



**Survival from Out of Hospital Cardiac Arrest  
in North West Ireland  
1992-2010**

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# North West Region

- Counties Donegal, Sligo, Leitrim and part of West Cavan
- Demography
  - 3265 square miles
  - Population 238,317 (CSO, 2006)
  - 31% >65years live alone
  - Sparsely populated
    - ❖ Two large towns, Sligo (19,402) & Letterkenny (15,231)
    - ❖ Only one other town with population >5,000
  - Two General Hospitals
  - Eleven 24/7 Ambulance Stations
  - 42 Family Doctor Practices (public patients)

# Historical Context

- First reported cardiac ambulance service “staffed solely by trained ambulance personnel” established in Dublin City in 1968  
(Gearty *et al*, 1971)
- First defibrillators introduced to ambulances in the North West in 1991
- North West Immediate Care Programme established in Donegal in 1992 (extended to Sligo/Leitrim/West Cavan in 2000)
- Register of SAVES commenced in 1992

# Collection of SAVES Data

**SAVES: An OHCA successfully defibrillated in the community and surviving to hospital discharge**

- Data collected in the 'Utstein Style'
- 1992 – 2003: Real-time data collection maintained by Research Officer
- 2004-2006: Retrospective data collection
- 2006-2007: Preparation for comprehensive Out-of-Hospital Cardiac Arrest Register Nov 2007: Introduction of OHCAR

# Data Sources



## Initially:

- Case identification by personnel involved in pre-hospital resuscitation
- Ambulance records
- Hospital Patient records
- Coronary Care Registers
- Immediate Care Programme records

# Data Sources



## Now:

- Case identification by personnel and Computerised Ambulance Dispatch System
- Standardised Ambulance Patient Care Report (PCR)
- Electronic OHCA Registration Form
- Defined dataset requested from agreed Hospital representatives

# Results

**January 1992 to December 2010: 98 SAVES patients**

## **Patient Profile**

- Majority of patients male (n=80; 82%)
- On average, male patients significantly younger than female patients (63years vs. 72years;  $p<0.004$ )
- All cases for which data available were in a shockable rhythm (n=85)
- First defibrillation shock performed by:
  - Ambulance Personnel – 67.4% (n=64)
  - General Practitioner – 28.4% (n=27)
  - Lay Responder – 4.2% (n=4)

