comprehensive assessment of the need for statutorily funded family screening service on a nationwide basis.

**Surveillance**

Considerable development in the area of surveillance was accomplished in the second phase of this three year programme. These initiatives included the setting up of two important sources of surveillance (SCD in the Young register and OHCAR), the completion of two snapshot surveys within the Irish population (CPR training prevalence and the prevalence of family history and symptoms in risk assessment) as well as a large study of the prevalence of abnormalities on cardiac screening of a cohort of GAA athletes.

However, an AED register is still outstanding and is an important feature in improving defibrillation and resuscitation in Ireland.
In conclusion

Many areas recommended in the SCD Task Force Report have been addressed and much has been achieved. The following chapters and the grid in appendix 2 summarise the status of the recommendations. While many stakeholders play a part in addressing the need to improve heart health with better salvage from cardiac arrest in Ireland, the HSE is chief among them and is currently undergoing transition. Consequently, the outstanding recommendations and indeed impetus to improve will need to be addressed in the new HSE environment of the Integrated Services Directorate (ISD) as well as the Directorate of Quality and Clinical Care (DQCC). This will prove challenging in the present economic climate as various health initiatives are prioritised. However with much of the groundwork done and given the context of excellent relations between stakeholders it is important to push ahead and progress the outstanding areas.

Acknowledgements

The HSE was the agency responsible for implementing the recommendations of the SCD Report. The National Hospitals Office Ambulance Service, Population Health and the National Communication Unit played a major role within the HSE in the implementation. The Sudden Cardiac Death Implementation Steering Group also acknowledges the cooperation and work from the following organisations:

- Pre Hospital Emergency Care Council
- Irish Heart Foundation
- Irish Cardiac Society
- Irish Sports Council
- Irish Association of Emergency Medicine
- Irish College of General Practitioners
- Dublin Fire Brigade
- Croi (West of Ireland Cardiology Foundation)
- UCD Centre for Immediate Care Services (MERIT Project)
- Irish Red Cross
- Order of Malta Ireland
- St John Ambulance Brigade of Ireland
- Civil Defence Ireland
- Irish Medicines Board
- Sudden Infant Death Registry
- NUI Galway (OHCAR)
- SCD in the Young Support Group
- Dublin City Coroner and Dublin County Coroner
- Central Statistics Office
- Mater Heart House, Dublin
- Inherited Cardiovascular Diseases Unit, Tallaght/St James’s Hospitals
- Cardiac Risk in the Young (CRY) Ireland
- Communities across Ireland developing first responder programmes.
Sudden Cardiac Death (SCD) is defined as death due to natural causes within an hour of the onset of symptoms, in the absence of any other cause, and assumed to have a cardiac cause. There are approximately 5,000 SCDs in Ireland annually. The majority of SCDs occur from late middle age onwards as a result of coronary heart disease. Over the past few years there has been increasing awareness of sudden death in young adults, including sudden deaths in high profile athletes. The reasons for SCD in younger people include pre-existing cardiac abnormalities, infection, trauma and drugs.

In the autumn of 2004, the Minister for Health and Children established the Task Force on Sudden Cardiac Death (SCD). The Task Force reviewed the current literature on the extent of the problem and the evidenced based approaches to reducing SCD in the community. Also wide consultation with experts, organisations and individuals was conducted and over 80 written submissions were received.

The SCD report Reducing the Risk: A Strategic Approach was launched in March 2006 by the Tánaiste and Minister for Health and Children. The HSE were charged with overseeing the implementation of the report over time in association with other agencies.
A multi-agency Steering Group, comprising the HSE, the Irish Heart Foundation (IHF) and the Pre-Hospital Emergency Care Council (PHECC), was formed under the chairmanship of Dr. Siobhan Jennings, Consultant in Public Health Medicine HSE to progress the 75 recommendations in the report in the following areas:

- Detection and assessment of those at high risk of Sudden Cardiac Death
- Systematic assessment of those engaged in sports and exercise
- Reducing time to response
- Surveillance and audit

A project coordinator was employed to progress the work of the Steering Group and working groups were set up in the areas of a) First Responder development, b) Development of a risk assessment instrument for use by those engaged in sports and exercise, c) Reducing time to informing families and d) Communications. Membership of these groups was multi-disciplinary and multi-agency (see Appendix 1).

In 2008 the SCD Surveillance Group was formed to address issue in SCD surveillance and oversee the development of the SCD in the Young Register (run by the Mater Heart House and supported by HSE SCD monies).

Although the HSE had overall responsibility for implementing the report recommendations, it is recognised that other organisations, both statutory and non statutory, play an important role. These organisations and individuals have contributed sizeably to the implementation to date and will continue to play a role in the future.
In 2005, while the Task Force report was being drafted, the DOH&C allocated ongoing funding of €300,000 to begin the process of the report’s implementation. This resource was utilised to appoint a project coordinator and to fund, in partnership with PHECC, the MERIT project in three of the former health board areas.

In 2006, following a HSE internal bidding process, a once off allocation of €70,000 was approved by Strategic Planning Reform and Innovation (SPRI) for training and protocol development in the area of risk assessment.

In 2007, a proposal to the DOH&C was successful with €750,000 allocated for improving first response to a cardiac event in the community. This budget was allocated to the National Hospitals Office (NHO) Directorate (Ambulance Services) to coordinate and improve statutory and voluntary response as well as increase community resuscitation training. Due to the cost containment measures implemented in the later half of 2007 to ensure the HSE achieved a balanced budget at year end, plus ongoing moratoriums on recruitment, progress on delivering on these initiatives has been delayed.

In 2008, €100,000 was made available for improving resuscitation awareness and training chiefly through the IHF initiatives CPR 4 Schools and Resus the Nation. €20,000 was also made available for development of an SCD in the Young Register.
While the 75 recommendations in the SCD report are outlined in four chapters, they span a wide range of areas both within the health sector and importantly in many other sectors such as education, sports and technology. The timeframe was laid out as immediate (48 recommendations with initiation before the end of 2006), medium term (22 recommendations to be completed by end of 2008) and long term implementation (5 recommendations to be completed by end of 2010). The Implementation Steering Group gave priority to the 48 recommendations of immediate importance.

The following sections in this report outline the four chapters of the SCD report that deal with the recommendations. Appendix 2 lists the recommendations in chapter and number order and their current status. Figure 1 illustrates the broad areas of the various recommendations.
4.1 Reducing time to response

The 39 recommendations in chapter 5 (Reducing Time to Response) of the SCD Task Force Report make up more than half of the recommendations in the report.

- 11 Completed
- 21 Expected completion in 2010
- 7 Outstanding

The ambulance service and ambulance AEDs
- recommendations 5.1 to 5.4

Work completed or in progress

In order to gauge the knowledge of the emergency numbers by the general population the SCD Implementation Steering Group funded a survey conducted in 2008. It showed that over 89% of people 16 years and over knew an emergency number (either 999 or 112). These results have been published in the international journal Resuscitation.1

All Emergency Medical Service (EMS) ambulances (HSE and contracted ambulances) have Automated External Defibrillators (AEDs) in vehicles and personnel trained to use them. The HSE has AEDs in Ambulances, Officer Response Vehicles, Rapid Response Vehicles and Motorcycles. Dublin Fire Brigade has AEDs in Emergency Ambulances, Paramedic First Response Fire Appliances, EFR First Response Fire Appliances and in Advanced Paramedic vehicles. See table 1 for total numbers of AEDs.

Table 1 – HSE Ambulance and Dublin Fire Brigade (Ambulance) AEDs in vehicles

<table>
<thead>
<tr>
<th>Location</th>
<th>Numbers of AEDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSE Ambulance - North West</td>
<td>36</td>
</tr>
<tr>
<td>HSE Ambulance - South</td>
<td>39</td>
</tr>
<tr>
<td>HSE Ambulance - West</td>
<td>51</td>
</tr>
<tr>
<td>HSE Ambulance - East</td>
<td>67</td>
</tr>
<tr>
<td>HSE Ambulance - Mid West</td>
<td>28</td>
</tr>
<tr>
<td>HSE Ambulance - Midlands</td>
<td>80</td>
</tr>
<tr>
<td>HSE Ambulance - South East</td>
<td>50</td>
</tr>
<tr>
<td>HSE Ambulance - North East</td>
<td>30</td>
</tr>
<tr>
<td>Dublin Fire Brigade - Dublin</td>
<td>37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>419</strong></td>
</tr>
</tbody>
</table>

The recommendations in the Ambulance Service Communications Review (2005), concerning the function and role of communication centres, are being implemented with rationalisation of communication centres ongoing.

Work Outstanding

At the time of release of the SCD Report in 2006 the HSE Ambulance Service had already contracted signage for new Ambulances that did not include ‘In an emergency phone 999 or 112’. This needs to be considered the next time the HSE Ambulance Service arrange livery for its Ambulances. The organisation to progress this outstanding work is the HSE Ambulance Service.

Pre-arrival advice and early aspirin
- recommendations 5.5 to 5.6

Work completed or in progress

A Clinical Practice Guideline is soon to be published by PHECC for pre-arrival advice including telephone-assisted CPR. The early administration of aspirin is part of a published Clinical Practice Guideline and incorporated as part of the CFR education and training standards – www.phecit.ie.

Information from the HSE Heartbeat initiative, operating in 5 acute hospitals, shows that during the year October 2006 to September 2007 33% of ST Elevation MI patients were given aspirin pre-hospital whereas during the next year (October 2007 to September 2008) this had increased to 47% of patients.²

BLS/AED training and accreditation
- recommendations 5.7 to 5.10

Work completed or in progress

Statutory and voluntary organisations are currently discussing how to maximise operations and to realise goals in the area of BLS/AED training.

PHECC, as the national body with responsibility for standards, education and training in the field of pre-hospital emergency care in Ireland, published new Education and Training Standards in April 2007 and has developed the 2010 Performance and Educational Standards incorporating an educational syllabus/curriculum for:

- Cardiac First Response
- Emergency First Response
- Controller;
- Emergency Medical Technician
- Paramedic
- Advanced Paramedic

Approved Irish standards for BLS and AED courses and trainers, and the recognition of institutions and courses is on-going. Training under the new PHECC standards has begun and PHECC now monitor the institutions that train to these standards - www.phecit.ie

AED training for occupational first aid certification is now a legislative requirement since 2008. Instructors have been trained to the new standard that includes this AED training.

