



# EuReCa

EUROPEAN REGISTRY for CARDIAC ARREST:

## Site Visit Krakau 2012

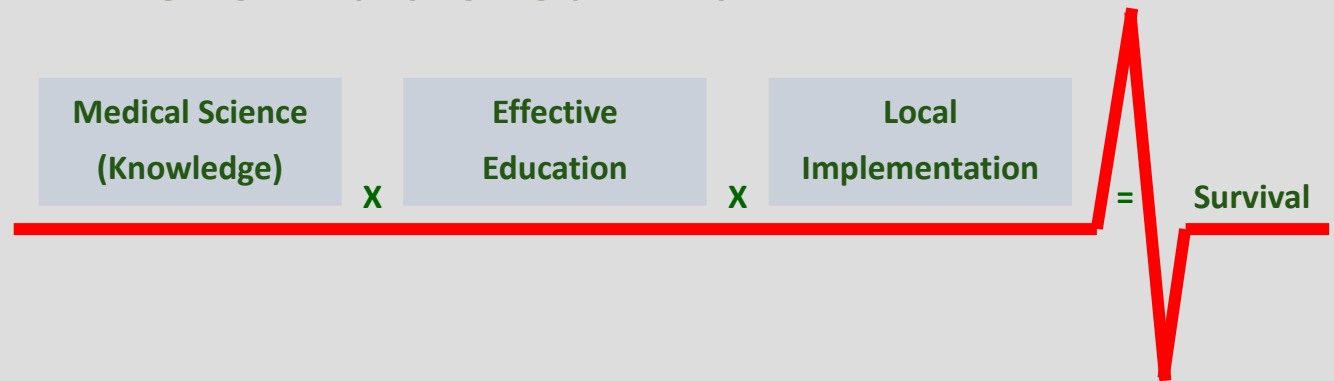
**Jan-Thorsten Gräsner**  
University Kiel, Germany  
German Resuscitation Registry  
German Resuscitation Council  
Steering Committee EuReCa





# WHAT SHOULD WE REGISTER?

## The formula of Survival



- EPIDEMIOLOGIE
- CPR-PROCESS
- EMS PERFORMANCE
- BENCHMARK

## Chain of survival



# CARDIAC ARREST IN EUROPE

## what do we know ?



Figure 1.1a Deaths by cause, men, latest available year, Europe

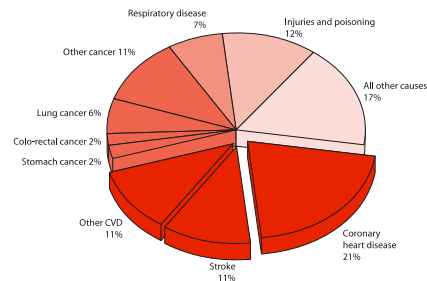


Figure 1.1b Deaths by cause, women, latest available year, Europe

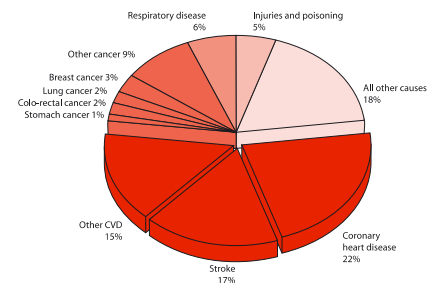


Figure 1.4a Age-standardized death rates from CHD, men aged 0 to 64, latest available year

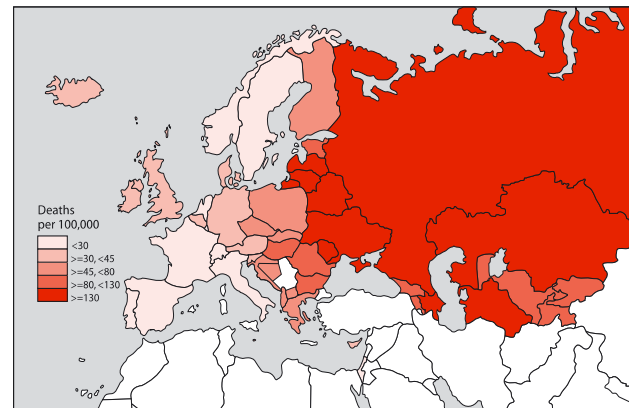


Figure 1.4b Age-standardized death rates from CHD, women aged 0 to 64, latest available year

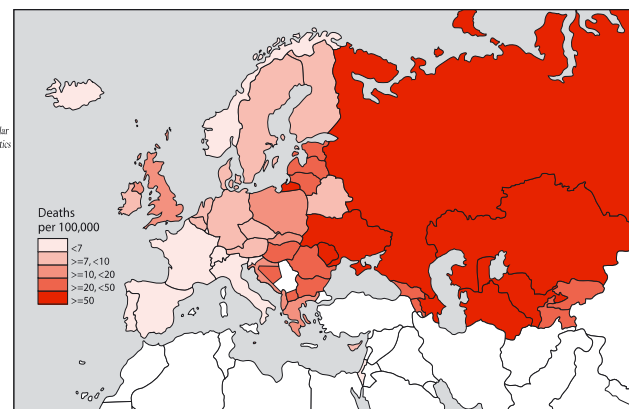


Figure 1.4c Death rates from CHD, men aged under 65, 1972 to 2005, selected countries

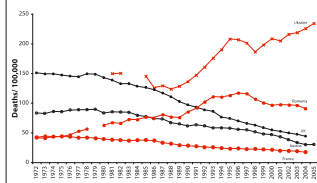
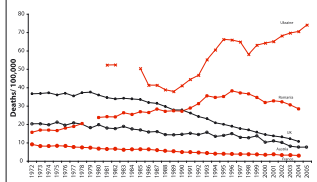