# Location

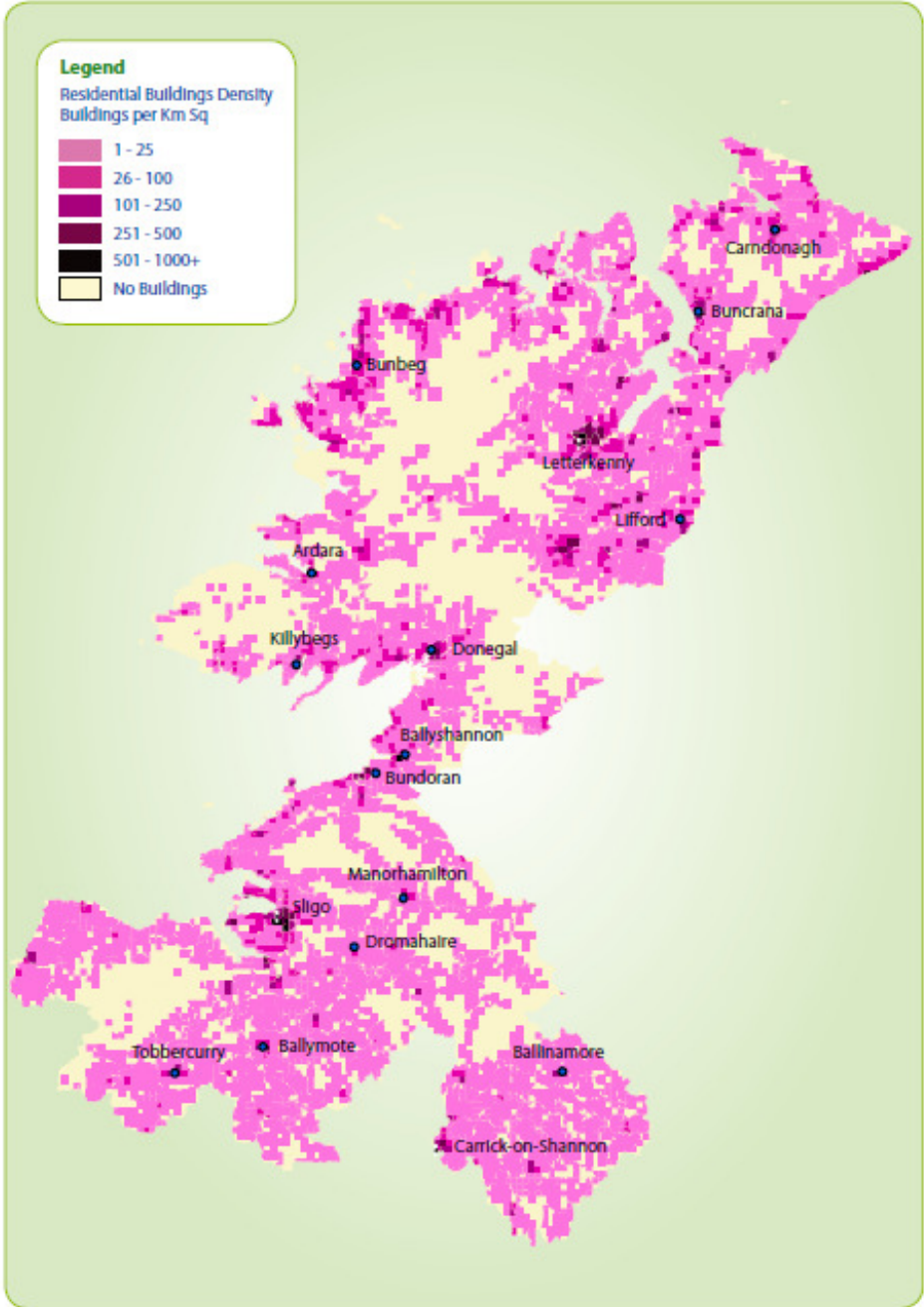
- 59% (54/91) of cases occurred in a public place
- Only two incidents are known to have **NOT** been witnessed
- 15% (13/87) patients arrested in the ambulance
- Distance from Acute Hospital:

<b>Total</b>	n=75	%
< 10 miles	20	27
10-20 miles	10	13
20-30 miles	15	20
30+ miles	30	40

