Overview of OHCAR

• The National Out-of-Hospital Cardiac Arrest Register Project (OHCAR) was established in June 2007. The need for OHCAR was most recently highlighted in the policy document “Changing Cardiovascular Health Policy 2010-2019”\(^1\) (Recommendation 5.26).

• OHCAR was undertaken in co-operation with the Pre-Hospital Care Council (PHECC), Discipline of General Practice, NUI Galway and the Public Health department in the North West.

• OHCAR was granted a further year of funding by PHECC in 2010. Funding is currently available until May 2011.

• OHCAR data collection commenced in 2007 in the North West and in the Midlands in 2009. In 2010, data collection commenced in the North Eastern, Mid-Western and Southern regions and the Eastern Regional Ambulance Service (no current data collection in the South). A retrospective analysis of OHCA cases for 2010 in the Western region is underway. Dublin Fire Brigade (DFB) collects data in OHCAR format and has submitted retrospective data to OHCAR for analysis.

Out-of-Hospital Cardiac Arrest (OHCA) in Ireland

• Out-of-Hospital Cardiac Arrest is one of the leading causes of mortality in Europe\(^2\)

• The need for a rapid and appropriate response to OHCA is well documented and supported by a large body of evidence\(^3\), and has been most recently highlighted by the Health Information and Quality Authority (HIQA)\(^4\).

• Research on OHCA in Ireland has been carried out for over forty years, with the documentation of OHCA survival on the world’s first cardiac ambulances staffed solely by ambulance personnel\(^5\). It is essential that the tradition of OHCA research is continued and expanded if Irish practice is to be based on Irish evidence.

• In order to learn from Irish experience of OHCA, a systematic and ongoing data collection & analysis mechanism is required. This is the role of OHCAR.

• The quality of data collected is also a key consideration for OHCAR. A recent report\(^6\) has advised that the essential components of good quality pre-hospital research include ethical approval, cross-agency co-ordination, good relationships with data providers and access to dispatch information. These are elements that have been part of the OHCAR project from the outset.

Overall Aim of OHCAR

• By May 2010, the OHCAR Project aimed to establish a Registry that can maintain a national OHCA register. The overall aims of the OHCAR Project have largely been met however a key objective is to “…specify the ongoing requirement for a sustainable OHCA Register including terms of auspicing, governance, staffing and funding”.

• Options for the long-term sustainability of the OHCAR Register are currently being pursued.

Stakeholders and changes to the OHCAR Steering Group membership

• OHCAR stakeholders currently include PHECC, HSE including Public Health, National Ambulance Service and receiving hospitals, Dublin Fire Brigade, General Practitioners, voluntary and auxiliary organisations including Red Cross, Order of Malta, Civil Defence and Dublin Airport Authority.

• The current Steering Group membership is as follows:
  - Prof. Gerard Bury, UCD Centre for Immediate Care
  - Dr. John Dowling, North West Immediate Care Programme
  - Ms. Jacqueline Egan, Programme Development Officer, PHECC
  - Dr. Geoff King, Director, PHECC
  - Ms. Siobhán Masterson, OHCAR Project Manager
  - Prof. Andrew Murphy, Head of department, department of General Practice, NUI Galway
  - Dr. Cathal O’Donnell, Medical Director, National Ambulance Service
  - Mr. Pauric Sheerin Ambulance Operations Performance Manager for Area West
  - Dr. Peter Wright, Director of Public Health Medicine, HSE West (NW area)

Mr. Pat Grant represented the National Ambulance Office in Mr. Frank McClintock’s absence.

The Steering Group met three times since during 2010.
Scope of Patients Included in OHCAR
• The scope of patients included on OHCAR is: “All patients who suffer a witnessed or unwitnessed out-of-hospital cardiac arrest which is confirmed and attended by emergency Services and resuscitation considered or attempted”.

Results and Key Messages 1st Nov 2007 to 31st Dec 2010 (Cases of Presumed Cardiac Aetiology n=515)
• The most recent analysis of OHCAR data collected from November 2007 to December 2010 provides the following key messages about OHCA and pre-hospital resuscitation in Ireland (cases of presumed cardiac origin only):
  o Percentage survival rate for OHCA of presumed cardiac origin was 7.1%
  o Almost half of patients who had a bystander-witnessed arrest did not receive bystander-CPR
  o More than three-quarters of surviving patients were discharged with good neurological function
  o Rapid response is a critical factor in determining survival
    ▪ The median Call-Response Interval (CRI) for patients who did not survive was fourteen minutes. **Non-surviving patients were responded to in eight minutes or less in one quarter of cases.**
    ▪ The median CRI for surviving patients was 8 minutes. **More than half of surviving patients were responded to in eight minutes or less**
  o Patients are significantly more likely to survive if an event occurs in a public place
  o Patients are significantly more likely to survive if in a shockable rhythm at the time of first arrest rhythm analysis
  o Males are more likely than females to survive an OHCA
  o Patients with a known coronary heart disease history (CHD) are less likely to survive than patients with no recorded CHD history
  o Almost one third of patients who received a defibrillation shock were in a non-shockable rhythm at the time of first rhythm analysis
  o Almost half of patients who had return of spontaneous circulation recorded at any stage survived to hospital discharge

Dataset and Data Collection Methodology
The revised OHCAR dataset contains additional items including ambulance dispatch code and the qualifications of personnel involved in OHCA management. The revised OHCAR electronic registration form and OHCAR cardiac arrest data sheet are used to capture additional items. OHCAR dataset revisions will be incorporated into the next version of the Ambulance Patient Care Report.