² Heartbeat data – Dec 2009 c/o brendan.cavanagh@hse.ie
The Medical Emergency Responders Integration and Training (MERIT) project, managed by UCD Centre for Immediate Care Services, has currently supplied AEDs and training to 450 GP practices throughout Ireland. This amounts to almost half of the GP practices in Ireland and involves over 1,500 GPs and GP practice nurses. In the three years from April 2006 to March 2009 there were 144 cardiac arrests with a resuscitation attempt reported by MERIT GP practices (data on 136 events was available for analysis). Analysis of the MERIT data found that half the cases are patients of the GP who responded, almost two-thirds occur in the doctor’s practice or following a call to the patient’s home, in 72.5% of cases the GP arrived before the ambulance and 19.5% of patients were discharged from hospital. This project is funded through DOHC, PHECC, HSE and the Health Research Board.

The training in CPR/AED of family members of those who have suffered a non-fatal cardiac event is offered in almost half of Irish acute hospitals through Cardiac Rehabilitation programmes. It is important that all acute hospitals offer this training.

Awareness and training in CPR techniques within the general community remains an ongoing task with many agencies involved. A novel approach to training of school children is underway in an initiative by the Irish Heart Foundation - CPR 4 Schools. This initiative, which was part funded under the HSE SCD implementation programme, trained around 27,000 transition year students in CPR in 367 schools in April and May of 2009. [www.irishheart.ie](http://www.irishheart.ie)

As the programme involved a DVD and mannequin (supplied to each student) the follow-on training within the students' families resulted in another 28,000 people trained. As well as this the IHF from July 2009 to June 2010 has trained, through its affiliated training sites, around 65,000 in CPR (many courses including AED use).

PHECC also launched a public awareness campaign “Citizen CPR” in June 2010. The aim of this campaign is to promote awareness in untrained bystanders of what to do should they witness the sudden collapse of an adult. Croi (West of Ireland Cardiology Foundation), through its Lifeline Project, has since 2003 provided around 220 AEDs in the west of Ireland and trained over 1,000 people in CPR/AED usage and a further 1,500 in CPR - [www.croi.ie/croi-lifeline-project](http://www.croi.ie/croi-lifeline-project).

A survey, conducted in 2008, showed that 24% of people in Ireland, 16 years and older, report having been trained in CPR in the previous 5 years, most often due to commitments within work or for leisure/ activity pursuits. This compares well with current international figures and provides a focus for developing a new target in 21st century Ireland.

**Work Outstanding**

The IHF CPR 4 Schools has been evaluated through the Royal College of Surgeons in Ireland (RCSI) and further discussions are planned with the Department of Education regarding CPR training in the school curriculum using this style of training.

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Early defibrillation
- recommendation 5.11

Work in progress

The national out of hospital cardiac arrest register (OHCAR) - a PHECC/HSE/NUIG project – got underway and began data collection in 2007 in the northwest of Ireland - www.phecit.ie. The programme has extended to the Midlands and is soon to be started in the north east. Establishing a national register is the goal. This initiative will inform if European targets for access to defibrillation (out of hospital – within 5 minutes of call / in hospital within 3 minutes of collapse) are being met. Challenges posed include the number of ambulance stations and proximity to events, the number and effectiveness of first responder programmes and the methods of recording events.

Closer integration of statutory and voluntary ambulances
- recommendation 5.12

Work in progress

The pre-hospital community includes the HSE National Ambulance Service, Dublin Fire Brigade, the private ambulance sector, Civil Defence, the voluntary ambulance sector, the Irish Coast Guard, mountain and cave rescue services and community first responder programmes. The first meeting of the Voluntary Ambulance Services Forum Strategic and Operations Group was held at the HSE offices Naas in December 2008 to help develop a greater understanding between the HSE and the voluntary groups. PHECC has funded the establishment of The Centre for Pre-hospital Research to support and foster research within the pre-hospital community in Ireland. This centre is based in the Graduate Entry Medical School of the University of Limerick - www2.ul.ie.

First responder programmes coordination by the HSE
- recommendations 5.13 to 5.17 (and 5.24)

Work completed or in progress

A number of first responder programmes have been linked with the HSE Ambulance Service depending on the capacity of individual ambulance services and where the programmes have met relevant criteria. Also in some HSE areas considerable efforts have been made to improve resuscitation training within the community especially by ambulance personnel. The full extent of such programmes and initiatives has yet to be catalogued and mapped.

Work Outstanding

The number, location and degree of linkage of first responder programmes whether community based, co-responder, site-based or in primary and community care needs to be surveyed as a first step to further expansion and development. This task could be undertaken by HSE or partner agency.

The initiative to improve the coordination of first response within the community, agreed in 2007, remains outstanding. This is due to the failure to appoint a national and four regional coordinators within the HSE. Cost containment measures along with a moratorium on recruitment are chief contributors to this lack of progress. This task is best undertaken by HSE if possible.

**Priority first responder programmes**
- **recommendations 5.18 to 5.21 (and 5.26)**

**Work completed or in progress**

Notable progress has been made in establishing uniformed co-responder programmes with Fire Services in Sligo, Leitrim, Laois and Westmeath having been trained and presently responding to cardiac arrests in those areas.

An Garda Siochana undertook a pilot CPR/AED project in Kilkenny and Blanchardstown, Dublin beginning in 2006. The Kilkenny pilot comprised the areas served by the Kilkenny, Callan, Castlecomer and Ballyragget / Freshford Garda stations and used 6 AEDs. The Blanchardstown pilot covered the areas served by Blanchardstown, Finglas and Cabra Garda stations and involved 7 AEDs. An interim evaluation has shown that in Kilkenny the Gardai were able to reach the scene before the ambulance in 60% of cases while in the more built up area of the Blanchardstown pilot, the DFB were the first to arrive in most cases. A full evaluation and report is being carried out by Dr. J Galvin and is expected soon.

PHECC is currently undertaking a spatial analysis study to facilitate identifying priority geographic locations throughout Ireland for developing priority first responder programmes. This study has been completed for the North West area and a priority first response programme was initiated in Arranmore Island in 2009 by the local community with HSE support. The HSE Ambulance service is presently supporting and coordinating many programmes in what are considered priority locations, such as, some communities on islands and remote peninsulas. As outlined earlier GPs and practice nurses in 450 GP practices have trained and equipped with AEDs. Community hospitals are being equipped and trained by the HSE Ambulance service in many HSE areas.

Notably, many community-based facilities, including health facilities, are supported and encouraged via initiatives such as: IHF Heartsafe – [www.irishheart.ie](http://www.irishheart.ie); Croi Lifeline Project - [www.croi.ie](http://www.croi.ie); HSE (NHO and PCCC) projects, and the Lions Club with their involvement in the European AED ‘Beat It’ project. The Cardiac First Responder (CFR) Guide, launched in March 2008 to promote quality cardiac first responder programmes, was updated and reissued in June 2009 – available as a pdf document on [www.hse.ie](http://www.hse.ie) and [www.phecit.ie](http://www.phecit.ie).

Voluntary Ambulance Services (Irish Red Cross, Order of Malta Ireland and St John Ambulance Brigade of Ireland) have all contributed to training the community in CPR and AED use and also in supporting community first responder programmes. For example in 2008 the Irish Red Cross provided 31 AED packages (equipment and training) to community groups, businesses, schools and sports clubs. Civil Defence Ireland has also supported the community through training, such as the training in CPR and AED use of 24 transition year students in 2007 at Coláiste Phobal, Roscrea, as well as the continual training of their many staff throughout the country - [www.defence.ie/cdweb.nsf/](http://www.defence.ie/cdweb.nsf/)

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As a result of these efforts AEDs have been placed in many facilities where there are trained personnel to use them. While the list below is not complete and requires documentation and possible linkage this is our current understanding of the situation:

- A number of HSE community facilities have AEDs for example, in HSE South (Cork and Kerry) there are 21 HSE facilities, mainly community hospitals, with AEDs and trained users. Further detail regarding facilities around the country is not readily available.
- Almost a half of all GP surgeries and primary care facilities (450 GP practices) have trained personnel and AEDs across all HSE areas.
- All major Irish airports and railway stations have AEDs and trained personnel.
- Many universities and colleges throughout Ireland are equipped with AEDs, for example, University College Cork has 23 AEDs and 200 trained users across their campus, University College Dublin has 23 AEDs on its Belfield, Blackrock and Lyons Estate sites.
- All major events where Voluntary Ambulance Organisations or Civil Defence are contracted for first aid also have AEDs provided for such events.
- Many sports clubs, gyms, fitness clubs and community halls have AEDs.
- Many major venues have AEDs in place (such as, Croke Park and Aviva Stadium).
- Many major shopping centres have AEDs and trained personnel.

Work Outstanding

The number, location and degree of linkage of AEDs in priority locations needs to be surveyed as a first step to further development. This task could be undertaken by the HSE or a partner agency. There is also a need for further development of uniformed co-responder programmes with an Garda Siochana, the Fire Service, the Irish Coast Guard and other priority first response programmes throughout Ireland. Organisations to progress this outstanding work are the HSE Ambulance Service in association with relevant Government Departments and agencies.

A guide for first responder programmes
- recommendation 5.22

Work completed

In early 2008 a Cardiac First Responder guide was produced to give information and advice for those planning to set up Cardiac First Responder programmes. The CFR guide is available in hard copy via the HSE ambulance services and as a pdf document on the HSE, www.hse.ie and PHECC, www.phecit.ie, websites. It has been promoted via newsletters and by PHECC, HSE and IHF to encourage well run first responder programmes. This guide was updated in June 2009.
Critical incident stress support for first responders
- recommendation 5.23

Work Outstanding

Appropriate support for responders to receive ‘critical incident stress debriefing’ following a resuscitation attempt is given as part of the training package to workplace and community responder programmes in some areas however this is not universal. Organisation to progress this outstanding work is the HSE Ambulance Service.
AED technology assessment
- recommendation 5.25

Work completed

During 2007/08 a technology assessment of devices currently in place (or proposed) was conducted with the aim of ensuring that the most appropriate device is in place for the specific setting. Consequently PHECC/UCD developed the AED National Pre-Hospitals Standards 2008 that gives advice on the most appropriate AED for a specific setting. This document is available in hard copy or pdf via UCD Centre for Immediate Care Services http://ucd.webdirect.ie/standards.html or as a pdf via PHECC website www.phecit.ie. This document was released at the same time as the CFR guide and is referred to in the guide.