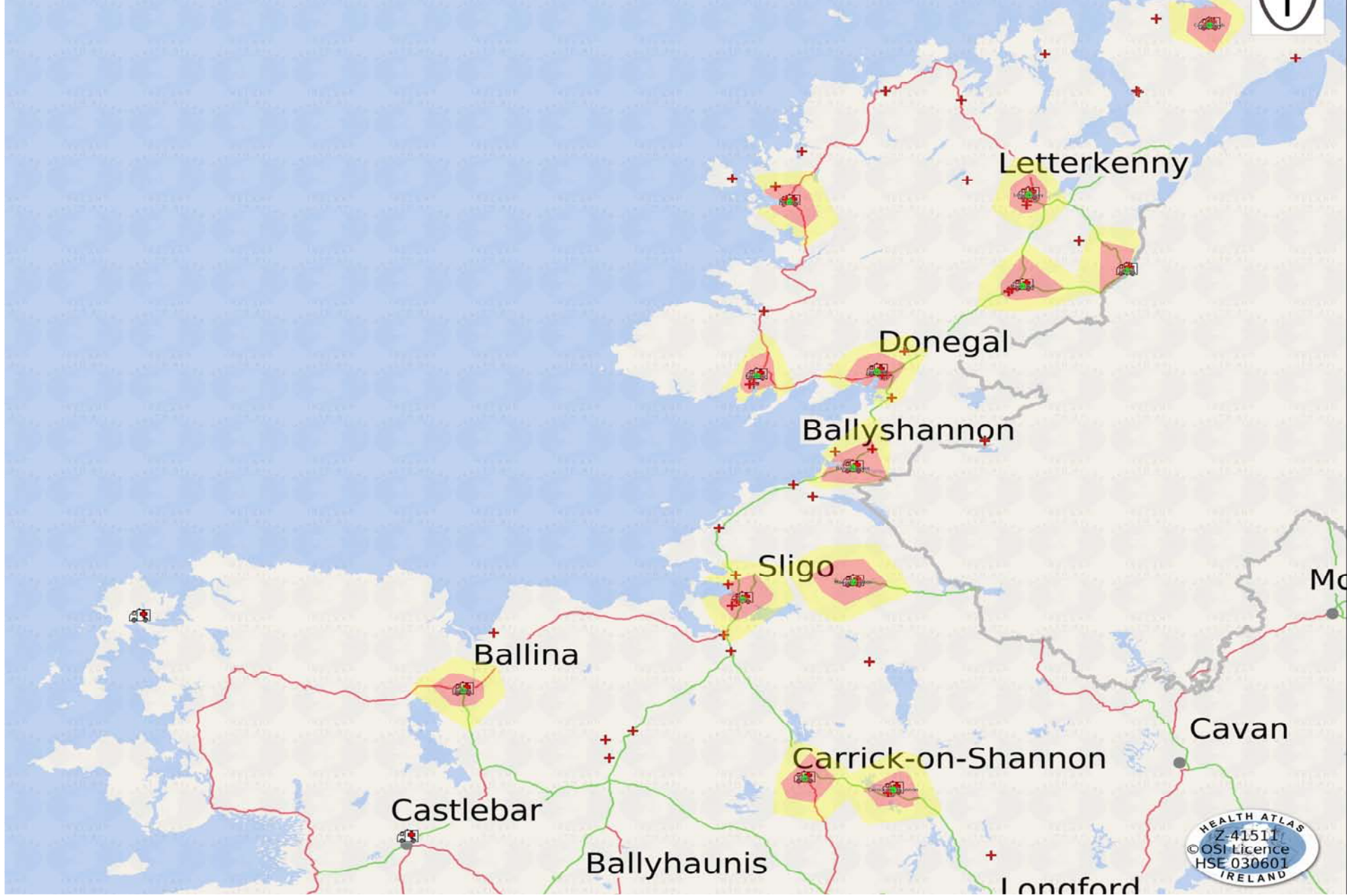
# Rurality and Surviving OHCA

- Over a quarter of a million people