OHCAR
National Out-of-Hospital Cardiac Arrest Register

GP Involvement in OHCA
Resuscitation Attempts Attended by Ambulance Services

AUDGPI
Dublin
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OHCAR Manager
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OHCAR Steering Group

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- Dr. Geoff King, Director, PHECC
- Ms. Siobhán Masterson, OHCAR Manager
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- Dr. Cathal O’Donnell, Medical Director, NAS
- Dr. Peter Wright, Public Health Director, HSE
A Brief History of OHCAR

- Saves Register in the North West
  Canny et al Ir Med Jn 2000;93:278-279
  Masterson et al EMJ 2011;28(5)437-8


- Presentation at ISIC 2006: “Setting up an Out-of-Hospital Cardiac Arrest Register (OHCA) for the North West Region”

- Pre-Hospital Emergency Care Council (PHECC) granted funding for a national OHCA register project

- Inaugural meeting of OHCAR Steering Group – June 2007

- Data collection commenced in North West – November 2007

- Full national coverage achieved January 2012
From January 2012

- Key project outcome – “specify the ongoing requirement for a sustainable OHCA register including in terms of auspicing options, governance, staffing and funding”
- National Ambulance Service and PHECC agreed to jointly fund OHCAR with a view to full integration of OHCAR into NAS
- OHCAR organisational structure remains similar during 2012 until integration completed
Purpose of OHCAR

To improve survival from Out-of-Hospital Cardiac Arrest

How?
1. Establish current OHCA survival rate
2. Identify factors that contribute to survival
3. Identify what could be done differently to improve survival
4. REGULAR FEEDBACK to service providers
GPs and pre-hospital Resuscitation

- **Ireland** – Medical Emergency Responders Integration and Training (MERIT)
  - 136 events with GP involvement, 19.5% discharged from hospital
    Bury *et al* *Resuscitation* 2009; 80(11): 1244-7

- **Scotland**
  - 555 resuscitation attempts by GPs, 27% discharged from hospital
    Colquhoun *Resuscitation* 2006; 70: 229-237

- **Australia**
  - “Difficult to argue against defibrillators in general practice other than the argument on cost”
    Hudson & Jacobs *Australian Family Physician* 2008; 37: 63-4

- **Greece**
  - “Greek GPs may have an important role to play in managing OHCA victims and are willing to use an AED”
    Chalkias *et al* *Resuscitation* 2011; 82: 1144-1147
OHCAR

- Database of OHCA attended by ambulance services where resuscitation is attempted

- Evidence of GP involvement in resuscitation attempts are recorded in the following fields:
  - Attending GP
  - Who witnessed collapse?
  - Who started chest compressions?
  - Who applied defibrillator pads?
  - Who delivered first shock?
  - Who inserted airway adjunct?
  - Who performed cannulation?
  - Who administered cardiac arrest medication?
  - Who first achieved ROSC?
  - Who ceased resuscitation?
  - Death confirmed by GP at scene?
Facts and Figures

• Retrospective analysis of all available records (n=1839)

• 841 (46%) cases recorded GP presence at scene

• 640 (76%) cases GP did not participate in active resuscitation i.e. ceased resuscitation or confirmed death post cessation of resuscitation by Ambulance Services

• 201 cases with GP intervention:
  – GP-CPR only = 48 (24%)
  – GP-ALS = 153 (76%)
  – ROSC on arrival in ED = 43 (21%)
GP INTERVENTION SIGNIFICANTLY ASSOCIATED WITH IMPROVED CHANCE OF RETURN OF SPONTANEOUS CIRCULATION ON ARRIVAL IN ED*

GPINTERVENTION * Spontaneous Circulation on Arrival in Emergency Department Crosstabulation

<table>
<thead>
<tr>
<th>GPINTERVENTION</th>
<th>Spontaneous Circulation on Arrival in Emergency Department</th>
<th>Total</th>
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<tbody>
<tr>
<td>YES</td>
<td>Yes: 43, No: 27</td>
<td>70</td>
</tr>
<tr>
<td>NO</td>
<td>Yes: 211, No: 484</td>
<td>695</td>
</tr>
<tr>
<td>Total</td>
<td>Yes: 254, No: 511</td>
<td>765</td>
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</tbody>
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$X^2 = 27.68 \ P \leq 0.0001$

*N.B. Univariate analysis only – will be adjusted for confounders*
Survival

• 101 Survivors

• Survivors were more likely to be:
  – In a public place
  – Witnessed
  – In a shockable rhythm

• 25 survivors with GP intervention
  – CPR started by GP = 11
  – Defibrillator pads applied by GP = 13
  – First shock delivered by GP = 12
  – Cannulation by GP = 4/12 cases
  – Epinephrine administered by GP = 3/4 cases
GP INTERVENTION IS SIGNIFICANTLY ASSOCIATED WITH SURVIVAL*

GPINTERVENTION * SURVIVOR1 Crosstabulation

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<thead>
<tr>
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<th>SURVIVOR1</th>
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<tbody>
<tr>
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<tr>
<td>GPINTERVENTION</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>25</td>
</tr>
<tr>
<td>NO</td>
<td>76</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 20.49 \text{ P} \leq 0.0001 \]

*N.B. Univariate analysis only – will be adjusted for confounders*
Limitations

- GP call-response time not known – may be opportunities to address this through new ‘first responder’ technology

- Negative rather than positive bias? May underestimate number of cases where GP is present– consider ways that GPs can report their own involvement
Key Messages

• In Ireland, GPs are present at OHCA scenes in almost half of cases

• GPs are good at resuscitation – When a GP is involved in OHCA resuscitation, s/he significantly improves the chances of patient survival

• At present GP involvement in OHCA resuscitation may be opportunistic or as a result of local agreement

• Are there opportunities/willingness for GPs to be involved in organised EMS response nationally?
Does this study contribute anything to international literature?

- In line with other studies, this study confirms that GP resuscitation following OHCA is associated with increased ROSC at ED and increased survival.

- This study also demonstrates that GPs are often present at Irish resuscitation attempts but not always involved in resuscitation at scene. Perhaps we should consider ways to ensure they are involved in resuscitation more often.
THANK YOU