AED signage for Ireland
- recommendation 5.27

Work completed

The International Liaison Committee on Resuscitation (ILCOR) announced new international AED signage in May 2008. This new ILCOR signage was accepted by PHECC for Ireland and is being promoted via the updated CFR Guide, conferences and meetings, PHECC documents and the PHECC website. Full details of the AED signage is available on the ILCOR website www.ilcor.org.

![AED signage (from ILCOR) for Ireland](image)

Figure 3: AED signage (from ILCOR) for Ireland
AED vendor responsibility and AED register  
- recommendations 5.28 to 5.32

**Work completed or in progress**

There are AED registers in HSE North West and HSE Midlands kept by the respective Ambulance services plus an AED register in Waterford kept by an AED supplier. Croi also provide a comprehensive web listing of Croi AEDs in counties Galway, Clare, Mayo, Limerick, Roscommon and Sligo [www.croi.ie/is-there-a-croi-defibrillator-near-me](http://www.croi.ie/is-there-a-croi-defibrillator-near-me). However there is no systematic registration of AEDs nationally held or otherwise so that a first responder can be notified by the EMS of the nearest device upon calling for help.

In regard to adverse events the Irish Medicines Board (IMB) provides a Medical Device Incident User Form online at [www.imb.ie](http://www.imb.ie) in the event of an AED device failure or adverse event causing harm to a patient, user or bystander. Manufactures and vendors are required to notify the IMB of reportable adverse incidents occurring in Ireland and for product recalls affecting the Irish market. The IMB notifies product recall and product advisories on its website [www.imb.ie](http://www.imb.ie) and via other applicable means. The IMB keeps records of adverse events and endeavours to ensure that device manufacturers identify the cause of incidents and take any field safety corrective actions to minimize the risk of recurrence of such an event.

**Work Outstanding**

There is a need to establish a national AED register which should include addressing the legal requirement for vendor registration. Organisation to progress this outstanding work is the HSE Ambulance Service.

**Cardiac First Response Report form**  
- recommendation 5.33

**Work completed**

The PHECC Cardiac First Response Report (CFRR) form has been distributed to HSE and DFB ambulance services, voluntary ambulance services and community programmes. The CFFR is used to inform the national out of hospital cardiac arrest register (OHCAR) which has been developed by PHECC, HSE and NUI Galway. The form is completed and stored (presently in paper form) in all Ambulance services.

**Legal situation to protect first responders from litigation**  
- recommendation 5.34

**Work in progress**

The Law Reform Commission produced a consultation paper for response by March 2008. A report was released (May 2009) with a recommendation to the Attorney General to pass the draft Civil Liability (Good Samaritan and Volunteers) Bill 2009 that protects good Samaritans and volunteer rescuers [www.lawreform.ie](http://www.lawreform.ie).
Audit of cardiac response PHECC / HIQA
- recommendation 5.35

Work in progress

PHECC has met with HIQA to discuss a range of issues including a standard for response times. This work continues and is likely to include the issues involved in a national programme of audit of emergency cardiac response.

Advanced Cardiac Life Support (ACLS) training
- recommendation 5.36

Work in progress

In 2009 approximately 2,200 Advanced Cardiac Life Support (ACLS) providers were trained through the Irish Heart Foundation’s programme. This is an increase on those trained in 2008. The course prepares the candidate to deal with the initial management of a cardiac arrest from rhythm recognition, advanced airway management, administration of drugs and post cardiac arrest management. There is an emphasis on the importance of CPR and early defibrillation.

Targets for AMI care
- recommendations 5.37 to 5.38

Work in progress

Quality issues around appropriate medications and reperfusion therapies for heart attack patients are being addressed through the HSE with initiatives such as: a) the Coronary Heart Attack Ireland Register (CHAIR); b) Heartbeat (Improving AMI Care) currently in 9 hospitals in 2009; and c) the OHCAR registry currently operational in or starting in 3 hospital networks. Other initiatives include professional conferences such as those hosted by the Irish Cardiac Society (ICS) and the Irish Heart Foundation.

A new initiative, focussed on a programmatic approach to improving care for patients with acute coronary syndrome (ACS), has been initiated by Dr. Barry White, Director of Quality and Clinical Care in the HSE.7

Advanced paramedic training has continued throughout 2009 with specific training targeting staff from the North East & Mid West. This has resulted in advanced paramedics being deployed in a rapid response approach. In order to improve the service to patients as well as supporting the strategic shift in acute care in both areas, many staff have been trained to administer pre-hospital thrombolysis.8

In 2009 a team of advanced paramedics was deployed to West Cork and are an extra support to the existing paramedics and fleet based in the area. www.hse.ie/eng/services/news/

7 Director of Clinical Care weblink www.hse.ie/eng/services/news/2009_Archive/June_2009/National_Director_of_Clinical_Care_Appointed.html
8 HSE Performance Report Sept 2009 weblink www.hse.ie/eng/staff/FactFile/FactFile_PDFs/Focus_on_a_Specific_Population/Reconfig.pdf
Guidelines for management of cardiac arrest survivors
- recommendation 5.39

Work Outstanding

Guidelines for management of cardiac arrest survivors still need to be developed. Organisations to progress this outstanding work are HSE DQCC and PHECC.

4.2 Detection and assessment of those at high risk of SCD

There are 18 recommendations in chapter 3 (Detection and assessment of those at high risk of SCD) of the SCD Task Force Report.

• 5 Completed
• 10 Expected completion in 2010
• 3 Outstanding

Primary and secondary prevention
- recommendations 3.1 to 3.5

Work in progress

Primary and secondary prevention of coronary heart disease is undertaken by many parts of the statutory and voluntary sectors in Ireland. A comprehensive description is beyond the remit of this report. However key elements of note in the last three years are: Ireland: Take Heart, launched in September 2007, reviewed progress in implementation of the 1999 cardiovascular strategy Building Healthier Hearts: The Report of the Cardiovascular Health Strategy Group,Minister for Health and Children, Mary Harney, established a Cardiovascular Health Policy Group (Chair: Prof Hannah McGee) with a remit to develop a policy framework for cardiovascular health, including stroke. This is expected in early 2010.

Continuing secondary prevention programmes include cardiac rehabilitation (Phase 3) in hospitals as well as Heartwatch – structured secondary prevention programme in 20% of General Practices across the country.

Notably, almost half of the acute hospitals (46%) in Ireland offer training in CPR/AED to family members of those who have suffered a non-fatal cardiac event or are at high risk of SCD via programmes in the cardiac rehabilitation departments. This training needs to be extended so that it is available in all hospitals.

Education and Training  
- recommendations 3.6 to 3.8

Work in progress

A number of activities have been undertaken to raise awareness of SCD including communications through the web (SCD Task Force Report and subsequent reports), via Health Matters, the HSE staff newsletter, and press releases on the implementation of the recommendations with subsequent radio and print media activity. Further, considerable work has been done by the Irish Heart Foundation in conducting radio interviews and disseminating the messages through newsletters and photo call days. The balance between these messages and emphasising the beneficial effect of exercise is important.

The risk assessment in sports and exercise advisory statement will add to awareness and clarity on risk factors including family history (see section 4.3). Also a review of the evidence for improving timely response by individuals to acute symptoms has been initiated.

Work Outstanding

While HSE Ambulance personnel are trained in post event debriefing management of SCD this does not yet extend to all people involved in immediate and post-event management of SCD. Organisation to progress this outstanding work rests with the HSE Ambulance Service.

Informing families, Coroners and Pathologists  
- recommendations 3.9 to 3.13

Work completed or in progress

Following meetings with representatives of the Coroners and Pathologists, guidance to assist rapidly informing families of those who died of SCD under 40 years, was produced and discussed with members of the Coroners’ Society of Ireland (CSI). It is expected that this document will be discussed among the body of Coroners comprising the CSI and an acceptable format endorsed in 2010.

There are currently no standard guidelines for the conduct of a post-mortem in Sudden Adult Death Syndrome (SADS) in Ireland. Data from the SCD in the Young Register will inform current practice and subsequent development of relevant guidelines for Ireland (see section 4.4 Surveillance and Audit).
Appointment of Cardiac Pathologists
- recommendation 3.14

Work Outstanding

While the recommendation of the Task Force states that there is a need for two cardiac pathologists no movement has been achieved on this recommendation due to the HSE moratorium on recruitment. At present in Ireland there are no pathologists with cardiac sub-speciality training and should further examination of the heart be deemed necessary it is undertaken by arrangement with either a specialised centre in the UK or Denmark. Further progress on this outstanding work rests with HSE Planning Directorate as well as the HSE Integrated Services Directorate.

Risk assessment priority and processes
- recommendations 3.15 to 3.18

Work completed or in progress

Two privately funded family assessment centres with specialist cardiologists and access to genetic testing (see section 4.4) have been set up in Dublin.

- The Family Screening Clinic, The Mater House, 53-54 Eccles St., Dublin 7
  Tel: (01) 8034354 email: familyheartscreening@mater.ie
- The Centre for Cardiovascular Disease in Younger Persons, Adelaide and Meath Hospital, Tallaght, Dublin 24 Tel: 014143058 email: cdypclinic@amnch.ie

These clinics are free and screen families from around the country already affected by an SCD. Both clinics require a letter of referral from a GP.

Considerable work has also gone into an Advisory Statement on Cardiac Risk Assessment of Young People engaged in Sports and Exercise – see section 4.3 and Appendix 3. While the advisory statement is agreed and complete, a completed GP referral guideline is still being considered by the ICGP.

Work Outstanding

The need for the family assessment service on a statutory basis in centres around the country has yet to be addressed by the HSE through HSE Planning Directorate in conjunction with HSE Integrated Services Directorate.
4.3 Systematic assessment of those engaged in sports and exercise

There are 10 recommendations in chapter 4 (Systematic assessment of those engaged in sports and exercise) of the SCD Task Force Report.