Figure 1.4d Death rates from CHD, women aged under 65, 1972 to 2005, selected countries



Muller-Nordhorn, J. et al.  
 Eur Heart J 2008 29:1316-1326  
 Widimsky P et al.  
 Eur Heart J 2010;31:943-57

# EUROPEAN REGISTRIES IN 1980-2000

	<i>survival overall (%)</i>	<i>survival cardiac, VF, witnessed</i>
<i>Stavanger</i>	23	55
<i>Mainz</i>	19	40
<i>Göttingen</i>	18	42
<i>Helsinki</i>	17	32
<i>Reykjavik</i>	16	27
<i>Bonn</i>	15	32
<i>Copenhagen</i>	13	20
<i>Göteborg</i>	12	29
<i>Madrid</i>	12	22
<i>Oslo</i>	8	21
<i>Antwerp</i>	11	23
<i>Amsterdam</i>	11	15
<i>Berlin</i>	9	16
<i>Brugge</i>	8	20
<i>Udine</i>	8	15
<i>Ljubljana</i>	6	13

**J Herlitz, et al**  
**Resuscitation in Europe:**  
**a tale of five European regions.**  
***Resuscitation 1999;41:121-31***

	<i>survival cardiac, VF, witnessed</i>	<i>% bystander CPR</i>	<i>% patients in VF</i>	<i>time call-arrival</i>
<i>Stavanger</i>	55	67	61	6
<i>Göttingen</i>	42	34	46	7
<i>Helsinki</i>	32	27	65	7
<i>Reykjavik</i>	27	46	59	5
<i>Bonn</i>	32	28	53	5

**Kiel - Universitätsklinikum Schleswig-Holstein Campus Kiel - Klinik für Anästhesiologie und Operative Intensivmedizin**  
 Adresse: 24105 Kiel, Schwanenzug 21  
 Kennung: 24105021 Einwohnerzahl: 250000

**Filter**  
 Zeitraumfilter: vom 01.01.2002 bis 31.12.2008  
 Einsatzortfilter: alle Einsatzorte  
 Anzahl Fälle Standort: 0, Anzahl Fälle Referenzdatenbank: 2235

**www.reanimationsregister.de**

**Ort des Kreislaufstillstandes**

Außerklinisch	n = 0	-	2086	93.3%
Wohnung	n = 0	-	1421	63.6%
Öffentlichkeit	n = 0	-	381	17.0%
Sonstiges	n = 0	-	277	12.4%

**Innerklinisch**

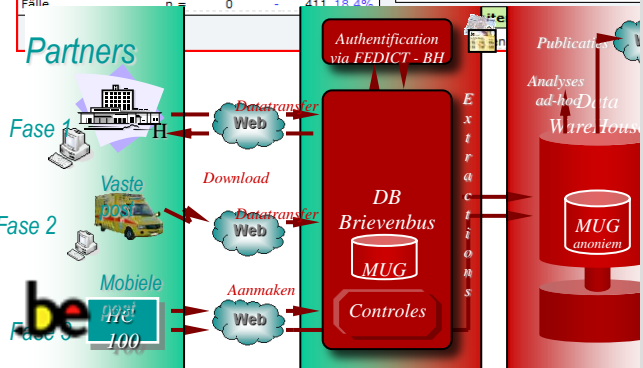
Station	n = 0	-	189	8.5%
Station	n = 0	-	157	7.0%
Notaufnahme	n = 0	-	12	0.5%

**Kreislaufstillstand beobachtet/unter Monitor**

Beobachtet gesamt	n = 0	-	1511	67.6%
Durch Laien/Ersthelfer	n = 0	-	1259	56.3%
Durch Professionelle	n = 0	-	252	11.3%

**CPR vor Eintreffen Rettungsdienst**

Fälle	n = 0	-	411	18.4%
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**Resuscitation Council (UK) Event Report Form**

Date of incident (dd/mm/yyyy) \_\_\_\_\_

Organization responsible for the defibrillator \_\_\_\_\_

Sex (✓) Male  Female  Unknown  Age \_\_\_\_\_ Years Known  Estimated  Unknown

Place of collapse Tick (✓) one box only:

Apport <input type="checkbox"/>	Home <input type="checkbox"/>	Remote location <input type="checkbox"/>	Street <input type="checkbox"/>
Bus station <input type="checkbox"/>	Leisure centre/ Gym <input type="checkbox"/>	Road Traffic Accident <input type="checkbox"/>	Unknown <input type="checkbox"/>
Doctor's surgery <input type="checkbox"/>	Other location <input type="checkbox"/>	Shopping centre <input type="checkbox"/>	Underground railway <input type="checkbox"/>
Exhibition/Conference <input type="checkbox"/>	Railway station <input type="checkbox"/>	Sporting event <input type="checkbox"/>	Workplace <input type="checkbox"/>

Specific place or address of collapse (e.g. Luton Airport, Sports Centre, Parkam Road Cardiff, etc.) \_\_\_\_\_

Was the collapse witnessed? (✓) Yes  No  Unknown

Was CPR started before the defibrillator arrived? (✓) Yes  No  Unknown

What was the delay between the victim collapsing and the start of CPR? \_\_\_\_\_ Minutes Measured  Estimated  Unknown

Time the event was notified to central ambulance control (where applicable) \_\_\_\_\_ Hours \_\_\_\_\_ Minutes

Time delay between collapse and placing the electrodes on the victim's chest \_\_\_\_\_ Minutes Measured  Estimated  Unknown

Was a shock given? (✓) Yes  No  Unknown

If YES, what was the total number of shocks given before the ambulance arrived? \_\_\_\_\_ Shocks

Did the victim have signs of circulation AFTER any shock was administered? (✓) Yes  No  Unknown