dispersed over 3265sq miles

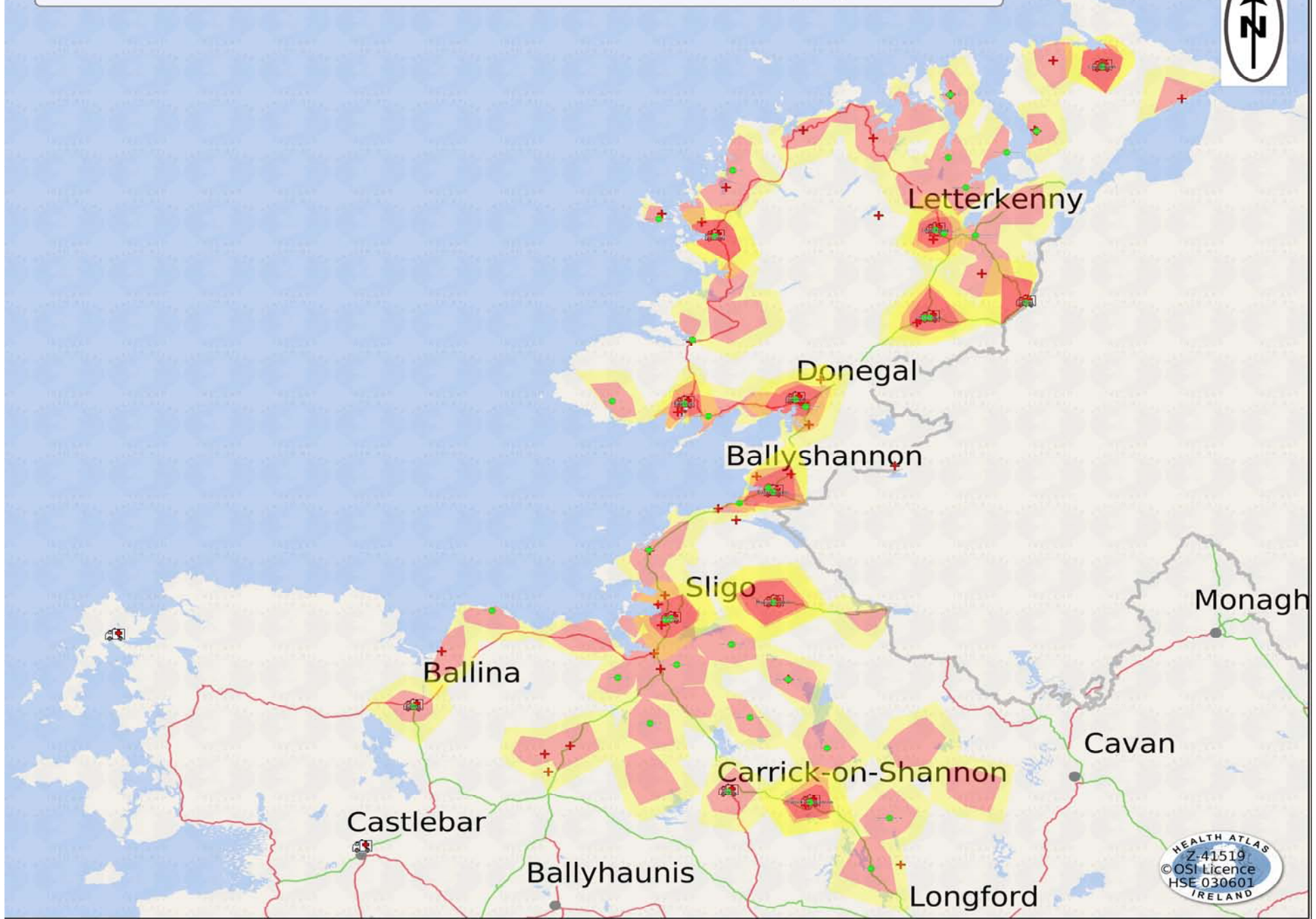
Map 1.3 Residential Building Density 2006