- 1 Completed
- 8 Expected completion in 2010
- 1 Outstanding

Education and protocols
- recommendations 4.1 to 4.7

Work completed or in progress

An Advisory Statement on Cardiac Risk Assessment of Young People engaged in Sports and Exercise has been developed through the SCD Steering Group (see Appendix 3). It has been endorsed by the Irish Sports Council (ISC), Irish Heart Foundation, ICGP and the Irish Cardiac Society. Considerable thought was given to getting the right balance between awareness and testing for SCD and the importance of taking exercise for cardiovascular and mental health. The Advisory statement (Appendix 3) will be promoted and distributed in 2010.

A guideline to aid GPs, based on the Advisory statement, is being developed in conjunction with the Irish College of General Practitioners (ICGP). Work is expected to finish in early 2010.

During the development of the Advisory Statement a survey of 796 young people was undertaken. The purpose of the survey was to establish the baseline prevalence of certain cardiac symptoms and history that may be used in cardiac risk assessment for SCD in young persons (aged 16 – 34 years) in relation to level and intensity of activity. Using the five key areas in the Advisory Statement 14.2 % of respondents indicated a positive history or symptoms to at least one of these five areas suggesting a significant minority of this age group might benefit from cardiac assessment before participating in high intensity physical activity. This work is currently being finalised for peer reviewed publication.

Another study, a GAA Pilot Cardiac Screening Project, was undertaken in conjunction with the Mater Heart House in which 248 GAA minor and senior footballers and hurlers answered a questionnaire, had a physical examination and underwent ECG and ECHO tests. Using a broader questionnaire 43.1% of these young sports people were found to have either positive history or symptoms. The physical examination was completely normal in 81% of cases, ECG abnormalities were shown in 44% of cases (with major abnormalities in 2.8% of cases) and 4.6% had an abnormal ECHO test. In all, two subjects were precluded from participation but returned to exercise following treatment or further assessment.

Lastly, the SCD in the Young support group has also been active in promoting the concept of risk assessment for the young and in informing GPs about SCD [www.scdyoung.ie](http://www.scdyoung.ie).
Drugs in sport  
- recommendations 4.8 to 4.9

Work in progress

The dangers of using performance enhancing, recreational and other drugs are included in the risk assessment in sports and exercise advisory statement (Appendix 3) and the draft GP information document. The Irish Sports Council presently promote the dangers of using performance enhancing, recreational and other drugs through the various sporting bodies.

Risk assessment for training colleagues and team members  
- recommendation 4.10

Work Outstanding

The recommendation promoting risk assessment to training colleagues and team members where sudden cardiac death has occurred in a team member or colleague has not been addressed. Progressing this promotional work requires activity by the Irish Sports Council.

4.4 Surveillance and Audit

There are 8 recommendations in chapter 6 (Surveillance and Audit) of the SCD Task Force Report.

- 0 Completed
- 6 Expected completion in 2010
- 2 Outstanding

Death Certificates  
- recommendations 6.1 and 6.2

Work in progress

The Central Statistics Office (CSO) accept the term SCD (a code in ICD-10) when completing a death certificate, supported by information on the underlying cause. Coroners and Pathologists also accept this term with underlying cause. Work on the SCD in the Young register which is looking at recent CSO (electronic) death certificate data and post-mortem reports will further inform this issue. In a wider context of SCD in all ages, GPs need to be informed as there is a perception that it is not an acceptable term/diagnosis on a death certificate. This will be addressed in further discussions with the ICGP.
Standard autopsy forms  
- recommendation 6.3

Work in progress

Pathologists performing autopsies in cases of SCD due to non-coronary causes do not, at present, complete standard forms. The Coroners Rules Committee made recommendations for the use of standard forms (though Coroners Rules are not in place until the Coroners Bill is passed). Furthermore, the SCD in the Young Register retrospective study has found a variety of forms from pathologists. Finalisation of this register on SCD in the Young is expected to inform developments in practice.

National Risk Assessment register  
- recommendation 6.4

Work in progress

The National Centre for Medical Genetics (NCMG) maintains a purpose designed secure national database of families with different forms of genetically determined heart disease which predispose to SCD. NCMG counsels families on risk of inheritance, risk stratification, and where there is a gene abnormality known in the family NCMG offers predictive genetic testing. The NCMG has a close liaison with the two existing family screening centres where clinical cardiac follow up is done (see section 4.2). The NCMG have plans to conduct a full needs assessment of cardiac genetics, to expand the functions of the current register and to develop even closer links with the two existing family screening centres.

Register of witnessed cardiac arrest  
- recommendation 6.5

Work in progress

PHECC has produced and disseminated a Cardiac First Response Report (CFRR) form designed to capture the details of the response to a cardiac event in the pre-hospital setting. At present it is used by all ambulance crews and some community first responder programmes. PHECC has also funded the development of a national out of hospital cardiac arrest register (OHCAR), using the Utstein template, in conjunction with the HSE and NUI Galway. At present OHCAR is fully operational in the HSE North West and the first major report was issued in late 2009 www.phecit.ie. Nationwide extension is now needed.
AED register
- recommendation 6.6

The IMB has a clear procedure regarding how to report an AED device failure or adverse event causing harm to a patient, user or bystander [www.imb.ie](http://www.imb.ie).

Work Outstanding

Unfortunately the development of an AED register has not taken place as this was part of the role of the National Coordinator, a post not filled. The proposal entailed the establishment of a database which would be sustainable and linked to the EMS. In turn this database would inform OHCAR and would be linked with the IMB adverse event reporting process (see section 4.1 relating to recommendation 5.30).

Standards for response time by the ambulance service
- recommendation 6.7

Work in progress

PHECC is currently producing standards for response time by the ambulance service. The continuing spatial analysis studies will inform this work.

HIQA reporting on surveillance and information systems
- recommendation 6.8

Work Outstanding

While a number of forms of surveillance of SCD have been initiated by many groups and agencies as outlined in this report, nonetheless, there is a need to review the adequacy of surveillance of SCD by HIQA, as recommended in the Task Force Report, in order that there is sustainability and cohesion across a wide area of risk assessment, resuscitation training, OHCAR and use of AEDs. Accurate mortality data is essential to monitor trends in SCD. The SCD in the Young Register project is generating information on the extent of SCD in the Young in Ireland through a retrospective review of CSO data for 2006 and 2007 and through a prospective pilot register of SCD in the young in the Dublin area. A SCD in the Young Register Report is expected to be released in 2010 giving outcomes and progress of these activities.

Although HIQA have had an initial discussion with PHECC there is a need for further discussions with all the partners – PHECC, HSE, IMB, CSO and IHF.
APPENDIX 1

Membership of SCD Implementation Steering Group and sub groups

**Lead Person:** Dr. Siobhan Jennings, Consultant in Public Health Medicine, Population Health Directorate, HSE

**Project Coordinator:** Brendan Cavanagh, HSE/IHF (email: brendan.cavanagh@hse.ie)

**Project Team:**

**SCD Implementation Steering Group**

- Dr. Siobhan Jennings (Chair)  HSE Population Health
- Frank McClintock  HSE Ambulance Service
- Dr. Geoff King  PHECC
- Dr. Brian Maurer  Irish Heart Foundation
- Michael O’Shea  Irish Heart Foundation
- Dr. Joe Galvin  Cardiologist, Irish Cardiac Society
- Angela Fitzgerald  HSE National Hospitals Office
- Brendan Cavanagh  SCD Strategy Project Coordinator

**SCD Ambulance and First Responder Sub Group**

- Frank McClintock (Chair)  HSE Ambulance Service
- Dr. Geoff King  PHECC
- Sarah Cain  IHF
- Dr. Peter Wright  HSE West Public Health
- Macartan Hughes  National Ambulance Training School
- Brendan Cavanagh  SCD Strategy Project Coordinator

**SCD Risk Assessment (Sports and Exercise) Sub Group**

- Dr. Joe Galvin (Chair)  Cardiologist, Irish Cardiac Society
- Marian Kiernan  HSE Dublin / North East
- Brendan Cavanagh  SCD Strategy Project Coordinator
- Dr. Carl Vaughan  Cardiologist, Irish Sports Council
- Dr. Brian Maurer  Irish Heart Foundation
- Dr. Michael Griffin  ICGP
SCD Coroners, Pathologists and the CSO Sub Group

Dr. Siobhan Jennings (Chair)  
Dr. Brian Maurer  
Dr. Joe Galvin  
Dr. Denis Cussack  
Dr. Brian Farrell  
Dr. Conor O’Keane  
Joseph Keating  
Brendan Cavanagh  
HSE Population Health  
Irish Heart Foundation  
Cardiologist, Irish Cardiac Society  
Coroners Society of Ireland  
Coroners Society of Ireland  
Faculty of Pathology  
Central Statistics Office  
SCD Strategy Project Coordinator

SCD Communications and the Media Sub Group

Dr. Siobhan Jennings (Chair)  
Fidelma Browne  
Ronan Cavanagh/Caroline Curren  
Imelda O’Neill  
Dr. Mary Morrissey  
Brendan Cavanagh  
HSE Population Health  
HSE Communications  
Irish Heart Foundation  
HSE Health Promotion  
HSE Health Intelligence  
SCD Strategy Project Coordinator

SCD Surveillance and Audit Sub Group

Dr. Siobhan Jennings (joint Chair)  
Michael O’Shea (joint Chair)  
Dr. Brian Maurer  
Dr. Joe Galvin  
Dr. Ronan Margey/Dr. Andy Roy  
Dr. Conor O’Keane  
Brendan Cavanagh  
Dr. Peter Wright  
Siobhan Masterson  
Dr. Geoff King  
Dr. Cliona McGarvey  
Prof Tom Matthews  
HSE Population Health  
Irish Heart Foundation  
Irish Heart Foundation  
Cardiologist, Irish Cardiac Society  
Cardiologists, Mater Hospital  
Faculty of Pathology  
SCD Strategy Project Coordinator  
HSE (OHCAR Project)  
HSE (OHCAR Project)  
PHECC (OHCAR Project)  
SIDS Registry  
SIDS Registry
SCD Report Recommendations

This document lists the 75 recommendations of the SCD report in order under headings of:

- Recommendation No
- Time Frame (as stated in the SCD Task Force Report of 2006)
  - I – immediate – to commence before the end of 2006 (48 recommendations)
  - M – medium term – to be completed by end of 2008 (22 recommendations)
  - L – long term – achievable by the end of the year 2010 (5 recommendations)
- Recommendation – full text of the recommendation
- Status
  - C – Completed
  - E – Expected to be completed in 2010
  - O – Outstanding

Chapters 3, 4, 5 and 6 of the SCD Task Force report relate to the recommendations and this appendix retains the chapter headings.