Did the victim start breathing or recover consciousness before the ambulance arrived? (✓) Yes  No  Unknown

Was the victim: Tick (✓) one box only

Alive not transferred to hospital <input type="checkbox"/>	Transferred to hospital* - no circulation <input type="checkbox"/>	Hospital name: _____	Other <input type="checkbox"/>
Recognised dead at the scene <input type="checkbox"/>	Transferred to hospital* - with circulation <input type="checkbox"/>	England <input type="checkbox"/>	Unknown <input type="checkbox"/>
	Transferred to hospital* - CPR in progress <input type="checkbox"/>	Northern Ireland <input type="checkbox"/>	

Victim's status after transfer to hospital: Tick (✓) one box only

Dead on arrival <input type="checkbox"/>	Admitted, but did not survive to discharge <input type="checkbox"/>	Discharged alive <input type="checkbox"/>	Unknown <input type="checkbox"/>
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Additional information \_\_\_\_\_

FOR OFFICE USE ONLY - PLEASE DO NOT COMPLETE THIS SECTION

SUPPLIER <input type="checkbox"/>	OUTCOME <input type="checkbox"/>	REGION <input type="checkbox"/>	C.DATAT <input type="checkbox"/>
DBH <input type="checkbox"/>	Dead on arrival at hospital <input type="checkbox"/>	England <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Died in hospital <input type="checkbox"/>	Northern Ireland <input type="checkbox"/>	

**Swedish national register for Out of hospital cardiac arrest**

Start | Information | Register patient | Login

Basdata

Ambulance district: [Choose district] Station: [Choose station]

Quality of ID: [Choose quality]

Personal ID-number: \_\_\_\_\_

Sex:  Woman  Man

Mission ID #: \_\_\_\_\_

Date of event: \_\_\_\_\_

Place of cardiac arrest:  At home  Public place

Witnessed cardiac arrest:  Yes  No

If yes, by whom?  Bystander  EMT, Paramedic

County	Cardiac Arrest N	Survival 30 days N	(%)
Bornholms Amt	21	0	0
Frederiksborg Amt	76	1	1,3
Fyns Amt	306	10	3,3
Københavns Amt	362	22	6,0
København og Frederiksberg	182	22	11,9
Nordjyllands Amt	161	7	4,4
Ribe Amt	107	3	2,8
Ringkøbing Amt	154	10	6,5
Roskilde Amt	89	3	3,4
Storstrøms Amt	120	2	1,7
Sønderjyllands Amt	133	0	0
Vejle Amt	203	10	4,9
Vestsjællands amt	103	3	2,9
Viborg Amt	119	4	3,4

www.kliniskedatabaser.dk

# NATIONALE REGISTRIES IN EUROPA

**IRC REPORT UTSTEIN**

Utente:

Arresto cardiaco Intra-Ospedaliero

Dati generali: Data arresto cardiaco: [dd] [mm] [aaaa] [loggi]

Sede:  Reparto Ordinario  Dip. Emergenza (PS, Med Urgenza)  Sala Operatoria  Area intensiva (CIUCCU)  Scenoscucina  Altro Ospedale  Altro (specificare): \_\_\_\_\_

Il soggetto è:  Degente  Day Surgery/Day Hospital  Ambulatoriale  Visitatore/Dipendente

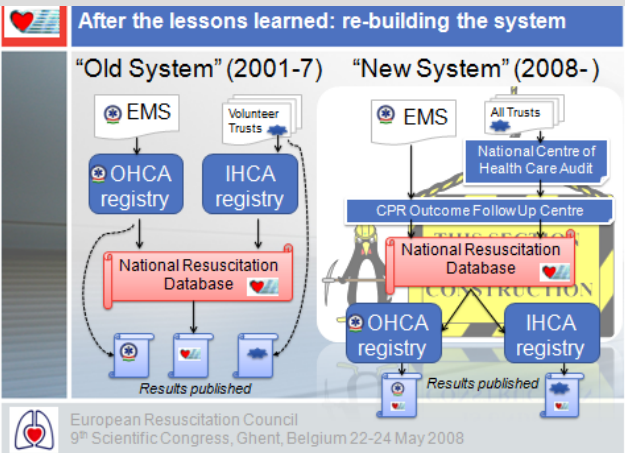
Generalità: Data ricovero: [dd] [mm] [aaaa] [loggi] Data di nascita: [dd] [mm] [aaaa] Fascia età: \_\_\_\_\_

sess:  M  F

CPC pre-arresto: [Selegi...]