OHCAR PRESENTATIONS AND MEETINGS
OHCAR presentations were made at the following conferences and meetings: Irish Society of Immediate Care Conference, European Resuscitation Conference, Sudden Cardiac Death in the Young Council, and various meetings of ambulance personnel and managers. Meetings were held with voluntary and auxiliary service providers and hospital representatives.

OHCAR IN THE REGIONS
North West
• OHCAR Electronic Registration Form implemented and OHCAR reports for the first three quarters disseminated to Ambulance Staff. Reports now contain a breakdown of results by station. Process for notifying OHCA attended by NowDoc staff was agreed and initiated
• There are no changes in the process and no difficulties in collecting hospital data during 2010.

Midlands
• Midland OHCAR reports for the first three quarters were disseminated to Ambulance Staff
• Latest version of the OHCAR Registration Form implemented.
• OHCAR has become well established in the Midlands.
North East
- Implementation of OHCAR commenced. All ambulance personnel, GPs and relevant hospital personnel informed. Representative in each receiving hospital agreed.
- Separate data collection processes for paper and electronic data necessary. Identification of electronically submitted OHCAR cases simplified with delivery of the “CareMonX Triage System” in December 2010 which identifies possible OHCA ePCRs. Practitioners who submit data manually send OHCA PCRs separately to the Ambulance Training and Development Officer. Maximal case identification enabled by notification of OHCAR by Ambulance Control of all incidents closed as “Cardiac/Respiratory Arrest or Death” on a monthly basis.
- As soon as all possible cases for 2010 have been retrieved, a first annual report, giving a breakdown of cases by station will be produced. Quarterly reporting will be commenced as soon as data collection can be streamlined.

Mid-West
- Retrospective review of cardiac arrests in the Mid-West carried out and disseminated to all ambulance personnel in July 2010. Real-time data collection commenced in September 2010. Cases reported using the PCR and Cardiac Arrest data sheet to an Advanced Practitioner who collates the data with ambulance control details before sending to the OHCAR office. The first three-monthly OHCAR report was produced for the Mid-West in December 2010.
- General practitioners and relevant hospital consultants in the region were informed about the implementation of OHCAR. All hospitals in the Mid-West region have signed up to contribute data to OHCAR and have already submitted all data requested.

Eastern Regional Ambulance Authority
- Practitioners were informed about OHCAR introduction and data collection commenced in ERAS in December 2010. Practitioners submit PCRs and Cardiac Arrest data sheets to the Training and Development Officer who obtains incident details before sending to the OHCAR office.
- A list of GPs for the Eastern Region has been requested. Thirteen possible receiving hospitals have been identified and contact details for each of the receiving hospitals is being collected at present.

Dublin Fire Brigade
- Draft memo to staff regarding OHCAR and a revised version of the Cardiac Arrest Data Sheet is being considered by the DFB and the DFB database is being updated to reflect the changes in the OHCAR dataset. Data collected in the format of the original OHCAR dataset for May 2009 to December 2010 has been submitted to OHCAR and feedback will be provided to DFB.

West
- It was agreed to identify possible OHCAR cases via control and to collect data from scanned PCRs from the IMSCAN system in operation in the Western region.
- OHCAR presentations to Emergency Medical Controllers during June 2010 and a memo regarding OHCAR introduction sent to each practitioner.
- General Practitioners and appropriate hospital staff were contacted about OHCAR introduction. All receiving hospitals are signed up to data collection (UCHG has not yet been approached by OHCAR to identify a hospital representative).
- When all PCRs for 2010 are available an annual report for the Western region will be completed.

South and South-East
- As Ambulance Services in the South and South East already collect and store OHCA PCRs separately and also use a Cardiac Arrest Data Sheet it was felt that the best solution would be to assign OHCAR data entry to one individual for submission to OHCAR. Although OHCAR data submission was commenced for the South, at present there are no personnel available in the South or South East to submit data to OHCAR.
• All General Practitioners, and appropriate hospital staff informed of the plans to introduce OHCAR to the Southern region. South Tipperary General Hospital, Cork University Hospital, Kerry General Hospital and Bons Secours Hospital, Tralee have all signed up to provide data to OHCAR.

OHCAR in the Future
National Coverage
The full potential of OHCAR will be best realised with national coverage, ideally including a uniform and robust data collection tool. Most likely this will be an integral part of the electronic Patient Care Report when this is implemented nationally.

OHCAR and Europe
OHCAR is set to join the European stage by becoming one of ten European countries to join the European OHCA registry EuReCa.

A Permanent ‘Home’ for OHCAR
The OHCAR Steering Group has approached the HSE and voluntary organisations about the future of OHCAR and has begun discussions with the National Ambulance Service about how OHCAR can be developed to support clinical development of pre-hospital resuscitation services. It is not possible to estimate how soon ongoing funding and accommodation of OHCAR can be achieved however is a key objective of the OHCAR Steering Group.
Overview of OHCAR implementation

**OHCAR Status**

- Fully operational
- In process of introduction
- Not progressed

**Total Population:** 4,239,848

Population:
- North-West: 238,317
- West: 414,277
- Mid-West: 361,028
- South: 621,130
- South-East: 460,838
- Midlands: 251,664
- North-East: 392,888
- East: 1,499,705
- NORTHERN IRELAND: 238,317

**Legend:**
- Green: Fully operational
- Orange: In process of introduction
- Red: Not progressed
REFERENCES


4. Pre-Hospital Emergency Care: Key Performance Indicators for Emergency Care (2011) Health Information and Quality Authority