- Chapters and main drivers within each chapter are listed below.
  - Ch 3: Detection and Assessment of those at high risk of Sudden Cardiac Death (18 recs)
    Coroners, Pathologists, Irish College of General Practitioners (ICGP), HSE
  - Ch 4: Systematic assessment of those engaged in sports or exercise (10 recs)
    Irish Sports Council, Irish Cardiac Society, IHF, ICGP, Department of Education (DoE), HSE
  - Ch 5: Reducing time to response (39 recs)
    HSE Ambulance Service, Pre Hospital Emergency Care Council (PHECC), IHF, HSE
  - Ch 6: Surveillance and audit (8 recs)
    Pathologists, IHF, HSE, PHECC, Health Information and Quality Authority (HIQA)
# Chapter 3 – Detection and assessment of those at high risk of SCD

<table>
<thead>
<tr>
<th>Rec No.</th>
<th>Timeframe</th>
<th>Recommendation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>I</td>
<td>Primary prevention strategies to prevent CHD should continue to be developed and implemented.</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>I</td>
<td>Secondary prevention programmes, including cardiac rehabilitation services and primary care based secondary prevention programmes, should continue to be developed in order to provide access for all patients.</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>I</td>
<td>Family members of those who have suffered a cardiac event should be offered basic life support (BLS) and automated external defibrillator (AED) training.</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>I</td>
<td>Information and continuing education on risk assessment for SCD should be made available to general practitioners.</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>M</td>
<td>As outlined in the <em>Primary Care Strategy</em>, GPs should have improved access to diagnostic facilities and other secondary care services for their patients.</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>I</td>
<td>A national education campaign to raise awareness of the symptoms which indicate increased risk of SCD should be developed and implemented.</td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>M</td>
<td>An education programme for all personnel involved in the immediate and post-event management of SCD should be developed and implemented.</td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>M</td>
<td>Training of personnel in the management of SCD should include a module on appropriate psychological support.</td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>I</td>
<td>Following certification of SCD in individuals less than 40 years of age, the Coroner should notify the next of kin and the patient’s GP of a potential increased risk of SCD in first degree relatives.</td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>I</td>
<td>The Coroner and all medical professionals involved should encourage the next of kin to communicate this information to other first degree relatives as appropriate, and risk assessment of each relative should ensue.</td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>I</td>
<td>Protocols should be formalised for informing GPs and families of the results of post-mortems and the implications for families in terms of risk assessment.</td>
<td></td>
</tr>
<tr>
<td>3.12</td>
<td>I</td>
<td>In cases of SCD, pathology reports should be forwarded to the GP as soon as possible in order to avoid delays in notifying family members who may be at risk.</td>
<td></td>
</tr>
<tr>
<td>3.13</td>
<td>M</td>
<td>Guidelines for the conduct of a post-mortem in SADS cases should be developed as has already been done for Sudden Infant Death Syndrome (SIDS).</td>
<td></td>
</tr>
<tr>
<td>3.14</td>
<td>L</td>
<td>When a post-mortem examination fail to determine the cause of SCD in a person under the age of 40 years, a further examination of the heart should be undertaken by a pathologist with cardiac sub-speciality training, in a specialist referral centre. This will necessitate the appointment of at least two cardiac pathologists in Ireland.</td>
<td></td>
</tr>
<tr>
<td>3.15</td>
<td>I</td>
<td>There is insufficient evidence to support the implementation of a mass population screening programme for SCD. The first degree relatives of those who died of SCD under 40 years of age are the priority group for risk assessment.</td>
<td></td>
</tr>
<tr>
<td>3.16</td>
<td>I</td>
<td>In cases of SCD under the age of 40, initial assessment of first degree family members should be by the GP with referral to a regional cardiology centre for investigation when indicated.</td>
<td></td>
</tr>
<tr>
<td>3.17</td>
<td>I</td>
<td>All cases of possible cardiomyopathy or channelopathy identified in a regional centre should be assessed by a cardiologist with expertise in these conditions. Supra-regional centres should be identified for assessment and treatment of children with a family history of SCD.</td>
<td></td>
</tr>
<tr>
<td>3.18</td>
<td>M</td>
<td>As access to a geneticist is an integral part of the service, regional and supra-regional cardiac referral centre should have a link with the National Centre for Medical Genetics at Our Lady’s Hospital, Crumlin for testing for known cardiomyopathy and channelopathy genes.</td>
<td></td>
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</tbody>
</table>
Chapter 4 – Systematic assessment of those involved in sports and exercise

<table>
<thead>
<tr>
<th>Rec No.</th>
<th>Time frame</th>
<th>Recommendation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>I</td>
<td>Those with a history of heart problems or other major illness are advised to speak to their doctor before starting an exercise programme. Otherwise leisure activities such as walking, swimming or tennis do not require any formal pre-participation assessment (See R 4.2). Anyone feeling any pain or discomfort during exercise is advised to seek advice about exercising safely from their doctor or exercise specialist.</td>
<td>☒</td>
</tr>
<tr>
<td>4.2</td>
<td>I</td>
<td>Those aged 14 years or older who engage in recreational activity without joining a club or organisation should be encouraged to self-administer a risk assessment questionnaire (see R 4.5) and to seek advice from the GP if the questionnaire is positive.</td>
<td>☒</td>
</tr>
<tr>
<td>4.3</td>
<td>I</td>
<td>Individuals aged 14 years or older who wish to join a sports club, gym or other sports facility but not involved in national, provincial or county level sports, should be offered a pre-participation questionnaire. Informed consent to risk assessment should be sought. Those with a positive questionnaire should be advised to contact their GP.</td>
<td>☒</td>
</tr>
<tr>
<td>4.4</td>
<td>I</td>
<td>Following assessment by the GP, those with family histories of SCD, cardiac symptoms and/or abnormal cardiac examination should be referred to a cardiologist for further assessment.</td>
<td>☒</td>
</tr>
<tr>
<td>4.5</td>
<td>M</td>
<td>A protocol for risk assessment should be agreed by the major sports and sports medicine organisations, and the Irish Cardiac Society and Irish College of General Practitioners under the aegis of the Irish Sports Council, for those who wish to join a sports club, gym or other sports facility but are not involved in national, provincial or county level sports. The protocol should include methods for obtaining informed consent, a model questionnaire and procedures for its administration and referral for medical assessment if indicated, as well as guidelines on physical examination and diagnostic tests, including referral to cardiac and specialist centres if required.</td>
<td>☒</td>
</tr>
<tr>
<td>4.6</td>
<td>M</td>
<td>A protocol for risk assessment should be agreed by the major sports and sports medicine organisations, and the Irish Cardiac Society and Irish College of General Practitioners under the aegis of the Irish Sports Council, for those involved in moderate or vigorous intensity sports at national, provincial or county level. (The protocol in R 4.5 should apply to those engaged in low intensity sports at this level.) The protocol should include methods for obtaining informed consent, a model questionnaire and procedures for its administration and guidelines on physical examination for all athletes at this level and on further tests and referral to cardiac and specialist centres if required.</td>
<td>☒</td>
</tr>
<tr>
<td>4.7</td>
<td>M</td>
<td>The Irish Sports Council should support the development and delivery of training courses for sports and medical personnel, including general practitioners, on the implementation of protocols for risk assessment of athletes.</td>
<td>☒</td>
</tr>
<tr>
<td>4.8</td>
<td>L</td>
<td>Multi-sectoral strategies are required to achieve safe participation in sports and exercise. Education programmes should emphasise the dangers of using performance enhancing, recreational and other drugs.</td>
<td>☒</td>
</tr>
<tr>
<td>4.9</td>
<td>I</td>
<td>Pre-participation assessment should explore the use of performance enhancing and illicit drugs.</td>
<td>☒</td>
</tr>
<tr>
<td>4.10</td>
<td>I</td>
<td>If sudden cardiac death occurs in an athlete, risk assessment should be offered to training colleagues and team members.</td>
<td>☒</td>
</tr>
</tbody>
</table>
## Chapter 5 – Reducing time to response