Rianimazione iniziata:  si  no

Motivo:  Limitazione delle cure  Falso arresto cardiaco



**Beloop reanimatie**

code 070459 geslacht man

naam \_\_\_\_\_

geboorte 1946 reanimatie 30-3-2007 status

tijdstip collaps (geschied) \_\_\_\_\_

getuige collaps \_\_\_\_\_

omstander reanimatie \_\_\_\_\_

situatie bij aankomst ambulance:  Ja  Niet  Onbekend

politis aanwezig \_\_\_\_\_

first responder aanwezig  Ja  Niet  Onbekend

First Responder: naam \_\_\_\_\_ code \_\_\_\_\_

AED aangesloten  Ja  Niet  Onbekend

reanimatie gestart  Ja  Niet  Onbekend

reden niet starten reanimatie \_\_\_\_\_

resultaat prehospital CPR  Ja  Niet  Onbekend

CPR tyez gebruikt  Ja  Niet  Onbekend

Lucas gebruikt  Ja  Niet  Onbekend

AED nr \_\_\_\_\_

AED merk \_\_\_\_\_

tijdstip aanzetten AED \_\_\_\_\_

tijdstip aansluiten \_\_\_\_\_

tijdstip afloppen \_\_\_\_\_

aantal schokken \_\_\_\_\_

1e schok AED \_\_\_\_\_

2e schok AED \_\_\_\_\_

manuele DFB nr \_\_\_\_\_

merk \_\_\_\_\_

wavelom \_\_\_\_\_

afleiding beginnente \_\_\_\_\_

tijdstip aanzetten manuele DFB \_\_\_\_\_

tijdstip aansluiten \_\_\_\_\_

tijdstip afloppen \_\_\_\_\_

aantal schokken \_\_\_\_\_

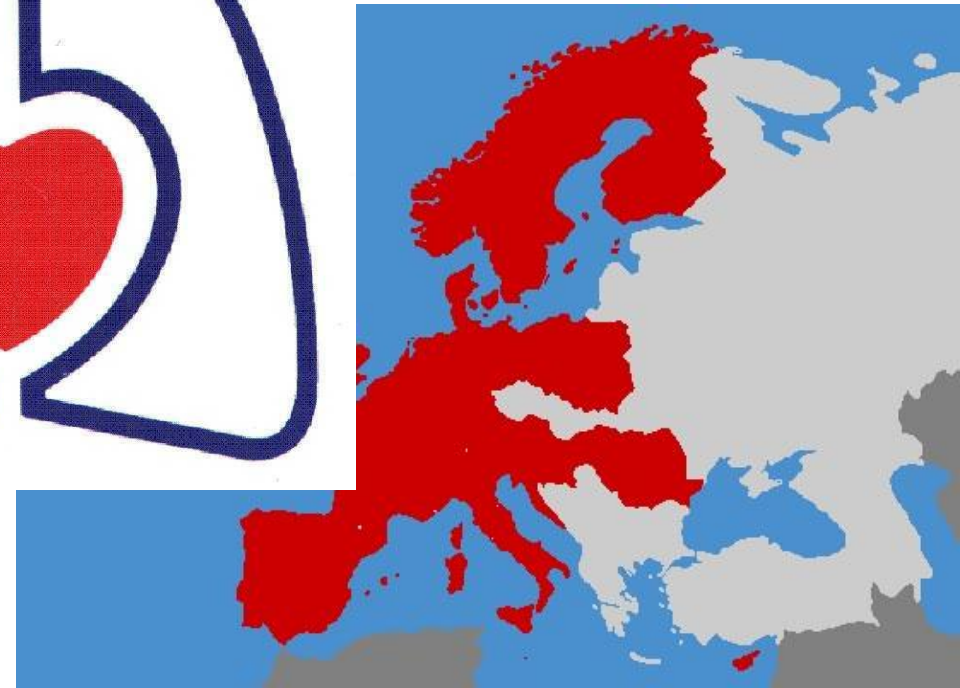
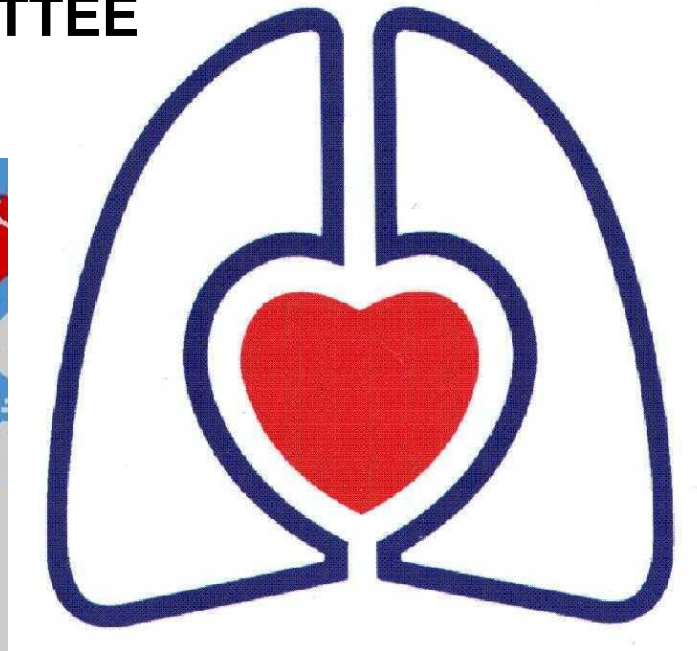
1e schok mDFB \_\_\_\_\_

2e schok mDFB \_\_\_\_\_

# EUropean REgistry of CArdiac Arrest

**STEERING COMMITTEE**

**CONSORTIUM**



# EuReCa: OBJECTIVES

- registry of cardiac arrest
  - EMS-based
  - bin and out of hospital
  - improve quality of chain of survival: feedback
  - support research
  - uniform definitions (Utstein)
  - quality before quantity
  - tool for all: registration & analysis
- 
- web supported
  - according to law and privacy
  - feasible: budget, organisation
  - learn from other experiences

# EuReCa

## *Utstein data, to be provided by participant*

- *system variables*

population served  
EMS system  
dispatch CPR

- *patient variables*

CA confirmed  
CPR attempted  
aetiology  
place

- *process variables*

witnessed  
bystander CPR  
rhythm  
AED use  
EMS intervention  
time: call-arrival-ECG-shock-ED

- *outcome variables*

ROSC  
admission hospital  
discharge-death





# EuReCa: Position paper



Contents lists available at ScienceDirect

Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)



Clinical paper

## Quality management in resuscitation – Towards a European Cardiac Arrest Registry (EuReCa)<sup>☆</sup>

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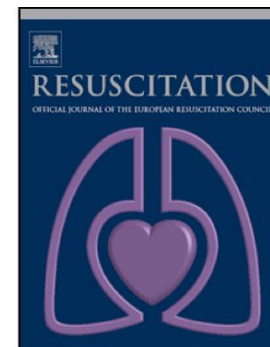
### ABSTRACT

**Background:** Knowledge about the epidemiology of cardiac arrest in Europe is inadequate.

**Aim:** To describe the first attempt to build up a Common European Registry of out-of-hospital cardiac arrest, called EuReCa.