# SAVES Locations and Distances from Ambulance Stations



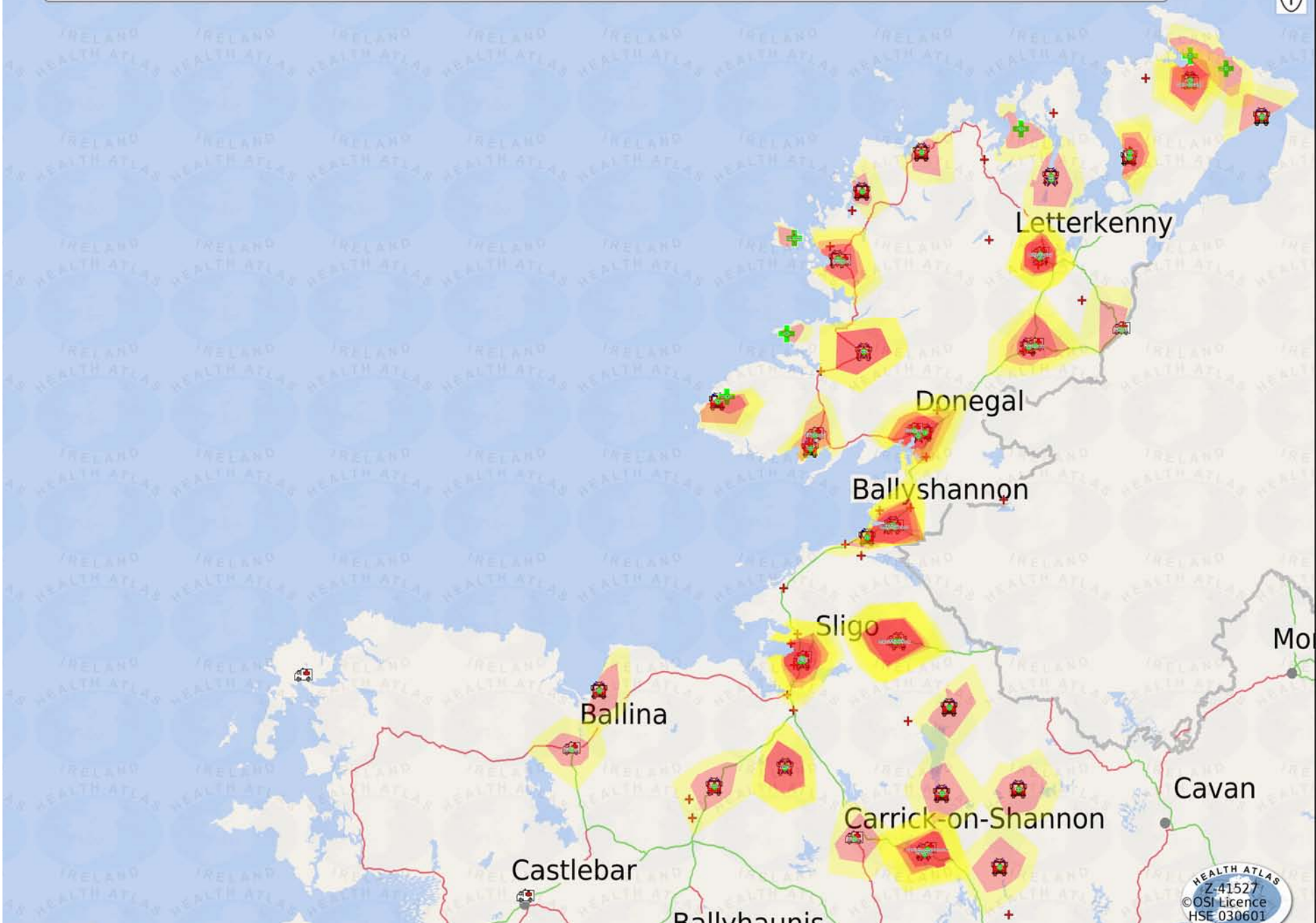
SAVES locations with Ambulance Stations and GP Surgery distances



# Is there potential for more SAVES in the North West?

- But GP practices are not available 24/7
- First Responder Schemes
  - Set up in peripheral areas with the support of the Ambulance Service
- Public Access Defibrillators (PADs)
  - Four patients saved using PADs, three in hotels in the last 5 years
- Gardaí involvement
- Fire Service involvement

SAVES locations with Ambulance Stations, 1st Responders, full-time Garda Stations & Fire Stations



# Limitations

- No denominator – saved patients only
- Initial data collection methodology difficult to audit
- Reliance on communication with professionals involved with SAVES patients
- Small number of patients

# Improving Data

- Comprehensive OHCA data collection in the North West
- Quality - systematic, auditable data collection methodology
- Good relationships with service providers matter, regardless of data collection methodology
  - Directly involve service providers in data collection
  - Feedback

# Summary

- The SAVES database has limitations
- Many lessons learned from the SAVES database:
  - OHCA survival in rural areas is achievable when local emergency service providers work together
  - The vital value of GP defibrillation scheme
  - Importance of involving service providers in data collection, whatever the scale of the Register
  - The creation of a comprehensive OHCA Register - **OHCAR**

# Acknowledgements

- The North Western Regional Ambulance Service
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