<table>
<thead>
<tr>
<th>Rec No.</th>
<th>Time frame</th>
<th>Recommendation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>I</td>
<td>The Task Force welcomes the establishment of the Health Service Executive National Ambulance Service and recommends that it should lead a national education programme on contacting the EMS</td>
<td>✔️</td>
</tr>
<tr>
<td>5.2</td>
<td>M</td>
<td>Signage on all emergency vehicles should include “In an emergency phone 999 or 112” analogous to the Garda Síochána confidential telephone number on Garda Síochána vehicles.</td>
<td>✗</td>
</tr>
<tr>
<td>5.3</td>
<td>I</td>
<td>Regardless of their purpose, all ambulances should carry an AED. The drivers of all such vehicles should be trained in BLS and AED use.</td>
<td>✔️</td>
</tr>
<tr>
<td>5.4</td>
<td>I</td>
<td>The recommendations in the Ambulance Service Communications Review (2005) concerning the function and role of communication centres should be implemented expeditiously.</td>
<td>✔️</td>
</tr>
<tr>
<td>5.5</td>
<td>M</td>
<td>All providers of pre-hospital emergency care who are contacted by the public should provide pre-arrival advice including telephone-assisted CPR according to a national standard.</td>
<td>✔️</td>
</tr>
<tr>
<td>5.6</td>
<td>I</td>
<td>The early administration of aspirin should be encouraged if chest pain, not collapse, is the problem and acute coronary syndrome is thought to be the cause.</td>
<td>✔️</td>
</tr>
<tr>
<td>5.7</td>
<td>M</td>
<td>The respective roles of the statutory and voluntary organisations in BLS/AED training should be agreed and operationalised to maximise benefit to the public.</td>
<td>✔️</td>
</tr>
<tr>
<td>5.8</td>
<td>M</td>
<td>Irish standards for BLS and AED courses and trainers should be published by PHECC. Statutory, voluntary and private training providers should be accredited according to these standards.</td>
<td>✔️</td>
</tr>
</tbody>
</table>
| 5.9     | I          | The following training initiatives should be prioritised:  
- BLS/AED training is essential for all health care professionals  
- BLS/AED for family members of those who have suffered a non-fatal cardiac event or are at high risk of SCD  
- AED training should be a requirement for occupational first aid certification  
- first responders linked to the EMS  
- BLS/AED training should be included in the curriculum for primary and secondary schools. | ✔️ |
<p>| 5.10    | M          | Responsibility for accreditation and monitoring of all BLS/AED training and the maintenance of training records should be assigned to PHECC. | ✔️ |
| 5.11    | L          | Access to defibrillation should be optimised to meet European recommendations, [out of hospital – within 5 mins of call / in hospital within 3 mins of collapse]. The challenges in meeting the ESC targets should be identified and addressed, recognising that it will take some years to achieve this. | ✔️ |
| 5.12    | M          | Closer integration should be encouraged between the statutory and the voluntary ambulance and emergency services | ✗ |
| 5.13    | I-L        | In establishing first responder programmes, priority should be given to programmes, geographic locations and facilities identified as having the greatest need. All such programmes should be coordinated by the HSE Ambulance Service, with best practice guidance from PHECC. | ✔️ |
| 5.14    | I          | First responder programmes must include standardised quality assurance / quality improvement structures (see Section 5.6.8). | ✔️ |
| 5.15    | I          | All AEDs and trained personnel available to voluntary aid organisations should be immediately integrated within first responder programmes associated with the statutory ambulance services. | ✗ |
| 5.16    | M          | First responder programmes outside the voluntary aid organisations should be integrated where appropriate with the statutory ambulance service. | ✗ |</p>
<table>
<thead>
<tr>
<th>Rec No.</th>
<th>Time frame</th>
<th>Recommendation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.17</td>
<td>I</td>
<td>Community first responder coordinators should be appointed in each ambulance service region to coordinate all programmes. A standard job specification should be agreed for such posts.</td>
<td></td>
</tr>
<tr>
<td>5.18</td>
<td>I-M</td>
<td>All community-based health personnel, particularly health professionals, should be trained to manage a cardiac event. All community health facilities, including general practice premises should be equipped to deal with such an emergency. This includes the provision and maintenance of an AED.</td>
<td></td>
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<tr>
<td>5.19</td>
<td>I-M</td>
<td>A tiered response system should prioritise the training and equipping of rapidly deployable ‘uniformed responders’ such as:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• full time fire services in urban communities</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• retained fire services in rural communities</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• the evaluation of the pilot programme of Garda patrol car-based AEDs should be concluded prior to such programmes being implemented nationally</td>
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<td></td>
<td></td>
<td>• auxiliary and voluntary providers</td>
<td></td>
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<td></td>
<td></td>
<td>• security personnel at large shopping centres / sports grounds / public amenities, and</td>
<td></td>
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<td></td>
<td></td>
<td>• local first responder programmes should facilitate participation by off-duty trained health services and uniformed personnel.</td>
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<tr>
<td>5.20</td>
<td>I-M</td>
<td>All priority facilities should be encouraged to provide first responder programmes and consideration should be given to requiring this on a statutory basis.</td>
<td></td>
</tr>
<tr>
<td>5.21</td>
<td>I</td>
<td>Management of other site specific locations should be advised of the potential benefits of implementing programmes e.g. leisure centres, sports clubs (GAA, golf courses etc).</td>
<td></td>
</tr>
<tr>
<td>5.22</td>
<td>I</td>
<td>A template should be developed urgently for the provision of local information and advice to communities, councils, organisations, etc. who wish to establish first responder programmes in their area.</td>
<td></td>
</tr>
<tr>
<td>5.23</td>
<td>M</td>
<td>Appropriate support should be available for responders to receive ‘critical incident stress debriefing’ following a resuscitation attempt.</td>
<td></td>
</tr>
<tr>
<td>5.24</td>
<td>I</td>
<td>The HSE ambulance service should be required to establish structural links to first responder programmes.</td>
<td></td>
</tr>
<tr>
<td>5.25</td>
<td>I-M</td>
<td>A technology assessment should be conducted of devices currently in place and those proposed, to ensure the most appropriate device is in place for the specific setting.</td>
<td></td>
</tr>
<tr>
<td>5.26</td>
<td>I-L</td>
<td>AEDs should be placed in facility where the incidence of cardiac arrest is high, including:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• inpatient health facilities</td>
<td></td>
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<td></td>
<td></td>
<td>• GP surgeries and primary care facilities</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• airports, shopping centres, major sports venues and golf courses, bus/rail terminals, ferries/ferry terminals, concert and conference venues</td>
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<td></td>
<td></td>
<td>• universities and colleges</td>
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<td></td>
<td></td>
<td>• gyms and fitness clubs, and</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• other venues for major public events</td>
<td></td>
</tr>
<tr>
<td>5.27</td>
<td>M</td>
<td>National signage for AEDs should be agreed and used in all locations.</td>
<td></td>
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<tr>
<td>5.28</td>
<td>I</td>
<td>Individuals and organisations who purchase an AED should be informed by the vendor about procedures to ensure that the AED is maintained in a state of operational readiness.</td>
<td></td>
</tr>
<tr>
<td>5.29</td>
<td>I</td>
<td>A designated person in each location where an AED is housed should ensure that clear roles and lines of responsibility are identified, maintenance schedules are observed and recorded, and regular checks / refurbishment of consumables are performed.</td>
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<tr>
<td>Rec No.</td>
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<tr>
<td>5.30</td>
<td>I-M</td>
<td>Responsibility for the establishment and maintenance of a devices / customer register should be assigned to the IMB. This should include a system for recording adverse events associated with the use of AEDs.</td>
<td>O</td>
</tr>
<tr>
<td>5.31</td>
<td>I-M</td>
<td>Vendors should register the sale of each AED to a national register. Manufacturers and vendors must notify the IMB in the event of a product recall or requirement to provide technical information to AED owners.</td>
<td>O</td>
</tr>
<tr>
<td>5.32</td>
<td>M</td>
<td>An AED purchaser should be required to provide the following information at the time of purchase: - a registration form with all contact details for submission to a central register - a training form stating that the purchaser understands the responsibility that owning an AED brings and a recommendation that they complete a BLS / AED training course, and - a community response form notifying their local EMS station that they have an AED and specifying whether they wish to become part of an integrated community response programme, have a limited role in such a response programme or have no role in such a programme.</td>
<td>O</td>
</tr>
<tr>
<td>5.33</td>
<td>I</td>
<td>The standardised form developed by PHECC should be used to report sudden cardiac events, including data on AED use. Those involved in first responder programmes should record this information as an integral part of each programme's procedures.</td>
<td>O</td>
</tr>
<tr>
<td>5.34</td>
<td>I</td>
<td>The legal situation should be reviewed to protect rescuers from litigation. The HSE should review other aspects of insurance requirements for first responders.</td>
<td>O</td>
</tr>
<tr>
<td>5.35</td>
<td>M</td>
<td>PHECC in consultation with HIQA should develop and implement a national programme of audit of emergency cardiac response.</td>
<td>O</td>
</tr>
<tr>
<td>5.36</td>
<td>I</td>
<td>Advanced cardiac life support (ACLS) training should be readily accessible to all appropriate health professionals, including those who work in a community setting.</td>
<td>O</td>
</tr>
<tr>
<td>5.37</td>
<td>I</td>
<td>After contacting the healthcare system (ambulance service, GP services or Emergency Department) patients with suspected AMI should: - have access to a defibrillation within ten minutes - be offered aspirin within 20 minutes (if appropriate) - have a completed assessment of suitability for reperfusion therapy within 30 minutes, and - have access to thrombolysis (if appropriate) within 60 minutes.</td>
<td>O</td>
</tr>
<tr>
<td>5.38</td>
<td>I-M</td>
<td>Timely reperfusion therapy for patients with AMI should involve: - pre-hospital thrombolysis via GP services or advanced paramedic units of the ambulance service where hospital assessment for reperfusion is unlikely within 30 minutes or hospital provision of reperfusion is unlikely within 90 minutes of the patient contacting the health services; the medium term target is for patients to receive reperfusion therapy within 60 minutes of making contact, - fast-tracking within Emergency Departments where patients are brought by ambulance or self-present, and - if possible primary angioplasty.</td>
<td>O</td>
</tr>
<tr>
<td>5.39</td>
<td>M</td>
<td>Best practice guidelines for the management of cardiac arrest survivors during the post-resuscitation phase should be developed and implemented.</td>
<td>O</td>
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</tbody>
</table>
## Chapter 6 – Surveillance and audit

<table>
<thead>
<tr>
<th>Rec No.</th>
<th>Time frame</th>
<th>Recommendation</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>6.1</td>
<td>I</td>
<td>The use of terms such as ‘sudden cardiac death’ should be permitted when completing a death certificate, supported by information on the underlying cause. The Central Statistics Office (CSO) should discuss refinements to the data reported by pathologists and coroners with their professional organisations, to provide more accurate estimates of SCD.</td>
<td>C</td>
</tr>
<tr>
<td>6.2</td>
<td>I-L</td>
<td>An information campaign will be required to inform medical practitioners about the modification of methods of completing death certificates.</td>
<td>C</td>
</tr>
<tr>
<td>6.3</td>
<td>I</td>
<td>Pathologists performing autopsies in cases of SCD due to non-coronary causes should complete standard forms.</td>
<td>C</td>
</tr>
<tr>
<td>6.4</td>
<td>M</td>
<td>A central national risk assessment register should be established and maintained at the NCMG to support follow-up of those assessed, to provide epidemiological information on conditions associated with increased risk of SCD, and to support the planning and evaluation of services.</td>
<td>C</td>
</tr>
<tr>
<td>6.5</td>
<td>I-M</td>
<td>PHECC should build on work already under way to establish a register of witnessed cardiac arrest and attempted resuscitation. This should include collecting data, using the Utstein template, from the EMS, GPs, other health personnel and uniformed responders, and those participating in first responder programmes. Data on cardiac arrests &amp; resuscitation in the hospital setting should also be returned to PHECC.</td>
<td>C</td>
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<tr>
<td>6.6</td>
<td>M</td>
<td>PHECC and the IMB should discuss registration procedures so as to minimise the burden on emergency responders in reporting to the cardiac arrest register (Rec 6.5) and to the AED (and adverse events) register (Rec 5.30)</td>
<td>C</td>
</tr>
<tr>
<td>6.7</td>
<td>I-M</td>
<td>Standards for response time by the ambulance service appropriate to urgency and seriousness of clinical condition should be established by PHECC</td>
<td>C</td>
</tr>
<tr>
<td>6.8</td>
<td>L</td>
<td>The Health Information and Quality Authority (HIQA) should report regularly on the adequacy of surveillance of SCD and of the information systems for risk assessment, resuscitation, training and use of AEDs.</td>
<td>C</td>
</tr>
</tbody>
</table>
Cardiac risk assessment advisory statement

Cardiac risk assessment for young people engaged in sports or exercise advisory statement by the Sudden Cardiac Death (SCD) Implementation Steering Group

Advisory statement

1. Physical activity in the Irish population
We recommend the increased promotion of the benefits of physical activity and exercise at all ages, especially in the young.