**Methods:** After approaching key persons in participating countries of the European Resuscitation Council, five countries or areas within countries (Belgium, Germany, Andalusia, North Holland, Sweden) agreed to participate. A standardized questionnaire including 28 items, that identified various aspects of resuscitation, was developed to explore the nature of the regional/national registries. This comprises inclusion criteria, data sources, and core data, as well as technical details of the structure of the databases.

**Results:** The participating registers represent a population of 35 million inhabitants in Europe. During 2008, 12,446 cardiac arrests were recorded. The structure as well as the level of complexity varied



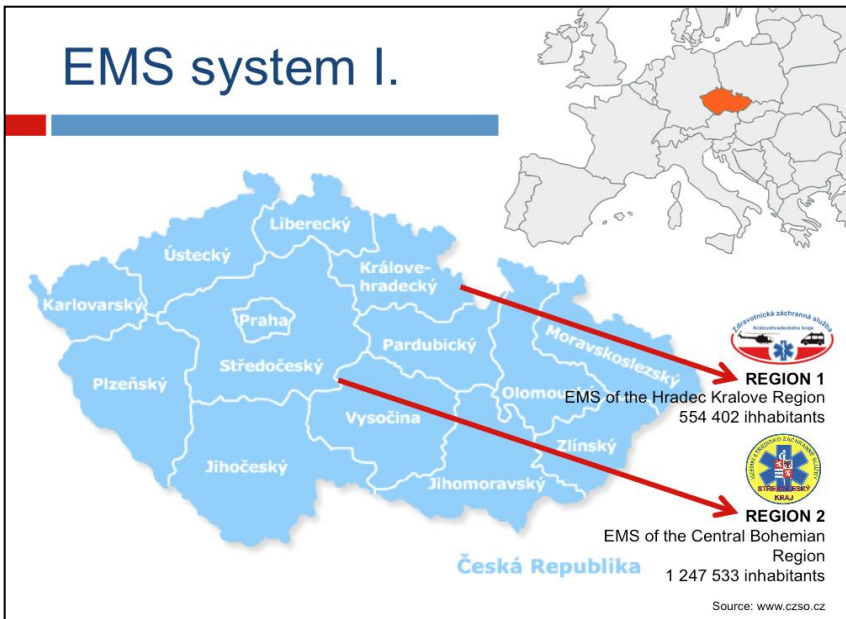
**Table 3**  
Incidence and results.

Reported year	Belgium 2009	Germany 2008	Andalusia 2008	North-Holland 2008	Sweden 2008
Total population in the reported Region (Millions)	10.7	8.3	5.8	2.4	9.0
OHCA for which EMS is called	10,533			1566	
Incidence of EMS called for OHCA/100,000	98			65	
OHCA considered for resuscitation	5671		1048	1116	
Incidence of OHCA considered for resuscitation/100,000	53		19	47	
Resuscitation started	5671	1882	955	1116	2822
Incidence of started resuscitation/100,000	53.0	41.8	17.1	46.5	31.4
Cardiac causes	4682	1515	737	1006	1711
Incidence of started resuscitation in cardiac causes/100,000	44	34	13	42	19
non cardiac causes	989	659	214	110	1111
Incidence of started resuscitation in non cardiac causes/100,000	9	14.6	3.8	4.6	12.3
Any ROSC (all causes)		829	261		732
Incidence any ROSC (all causes)/100,000		18.4	4.7		8.1
ROSC CC		642	187		
Incidence of ROSC CC/100,000		14.3	3.3		
ROSC nCC		170	73		
Incidence of ROSC nCC/100,000		3.8	1.30		
Admitted to hospital (all causes)	1875	669	255	444	690
Incidence of admitted to hospital (all causes)/100,000	17.5	14.9	4.6	18.5	7.7
Admitted to hospital CC	1525	507	162	376	435
Incidence admitted to hospital CC/100,000	14.3	11.3	2.9	15.7	4.8
Admitted to hospital nCC	350	162	69	68	238
Incidence admitted to hospital nCC/100,000	3.3	3.6	1.2	2.8	2.6
Discharged from hospital (all causes)				235	242
Incidence from discharged from hospital (all causes)/100,000				9.9	2.6
Discharged from hospital CC				221	180

In addition to the raw number of cases, results are also expressed per 100,000 inhabitants/year for the purpose of comparison.

\*No data- no information about this aspect.

# EMS system I.



## Registry description

### Regional Registry

- Region = **Northern French Alps**
- Mean altitude = **1000 m/ max = 4810 m**
- Size of population **1.985.270**



### Is there a legal requirement to collect data?

- **Yes**, required by the National commission for protection privacy and personal and public liberties (CNIL)
- what is collected? **Name**

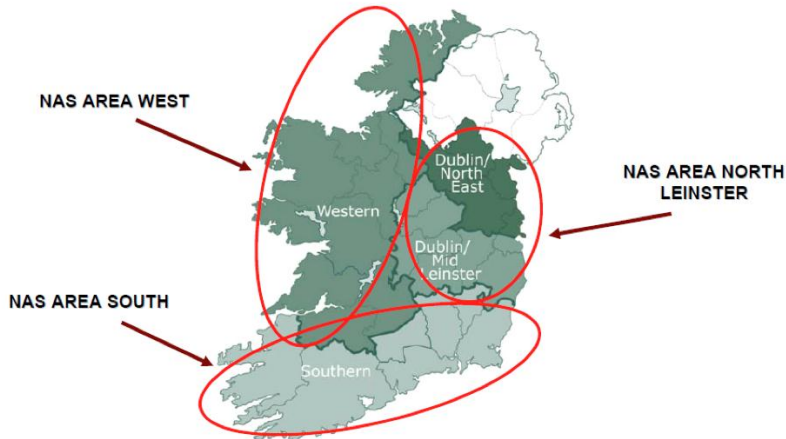
### Do privacy regulations preclude collection of vital statistics? **No**

