

Saving lives in the community – the impact of GP care systems in cardiac arrest.

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HEALTH



TRAINING



SOCIAL



POLITICAL

The MERIT project has saved the lives of almost 100 patients since 2006. Our findings are driving national health policy and establishing the basis for new interventions.

SUMMARY

A UCD project called MERIT has found that GPs have an important role in increasing the survival rates of people who have a cardiac arrest in the community. When a person has a cardiac arrest, timely CPR and defibrillation are key to survival. Our study shows that trained GPs achieve a survival rate of 17.4% compared to the national average survival rate of 7%. A key impact of MERIT has been to save the lives of almost 100 patients since 2006. Our findings are driving national health policy and establishing the basis for new interventions.

RESEARCH DESCRIPTION

Heart disease results in around 3,000 sudden deaths in Ireland each year. When an ‘out of hospital cardiac arrest’ or OHCA occurs, CPR and defibrillation can be lifesaving, but only if provided within minutes.

UCD Centre for Emergency Medical Science began the Medical Emergency Responders Integration and Training (MERIT) 1 and 2 Projects in 2006^{i,iii,iii,iv}. Drawing on €3.5m research funding (PHECC, Department of Health, HSE, HRB) we equipped 505 of Ireland’s 1,500 general practices with defibrillators and resuscitation equipment and trained GPs in cardiac arrest care.

Each year, MERIT GPs have reported treating around 50 OHCA’s in their day-to-day work. In this 10-year project, MERIT GPs have consistently resuscitated 17.4% of the patients in cardiac arrest whom they treated – the national average survival for OCHA is around 7%^v. This finding is new to the literature and represents a key contribution to saving lives in the community.



Fig. 1. The distribution of MERIT 1 / 2 general practices.

RESEARCH IMPACT

The ultimate impact of the MERIT project is that it has saved the lives of many patients experiencing cardiac arrest in the community.

Our work has provided evidence that equipping and training GPs to respond to out-of-hospital cardiac arrest is an effective way to save lives. To date, MERIT practices have reported between 70 and 100 individual survivors of OHCA.

Prior to these findings, little role had been seen for GPs in treating cardiac arrest; for example, the Australian College of General Practice, in their 2008 Standards, went as far as suggesting that defibrillators were unnecessary^{vi}.

Thanks to the ongoing MERIT project, attitudes are changing and around 80% of general practices in Ireland now have defibrillators and GPs trained to respond to OCHA.

The project has made an impact on the international community through multiple high-impact publications and conference presentations, and in Ireland the Department of Health, HSE and HIQA policy highlight MERIT data and focus on the key role of community first responders and especially GPs in the care of OHCA^{vii,viii,ix}.

In 2015, MERIT 3 began to co-ordinate GP responses to OCHA. Using new technology in the National Ambulance Service Control Centre, volunteer MERIT GPs receive text alerts about nearby OHCA's in real time. More than 100 volunteer GPs participate and have received more than 700 text alerts in their first year of operation. This system is quite novel and may prove crucial in bringing GP resources to patients who would otherwise not receive early care.

This phase of MERIT is supported Irish Community Rapid Response, a charity that has provided organisational backing and funds to MERIT 3 through the philanthropic UCD Foundation, which sees the initiative as an important contribution to its public health goals.

We have also tested the equipment supplied by MERIT for other uses in general practice: a spin-off project from MERIT used the high-end defibrillators supplied to GPs to establish a feasibility study of screening for atrial fibrillation (AF) in general practice. AF is a key cause of stroke and this study demonstrated the real potential of novel technologies^x.

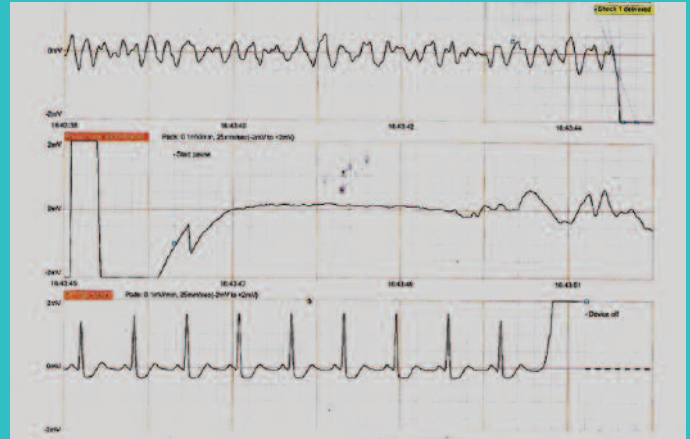


Fig. 2. A defibrillator trace showing a shock delivered by a MERIT GP to a patient in his 50s who presented to the practice a few minutes earlier with chest pain and then had a cardiac arrest. He had an immediate response to the first shock and survived without any long-term effects.



Fig. 3. A group of MERIT GPs completing training.

REFERENCES

- i Murphy A, Bury G.
Emergency care in general practice. Irish general practitioners learn immediate cardiac care.
BMJ. 1995 Mar 18;310(6981):736.
- ii The role of automated external defibrillators in rural general practice.
Hanley K, Dowling J, Bury G, Murphy A.
Br J Gen Pract. 1999 Apr;49(441):297-8.
- iii Bury G, Prunty H, Egan M, Sharpe B.
Experience of prehospital emergency care among general practitioners in Ireland.
Emerg Med J. 2008 Jul;25(7):450-4. doi: 10.1136/emj.2007.052910.
- iv Masterson S, Wright P, Dowling J, Swann D, Bury G, Murphy A.
Out-of-hospital cardiac arrest (OHCA) survival in rural Northwest Ireland: 17 years' experience.
Emerg Med J. 2011 May;28(5):437-8. doi: 10.1136/emj.2009.082784.
- v Sixth Annual OHCAR Report.
NUIG, Galway, 2016.
- vi Hudson L, Jacobs I. Defibrillators - their use in general practice.
Australian Family Practice 2008;37:63-64.
- vii Report of the Task Force on Sudden Cardiac Death.
Department of Health and Children, Dublin, 2006.
- viii Health Technology Assessment on Public Access Defibrillation.
Health Information and Quality Authority, Dublin, 2014.
- ix Picture of Health 2012.
Health Research Board, Dublin, 2012.
- x Bury G, Swan D, Cullen W, Keane D, Tobin H, Egan M, Fitzmaurice D, Carberry C, Kelleher C.
Screening for atrial fibrillation in general practice: a national, cross-sectional study of an innovative technology.
Int J Cardiol. 2015 Jan 15;178:247-52. doi: 10.1016/j.ijcard.2014.10.037.