2. Research into SCD
More information and research is needed in Ireland on sudden cardiac death (SCD). This should be directed towards a) determining the incidence of SCD (Post Mortem studies, use of death certificate data regarding SCD in the young, Out of Hospital Cardiac Arrest Registry) and b) the prevalence of symptoms that may be indicators of risk of SCD.

3. Those with a family history of SCD under 40 years of age
First degree relatives of a person who has died of an SCD under 40 years of age are known to be at increased risk of SCD. They should be offered full cardiac screening via family screening clinics, preferably arranged through their general practitioner (GP).

4. Participants in sports and exercise (other than high intensity, highly competitive athletes)
We recommend that individuals, aged 14 years or older, involved in sporting activities, or in joining a gym or sports facility should:

   a. determine their family cardiac history (refer to point 3);
   b. discuss any personal history of heart disease with their GP or cardiologist prior to starting a sporting or exercise programme;
   c. discuss any symptoms, which causes them concern, with their GP, especially unexplained blackout;
   d. clarify the advisability of exercise in the context of current medication or supplements with their GP;
   e. be aware that anabolic/androgenic steroids can cause direct cardiac damage and that almost all illicit drugs, particularly ecstasy and cocaine, can cause lethal arrhythmias which may be triggered by exercise.

Attachment 1 and Attachment 2 are examples of questionnaires that may be used by gyms and sports facilities.
5. **Athletes involved in systematic training in high intensity, highly competitive sports**
We recommend that athletes, aged 14 years or older, involved in systematic training with pressure to obtain peak performance in high intensity, highly competitive (elite level) sports, should complete a relevant questionnaire (examples are Attachment 1 and 2) and in addition undergo a physical examination, blood pressure check and an electrocardiogram (ECG).

6. **Guidance for sporting bodies and sports facilities**
We recommend that sporting bodies and sports facilities should raise awareness regarding cardiac risk assessment based on points 3, 4 and 5 of this statement. Should a questionnaire be used there may be a need for parental or guardian consent.

7. **Awareness of effects of steroids and illicit drugs**
We recommend that sporting bodies and sports facilities make participants aware that anabolic/androgenic steroids and illicit drugs, such as ecstasy and cocaine, can cause a wide range of potentially fatal heart rhythm disturbances especially in the context of exercise.

8. **Training in cardiopulmonary resuscitation (CPR) and automated external defibrillators (AEDs) at all sports facilities**
We recommend that all sports facilities encourage and support AED availability and CPR/AED training to as many staff and members as possible.

SCD Implementation Steering Group

Dr. Siobhan Jennings (Chair)  HSE, Population Health
Frank McClintock  HSE, Ambulance Service
Dr. Geoff King  Pre Hospital Emergency Care Council (PHECC)
Dr. Brian Maurer  Irish Heart Foundation
Michael O’Shea  Irish Heart Foundation
Angela Fitzgerald  HSE, National Hospitals Office
Dr. Joe Galvin  Cardiologist, Irish Cardiac Society
Brendan Cavanagh  HSE, Population Health

Note: This advisory statement is a consensus statement agreed by the HSE, Irish Heart Foundation (IHF), Irish Sports Council (ISC), Irish College of General Practitioners (ICGP), and the Irish Cardiac Society (ICS).
Background To Advisory Statement

1. Introduction

In March 2006 the Minister for Health and Children launched Reducing the Risk: A Strategic Approach. The Report of the Task Force on Sudden Cardiac Death (SCD Report). This report made 75 recommendations covering four main areas for change: a) detection and assessment of those at high risk of SCD, b) systematic assessment of those engaged in sports and exercise, c) reducing time to response, and d) surveillance and audit.

An implementation Steering Group (SG), comprising the HSE, the Irish Heart Foundation (IHF) and the Pre-Hospital Emergency Care Council (PHECC), was formed under the chairmanship of Dr. Siobhan Jennings, Consultant in Public Health Medicine, HSE. The SG requested a subgroup on risk assessment in sports and exercise, under the chairmanship of Dr. Joe Galvin, to advise on the implementation of the relevant recommendations of the SCD Report. The membership was comprised of the HSE, IHF, Irish Sports Council and Irish College of General Practitioners.

It is estimated that over 5,000 people die of sudden cardiac death in Ireland each year. Of these about 70 to 100 deaths are in the under 35 year age group with the majority of SCDs occurring from late middle age onwards as a result of coronary heart disease. In people under 35 years a high proportion of SCDs are due to inherited cardiac conditions which may be aggravated by sport or vigorous exercise. By recognizing those at risk, measures may be taken to reduce the risk of sudden cardiac death.

2. Purpose of advisory statement

This advisory statement sets out the issues considered in implementing the SCD Report recommendations and proposes an agreed way forward in the area of reducing SCD in young people in Ireland who are engaged in sports or exercise or who wish to join a sports club, gym or other sporting facility. It is published in the knowledge that there are limitations to our current knowledge and that we will need to review this situation over the next few years as more information becomes available nationally and internationally.

It is based on the Chapter 4 SCD Task Force recommendations, discussions within the SG and risk assessment subgroup, consultations, national research and international research and studies, most of which are listed in the reference section of this document.

3. International and Irish developments in cardiac risk assessment in sports

European Society of Cardiology (ESC)

In 2005, the ESC published a report proposing a common European protocol for cardiovascular pre-participation screening of young competitive athletes for prevention of sudden death. The report prepared by a study group of sport cardiology recommended pre-participation cardiovascular evaluation of young competitive athletes by a) taking a medical history (personal and family history), b) physical examination (BP, radial and femoral pulse check, cardiac auscultation and checking for features of Marfan syndrome) and c) a 12 lead resting ECG.
**United Kingdom**

The UK National Screening Committee (NSC) position is, at present, not to screen for SCD. 3 UK NHS National Service Framework on Coronary Heart Disease (Chapter 8) states that ‘When SCD occurs, NHS services have systems in place to identify family members at risk …’ but do not indicate screening or risk assessment in sports. 4

**Denmark**

The Danish Society of Cardiology recently looked at the ESC report proposing a common European protocol for cardiovascular pre-participation screening of young competitive athletes and concluded that screening cannot be recommended in Denmark at present as there is inadequate documentation of the effect of screening and on considerations regarding cost-effectiveness. 5 The Society recommends other prophylactic measures and further research on this issue.

**Italy**

In Italy it has been the law, since 1971, to provide medical protection for athletes participating in organized competitive athletic events. Since 1982, this law has stipulated that preparticipation screening include, at a minimum, a general physical examination, 12-lead ECG, and submaximal exercise test and that the screening protocol be conducted annually. 6

**USA - AHA and ACC**

In the United States, the screening of high school and college athletes before they participate in a sport generally follows a guideline issued in 1996 by the American Heart Association (AHA). 6 The guideline was updated by the AHA and American College of Cardiology (ACC) in 2007 with very little change. They recommend screening of all young sports participants with a medical history and physical examination but not an ECG, accepting that this would miss a significant number of cases of cardiomyopathy and possibly channelopathy. 7

**Ireland and the work of the Task Force on SCD**

The Task Force on SCD considered that there was insufficient evidence to support the implementation of a mass population screening programme for SCD and instead made recommendations regarding assessment of risk which would a) increase awareness of the importance of cardiac symptoms; b) identify a cardiac history; c) identify a family history of premature sudden cardiac death; and d) highlight the dangers of taking performance enhancing or other illicit drugs when involved in sports (see Attachment 1).

The SCD Task Force Report 1 differentiates between those who wish to join a sports club, gym or other sports facility, and those involved in moderate or vigorous intensity sports at national, provincial or county level. The report states that competitive sports are those that ‘involve systematic training or the pursuit of excellence’.
The SCD Task Force Report discusses the benefit of exercise versus the risks stating that about one third of coronary heart disease (CHD) deaths are due to inactivity (UK and USA evidence) and that inactivity is the most prevalent risk factor for CHD. However the paradox is that SCD rates in the young are increased in frequency among those involved in sports and are largely the result of underlying disease with the lethal arrhythmia being triggered by exercise.

4. Current status of work in Ireland

SCD Implementation subgroup work

The SCD Risk Assessment (sports and exercise) sub group developed a draft questionnaire for use in non competitive sports and exercise environments encompassing five questions on family history, personal history of cardiac problems and key symptoms based on evidence available. As part of the questionnaire document, further information was given on SCD, the benefits of exercise was stressed, advice was given for over the 40s, a warning was given on use of illicit drugs and the possible implications on future participation in competitive sports, future life insurance and mortgage applications based on positive answers to the questions. The five questions are encompassed in table 1. This questionnaire was used in a number of surveys in whole or in part and the results are summarised in table 1.