### What are the sources of the data?

- Dispatch Center? **Yes**
- EMS? **Yes**
- Hospital? **Yes**
- Civic registry? **no**



"Is the registry local, regional or national?  
Name(s) region  
Size of population"



- The aim of OHCAR is to establish a national OHCA Register
- Currently covers 75% of the Irish population (3.2million)

(Image courtesy of the National Ambulance Service, HSE)



## Romanian Registry on Cardiac Arrest (RRCA)

**Assoc. Prof. Dr. Diana Cimpoesu**  
**Horia Sabau**

1. National Romanian Resuscitation Council
2. UNIVERSITY MEDICINE and PHARMACY "GR. T. POPA"
3. "St. Spiridon" Emergency Hospital



# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	547		251			870	1576	127	697	733		2246
Place of CA =Home (%)	53,06		60,48			67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		45,27			43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
Collapse witnessed (%)	99,52		67,47			74,02	66,03	55,87	76,03	73,32	41,08	66,62
Collapse witnessed / 100.00	18,40		50,50			47,80	25,86	24,29	35,29	35,50	26,97	26,17
Bystander CPR (n)	114		174	445	619	332	476	65	665	727		1692
Bystander CPR (%)	11,06		41,93	54,14	50,04	25,90	21,62	30,52	59,69	62,56		47,86
Bystander CPR / 100.000	2,04		31,39	35,67	34,35	16,72	8,47	13,27	27,71	30,29		18,80
Cardiac cause (n)	836	4682	228			832	1486	176	993	1028		2081
Cardiac cause (%)	81,09	82,56	54,94			64,90	67,48	82,63	89,14	88,47		58,87
Incidence of started resuscitation in cardiac cause	15,00	44,17	41,13			41,91	26,43	35,92	41,38	42,83		23,12
non cardiac cause	191	989	92			450	554	35	121	132		1305
Incidence of started resuscitation in non cardiac cause	3,43	9,33	16,59			22,67	9,85	7,14	5,04	5,50		14,50
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC Cardiac (n)	285		72			191	658	31				
ROSC Cardiac (%)	34,09	0,00	31,58			22,96	44,28	17,61				
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62	11,70	6,33				
ROSC non Cardiac (n)	76		37			120	295	2				
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04	5,25	0,41				

# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	1,43	1,20	1,28	0,95	40,32		59,71	56,88	1,11	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>1035</b>	<b>1022</b>	<b>1027</b>	<b>2202</b>	<b>2202</b>	<b>113</b>	<b>1114</b>	<b>1162</b>	<b>1099</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	1,86	0,82	0,57	1,10	39,16	0,23	46,42	48,42	1,45	39,28
Place of CA =Home (n)	547		251			370	1576	27	697	733		2246
Place of CA =Home (%)	53,06		24,25			18,86	71,57	23,82	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		0,45			0,82	28,03	0,05	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
Collapse witnessed (%)	99,52		67,47			74,02	66,03	55,87	76,03	73,32	41,08	66,62
Collapse witnessed / 100.00	18,40		50,50			47,80	25,86	24,29	35,29	35,50	26,97	26,17
Bystander CPR (n)	114		174	445	619	332	476	65	665	727		1692
Bystander CPR (%)	11,06		41,93	54,14	50,04	25,90	21,62	30,52	59,69	62,56		47,86
Bystander CPR / 100.000	2,04		31,39	35,67	34,35	16,72	8,47	13,27	27,71	30,29		18,80
Cardiac cause (n)	836	4682	228			832	1486	176	993	1028		2081
Cardiac cause (%)	81,09	82,56	54,94			64,90	67,48	82,63	89,14	88,47		58,87
Incidence of started resuscitation in cardiac cause	15,00	44,17	41,13			41,91	26,43	35,92	41,38	42,83		23,12
non cardiac cause	191	989	92			450	554	35	121	132		1305
Incidence of started resuscitation in non cardiac cause	3,43	9,33	16,59			22,67	9,85	7,14	5,04	5,50		14,50
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC Cardiac (n)	285		72			191	658	31				
ROSC Cardiac (%)	34,09	0,00	31,58			22,96	44,28	17,61				
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62	11,70	6,33				
ROSC non Cardiac (n)	76		37			120	295	2				
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04	5,25	0,41				

# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	547		231			870	1370	127	697	733		2240
Place of CA =Home (%)	53,06		60,48			67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		45,27			43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
Collapse witnessed (%)	99,52		67,47			74,02	66,03	55,87	76,03	73,32	41,08	66,62
Collapse witnessed / 100.00	18,40		50,50			47,80	25,86	24,29	35,29	35,50	26,97	26,17
Bystander CPR (n)	114		174	445	619	332	476	65	665	727		1692
Bystander CPR (%)	11,06		41,93	54,14	50,04	25,90	21,62	30,52	59,69	62,56		47,86
Bystander CPR / 100.000	2,04		31,39	35,67	34,35	16,72	8,47	13,27	27,71	30,29		18,80
Cardiac cause (n)	836	4682	228			832	1486	176	993	1028		2081
Cardiac cause (%)	81,09	82,56	54,94			64,90	67,48	82,63	89,14	88,47		58,87
Incidence of started resuscitation in cardiac cause	15,00	44,17	41,13			41,91	26,43	35,92	41,38	42,83		23,12
non cardiac cause	191	989	92			450	554	35	121	132		1305
Incidence of started resuscitation in non cardiac cause	3,43	9,33	16,59			22,67	9,85	7,14	5,04	5,50		14,50
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC CardiacC (n)	285		72			191	658	31				
ROSC CardiacC (%)	34,09	0,00	31,58			22,96	44,28	17,61				
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62	11,70	6,33				
ROSC non CardiacC	76		37			120	295	2				
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04	5,25	0,41				

# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	47	231				870	1370	127	697	733		2240
Place of CA =Home (%)	4,57	4,07				67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	1	1,7				43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	6	10				949	1454	119	847	852	205	2355
Collapse witnessed (%)	2	17				74,02	66,03	55,87	76,03	73,32	41,08	66,62
Collapse witnessed / 100.000	0	10				47,80	25,86	24,29	35,29	35,50	26,97	26,17
Bystander CPR (n)	114	174	445	619	332	476	65	665	727			1692
Bystander CPR (%)	11,06	41,93	54,14	50,04	25,90	21,62	30,52	59,69	62,56			47,86
Bystander CPR / 100.000	2,04	31,39	35,67	34,35	16,72	8,47	13,27	27,71	30,29			18,80
Cardiac cause (n)	836	4682	228			832	1486	176	993	1028		2081
Cardiac cause (%)	81,09	82,56	54,94			64,90	67,48	82,63	89,14	88,47		58,87
Incidence of started resuscitation in cardiac cause	15,00	44,17	41,13			41,91	26,43	35,92	41,38	42,83		23,12
non cardiac cause	191	989	92			450	554	35	121	132		1305
Incidence of started resuscitation in non cardiac cause	3,43	9,33	16,59			22,67	9,85	7,14	5,04	5,50		14,50
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC CardiacC (n)	285		72			191	658	31				
ROSC CardiacC (%)	34,09	0,00	31,58			22,96	44,28	17,61				
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62	11,70	6,33				
ROSC non CardiacC	76		37			120	295	2				
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04	5,25	0,41				

# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	547		231			870	1370	127	697	733		2240
Place of CA =Home (%)	53,06		60,48			67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		45,27			43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
Collapse witnessed (%)	99,52		67,47			74,02	66,03	55,87	76,03	73,32	41,08	66,62
Collapse witnessed / 100.00	18,40		50,50			47,80	25,86	24,29	35,29	35,50	26,97	26,17
Bystander CPR (n)	114		174	445	619	332	476	65	665	727		1692
Bystander CPR (%)	11,06		41,93	54,14	50,04	25,90	21,62	30,52	59,69	62,56		47,86
Bystander CPR / 100.000	2,04		31,39	35,67	34,35	16,72	8,47	13,27	27,71	29,99		18,80
Cardiac cause (n)		4682	228			832	1486	176	993			2081
Cardiac cause (%)		82,56	54,94			64,90	67,48	82,63	89,14			58,87
Incidence of started resuscitation in cardiac cause		44,17	41,13			41,91	26,43	35,92	41,38			23,12
non cardiac cause		989	92			450	554	35	121			1305
Incidence of started resuscitation in non cardiac		9,33	16,59			22,67	9,85	7,14	5,04			14,50
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC CardiacC (n)	285		72			191	658	31				
ROSC CardiacC (%)	34,09	0,00	31,58			22,96	44,28	17,61				
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62	11,70	6,33				
ROSC non CardiacC	76		37			120	295	2				
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04	5,25	0,41				



# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
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OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	547		231			870	1370	127	697	733		2240
Place of CA =Home (%)	53,06		60,48			67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		45,27			43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
Collapse witnessed (%)	99,52		67,47			74,02	66,03	55,87	76,03	73,32	41,08	66,62
Collapse witnessed / 100.00	18,40		50,50			47,80	25,86	24,29	35,29	35,50	26,97	26,17
Bystander CPR (n)	114		174	445	619	332	476	65	665	727		1692
Bystander CPR (%)	11,06		41,93	54,14	50,04	25,90	21,62	30,52	59,69	62,56		47,86
Bystander CPR / 100.000	2,04		31,39	35,67	34,35	16,72	8,47	13,27	27,71	30,29		18,80
Cardiac cause (n)	836	4682	228			832	1486	176	993	1028		2081
Cardiac cause (%)	81,09	82,56	54,94			64,90	67,48	82,63	89,14	88,47		58,87
Incidence of started resuscitation in cardiac cause	15,00	44,17	41,13			41,91	26,43	35,92	41,38	42,83		23,12
non cardiac cause	191	989	92			450	554	35	121	132		1305
Incidence of started resuscitation in non cardiac	3,43	9,33	16,59			22,67	9,85	7,14	5,04	5,50		14,50
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,75	6,73				
ROSC Cardiac (n)	285		72			191						
ROSC Cardiac (%)	34,09	0,00	31,58			22,96						
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62						
ROSC non Cardiac (n)	76		37			120						
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04						

# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	547		251			870	1576	127	697	733		2246
Place of CA =Home (%)	53,06		60,48			67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		45,27			43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC Cardiac (n)	285		72			191						
ROSC Cardiac (%)	34,09	0,00	31,58			22,96						
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62						
ROSC non Cardiac	76		37			120						
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04						
<b>Admitted to hospital (all causes) (n)</b>	<b>337</b>	<b>1875</b>	<b>143</b>	<b>240</b>	<b>383</b>	<b>304</b>	<b>897</b>	<b>69</b>	<b>442</b>	<b>346</b>	<b>230</b>	<b>829</b>
Admitted to hospital (all causes) (%)	32,69	33,06	34,46	29,20	30,96	23,71	40,74	32,39	39,68	29,78	46,09	23,45
Incidence of admitted to hospital (all causes) / 100.000	6,04	17,69	25,79	19,24	21,25	15,31	15,95	14,08	18,42	14,42	30,26	9,21
Admitted to hospital CC	265	1525	81			189	617	56	397	304		531
Incidence admitted to hospital CC / 100.000	4,75	14,39	14,61			9,52	10,97	11,43	16,54	12,67		5,90
Admitted to hospital nCC	72	350	32			108	280	13	45	42		263
Incidence admitted to hospital nCC / 100.000	1,29	3,30	5,77			5,44	4,98	2,65	1,88	1,75		2,92
<b>Discharged from hospital CC</b>	<b>94</b>					<b>53</b>	<b>57</b>	<b>14</b>	<b>226</b>	<b>176</b>		<b>263</b>
Incidence discharged from hospital CC / 100.000	1,69					2,67	1,01	2,86	9,42	7,33		2,92
Discharged from hospital nCC	14					6	15		18	11		78
Incidence discharged from hospital nCC / 100.000	0,25					0,30	0,27		0,75	0,46		

# EuReCa Results 2009

	Andalusia	Belgium	CZ reg. 1	CZ reg. 2	Czech R.	France	Germany	Ireland	North-Holland 2008	North-Holland 2009	Poland	Sweden
<b>Total population in the reported region</b>	<b>5.575.128</b>	<b>10.600.000</b>	<b>554.402</b>	<b>1.247.533</b>	<b>1.801.935</b>	<b>1.985.270</b>	<b>5.622.667</b>	<b>489.981</b>	<b>2.400.000</b>	<b>2.400.000</b>	<b>760.000</b>	<b>9.000.000</b>
OHCA considered for resuscitation	1102	5671	834	1485	2319	1899	2267		1433	1365	844	
Incidence of OHCA considered for resuscitation	19,77	53,50	150,43	119,03	128,69	95,65	40,32		59,71	56,88	111,05	
<b>Resuscitation started</b>	<b>1031</b>	<b>5671</b>	<b>415</b>	<b>822</b>	<b>1237</b>	<b>1282</b>	<b>2202</b>	<b>213</b>	<b>1114</b>	<b>1162</b>	<b>499</b>	<b>3535</b>
Incidence of started resuscitation / 100.000	18,49	53,50	74,86	65,89	68,65	64,58	39,16	43,47	46,42	48,42	65,66	39,28
Place of CA =Home (n)	547		251			870	1576	127	697	733		2246
Place of CA =Home (%)	53,06		60,48			67,86	71,57	59,62	62,57	63,08		63,54
Place of CA =Home / 100.000	9,81		45,27			43,82	28,03	25,92	29,04	30,54		24,96
Collapse witnessed (n)	1026		280			949	1454	119	847	852	205	2355
<b>Any ROSC (all causes) (n)</b>	<b>361</b>		<b>161</b>	<b>253</b>	<b>414</b>	<b>311</b>	<b>953</b>	<b>33</b>				
Any ROSC (all causes) (%)	35,01	0,00	38,80	30,78	33,47	24,26	43,28	15,49				
Incidence any ROSC (all causes) / 100.000	6,48	0,00	29,04	20,28	22,98	15,67	16,95	6,73				
ROSC Cardiac (n)	285		72			191	658	31				
ROSC Cardiac (%)	34,09	0,00	31,58			22,96	44,28	17,61				
Incidence of ROSC CC / 100.000	5,11	0,00	12,99			9,62	11,70	6,33				
ROSC non Cardiac	76		37			120	295	2				
Incidence of ROSC nCC / 100.000	1,36	0,00	6,67			6,04	5,25	0,41				
<b>Admitted to hospital (all causes) (n)</b>	<b>337</b>	<b>1875</b>	<b>143</b>	<b>240</b>	<b>383</b>	<b>304</b>	<b>897</b>	<b>69</b>	<b>442</b>	<b>346</b>	<b>230</b>	<b>829</b>
Admitted to hospital (all causes) (%)	32,69	33,06	34,46	29,20	30,96	23,71	40,74	32,39	39,68	29,78	46,09	23,45
Incidence of admitted to hospital (all causes) / 100.000	6,04	17,69	25,79	19,24	21,25	15,31	15,95	14,08	18,42	14,42	30,26	21,21
Admitted to hospital CC	265	1525	81			189	617	56	397	304		111
Incidence admitted to hospital CC / 100.000	4,75	14,39	14,61			9,52	10,97	11,43	16,54	12,67		10,21
Admitted to hospital nCC	72	350	32			108	280	13	45	42		53
Incidence admitted to hospital nCC / 100.000	1,29	3,30	5,77			5,44	4,98	2,65	1,88	1,75		1,02
<b>Discharged from hospital CC</b>	<b>94</b>					<b>53</b>	<b>57</b>	<b>14</b>	<b>226</b>	<b>176</b>		<b>53</b>
Incidence discharged from hospital CC / 100.000	1,69					2,67	1,01	2,86	9,42	7,33		2,92
Discharged from hospital nCC	14					6	15		18	11		78
Incidence discharged from hospital nCC / 100.000	0,25					0,30	0,27		0,75	0,46		

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# EURECA: lessons

- *LOOK AT THE DATA*
- *UNDERSTAND THE DATA*
- *UNDERSTAND THE DIFFERENCES*
- *UPDATE NATIONAL REGISTRIES*

if necessary modified in order to ensure comparability of data.



One of the greatest challenges is the application of unambiguous definitions. This can be met by close co-operation of those responsible for the national registries within the EuReCa consortium, to ensure that throughout Europe the data can be truly comparable. This necessitates both careful quality control with the use of uniform definitions and valid data sources in all contributing countries and groups.