Table 1: Questions considered to be useful in cardiac risk assessment and their frequency in recent surveys in Ireland

<table>
<thead>
<tr>
<th>Question</th>
<th>2007 survey of general public (n=250)</th>
<th>2007 survey of 14-18 year olds (n=200)</th>
<th>2008 survey of 16–34 year olds (n=796)</th>
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<tbody>
<tr>
<td>1. Have you ever been diagnosed with a heart condition?</td>
<td>11%</td>
<td>2%</td>
<td>1.5%</td>
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<tr>
<td>2. Have you ever experienced very rapid heart beating that has begun and ended for no apparent reason?</td>
<td>17%</td>
<td>11%</td>
<td>2.9%</td>
</tr>
<tr>
<td>3. Have you ever experienced very rapid heart beating that has begun and ended for no apparent reason?</td>
<td>18%</td>
<td>16%</td>
<td>5.7%</td>
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<tr>
<td>4. Have you ever had unusual pain or pressure in the chest during exercise which forces you to stop exercising?</td>
<td>14%</td>
<td>21%</td>
<td>5.4%</td>
</tr>
<tr>
<td>5. Do you have a brother, sister or parent who died suddenly and unexpectedly, under 40 years of age, due to a heart problem or for which no cause was found?</td>
<td>16%</td>
<td>1%</td>
<td>6%</td>
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</table>
The recent 2008 omnibus survey of 796 16 to 34 year olds gave a more accurate picture, than the previous limited 2007 survey, of the probable response rates of 14 to 34 year olds to questions 1 to 5 in Attachment 3. Overall, 12.2% of respondents in this survey answered yes to at least one of the 5 questions in table 1.

**Extent of young people in Ireland engaged in sports or exercise**

The CSO Quarterly National Household Survey on Sport and Physical Exercise (Quarter 3 2006) stated that 62.8% of persons aged 15 years and older reported that they had participated in physical activities for exercise, recreation or sport in the previous twelve months. Of these, 15.4% stated that they had participated in their main sport or physical exercise in a competitive capacity - almost half of these were in the 15 to 34 age group. This would equate to 9.4% of the Irish population aged 15 years and older participating in their main sport or physical exercise in a competitive capacity. In Italy, 8% of the population are documented as participating in competitive sports or training. Taking a rate of 9.4% of population (aged 15 to 34 years) this would correspond to some 127,000 people in Ireland (based on 2006 census) participating in their main sport or physical exercise in a competitive capacity. It is not known yet what the positive response rate to questionnaires will be. Preliminary data suggests around a 20% positive rate or about 25,000 people warranting referral to their GP. GPs may (or may not) exclude much of this group from further evaluation depending on whether the family history and symptomatology is well understood.

It has been suggested that risk assessment should begin at about 14 (Italy) or 15 (USA) years of age. In those below the age of 14, SCD rates are lower than in those over 14, symptoms and ECGs are more difficult to interpret and exercise tends to occur in a less organised, less intense and more informal manner.1

**Extent of facilities to deal with cardiac risk assessment in young people in Ireland**

At present there are two cardiac centres that can assess first degree relatives of those who died suddenly, under the age of 40 years, due to cardiac arrest or undetermined cause. They are funded from charitable sources. They are:

1. Family Screening Centre, (for family members > 14 years old only), Heart House, 53-54 Eccles St, Dublin 7.

2. Centre for Cardiovascular Risk in Younger Persons, Adelaide, Meath and National Children’s Hospital, Tallaght, Dublin 24

There are a number of cardiologists around Ireland who have a special interest in cardiac risk assessment in young people, however, resources, both human and material, are required to deal effectively with the probable large numbers that would be referred by GPs. GPs also require education in the causes of SCD and in the assessment of those at risk of SCD. This will be done via the ICGP.
There are, as yet, no dedicated sports cardiology clinics that could deal with the expected high numbers of young sports people that would be referred by GPs, sports clubs, sports organisations, schools, concerned parents or by individuals who wish to be assessed. Many sports clubs and sports organisations have already begun to have cardiac risk assessment done on their more elite players / athletes.

5. **Reasons why finding a solution is proving difficult**

There are a number of reasons why finding a solution to effective and efficient cardiac risk assessment for young people engaged in sports or exercise is proving difficult. These include:

1. The recommendations from various professional bodies across the world are not in unison and are mostly based on consensus rather than robust evidence.

2. The difference between risk assessment and screening in this context is very small and the evidence for such a screening programme is not established, yet the downsides of screening include reduction in physical activity at a time of an international rise in obesity.

3. The practicalities of resourcing such a screening in terms of physicians and diagnostic centres required as well as other costs are very sizeable. Notably the one country that has provided much of the intelligence to date is in a difference position.

4. The high number of apparently abnormal ECG results (4.8% in the Italian experience).

5. The relatively high number of sports participants stopped from training/playing sports (2.8%) relative to the number of sudden cardiac deaths in the population (2.1 per 100,000 population).

6. Sports-related sudden cardiac death accounts for some 15% of sudden cardiac death in young people and sudden cardiac death in the young (those under 35 years) accounts for 1 to 2% of all sudden cardiac deaths in the population. Screening young sports people would be a large investment by the public health purse targeting a group that accounts for some 0.1 to 0.3% of all sudden cardiac deaths in the population.

7. It remains unclear who exactly is a competitive athlete and whether pre-participation screening should be offered to all people involved in sports, eg, school children involved in school sports.
References


3. UK National Screening Committee website www.nsc.nhs.uk 13 August 2008


5. Prescott EI, Heath FP, Rasmussen HK. Sudden cardiac death among young athletes - should we screen? Ugeskr Læger 2006;168 (51):4537-4539


8. Quarterly National Household Survey - Sport and Physical Exercise (Quarter 3 2006) www.cso.ie
Example of questionnaire which may be used in those aged 14 to 18 years involved in sports or exercise.

Sudden cardiac death (SCD) is a rare but tragic event. Because of the high frequency of irrelevant symptoms such as chest pain, palpitations and shortness of breath among those aged 14 to 18 years and their exceedingly low positive predictive value for SCD (<0.001%), the following is recommended: Consider the following questions.

1. Have you ever been diagnosed with a heart condition? Y/N

If so please specify __________________________

2. Do you have a brother, sister or parent who died suddenly and unexpectedly, under 40 years of age, due to a heart problem or for which no cause was found? Y/N

If so please specify __________________________

3. Have you ever had an unexplained blackout? Y/N

4. Do you take medications, supplements or drugs? Y/N

If so please specify __________________________

If you answered yes to either question 1 or 2 it is essential that you see your general practitioner (GP) before getting involved in the sport or exercise.

If you are concerned about your answers to questions 3 and 4 it is recommended that you see your GP before getting involved in the sport or exercise.
Example of questionnaire which may be used in those over 18 years involved in sports or exercise

Sudden cardiac death (SCD) is a rare but tragic event. Rates increase slightly in young adults over 18 years of age. Consider the following questions.

1. Have you ever been diagnosed with a heart condition? Y/N

   If so please specify __________________________

2. Do you have a brother, sister or parent who died suddenly and unexpectedly, under 40 years of age, due to a heart problem or for which no cause was found? Y/N

   If so please specify __________________________

3. Have you ever had an unexplained blackout? Y/N

4. Have you ever experienced very rapid heart beating that has begun and ended for no apparent reason? Y/N

5. Have you ever had unusual pain or pressure in the chest during exercise which forces you to stop exercising? Y/N

6. Do you take medications, supplements or drugs? Y/N

   If so please specify __________________________

If you answered yes to either question 1 or 2 it is essential that you see your general practitioner (GP) before getting involved in the sport or exercise.

If you are concerned about your answers to questions 3 to 6 it is recommended that you see your GP before getting involved in the sport or exercise.
## APPENDIX 4

List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACLS</td>
<td>Advanced Cardiac Life Support</td>
</tr>
<tr>
<td>AED</td>
<td>Automated External Defibrillator</td>
</tr>
<tr>
<td>AMI</td>
<td>Acute Myocardial Infarction</td>
</tr>
<tr>
<td>BLS</td>
<td>Basic Life Support</td>
</tr>
<tr>
<td>CFR</td>
<td>Cardiac First Response</td>
</tr>
<tr>
<td>CFRR</td>
<td>Cardiac First Response Report</td>
</tr>
<tr>
<td>CPR</td>
<td>Cardiopulmonary Resuscitation</td>
</tr>
<tr>
<td>CSI</td>
<td>Coroners’ Society of Ireland</td>
</tr>
<tr>
<td>DQCC</td>
<td>Directorate of Quality and Clinical Care</td>
</tr>
<tr>
<td>DOHC</td>
<td>Department of Health and Children</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EMT</td>
<td>Emergency Medical Technician</td>
</tr>
<tr>
<td>GAA</td>
<td>Gaelic Athletics Association</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>HIQA</td>
<td>Health Information and Quality Authority</td>
</tr>
<tr>
<td>HRB</td>
<td>Health Research Board</td>
</tr>
<tr>
<td>HSE</td>
<td>Health Service Executive</td>
</tr>
<tr>
<td>ICGP</td>
<td>Irish College of General Practitioners</td>
</tr>
<tr>
<td>ICS</td>
<td>Irish Cardiac Society</td>
</tr>
<tr>
<td>IHF</td>
<td>Irish Heart Foundation</td>
</tr>
<tr>
<td>ISD</td>
<td>Integrated Services Directorate</td>
</tr>
<tr>
<td>ILCOR</td>
<td>International Liaison Committee on Resuscitation</td>
</tr>
<tr>
<td>IMB</td>
<td>Irish Medicines Board</td>
</tr>
<tr>
<td>MERIT</td>
<td>Medical Emergency Responders Integration &amp; Training</td>
</tr>
<tr>
<td>NHO</td>
<td>National Hospitals Office</td>
</tr>
<tr>
<td>NUIG</td>
<td>National University of Ireland, Galway</td>
</tr>
<tr>
<td>OHCAR</td>
<td>Out of Hospital Cardiac Arrest Register</td>
</tr>
<tr>
<td>PHECC</td>
<td>Pre-Hospital Emergency Care Council</td>
</tr>
<tr>
<td>PCCC</td>
<td>Primary, Community and Continuing Care</td>
</tr>
<tr>
<td>PCI</td>
<td>Percutaneous Coronary Intervention</td>
</tr>
<tr>
<td>SADS</td>
<td>Sudden Adult Death Syndrome</td>
</tr>
<tr>
<td>SCD</td>
<td>Sudden Cardiac Death</td>
</tr>
<tr>
<td>UCC</td>
<td>University College Cork</td>
</tr>
<tr>
<td>UCD</td>
<td>University College Dublin</td>
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</tbody>
</table>