Presentación Proyecto OHSCAR

“La Parada Cardiaca Extra-Hospitalaria. Situación General y en España”

Madrid, 24 de enero de 2013

Dr. Juan López Messa.
Presidente del CERCP

Semicyuc
LOS PROFESIONALES DEL ENFERMO CRÍTICO
Grupo Español de RCP
Pediátrica y Neonatal
Cruz Roja
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y Emergencias
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Sociedad
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de Médicos
de Atención
Primaria
AP
SOCIEDAD ESPAÑOLA DE
Cardiología

Urxencias Sanitarias **061**

Los fines del CERCP son:

- ***Promocionar el conocimiento*** del SV y de la RCP.
- ***Coordinación entre*** las organizaciones que lo constituyen.
- ***Elaborar y difundir recomendaciones.*** Guías del "European Resuscitation Council" (ERC).
- ***Influir en los organismos pertinentes***.
- ***Promocionar la formación en soporte vital de todos los "primeros intervinientes"***.
- ***Estimular la educación sanitaria de la población***.
- ***Intervenir ante los organismos pertinentes responsables de la educación, planificación y gestión.***
- ***Estimular la actuación de la sociedad civil***.
- ***Impulsar la investigación***.
- ***Representar ante las diferentes entidades públicas o privadas*** a las organizaciones asociadas.
- ***Representar a nivel internacional***, y en el marco del ERC, a las organizaciones asociadas.
- ***Conseguir la colaboración y entendimiento entre las organizaciones y colectivos implicados en el SV y la RCP***.

Consejo Español

Formación

Asistencia

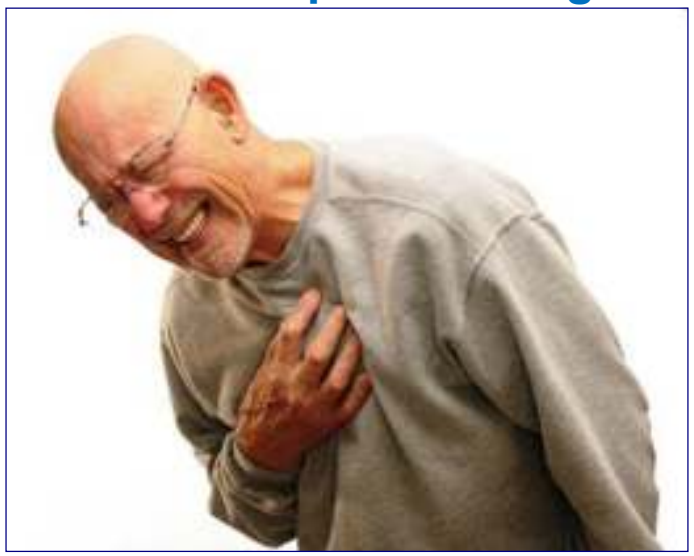
Parada cardiaca

Resucitación

Investigación

- Sociedades Científicas
- Fundaciones y Centros de Formación
- Servicios de Emergencias
- Consejo Catalán
- Cruz Roja Española

La Parada Cardiaca es un problema sanitario de primera magnitud



Parada Cardiaca

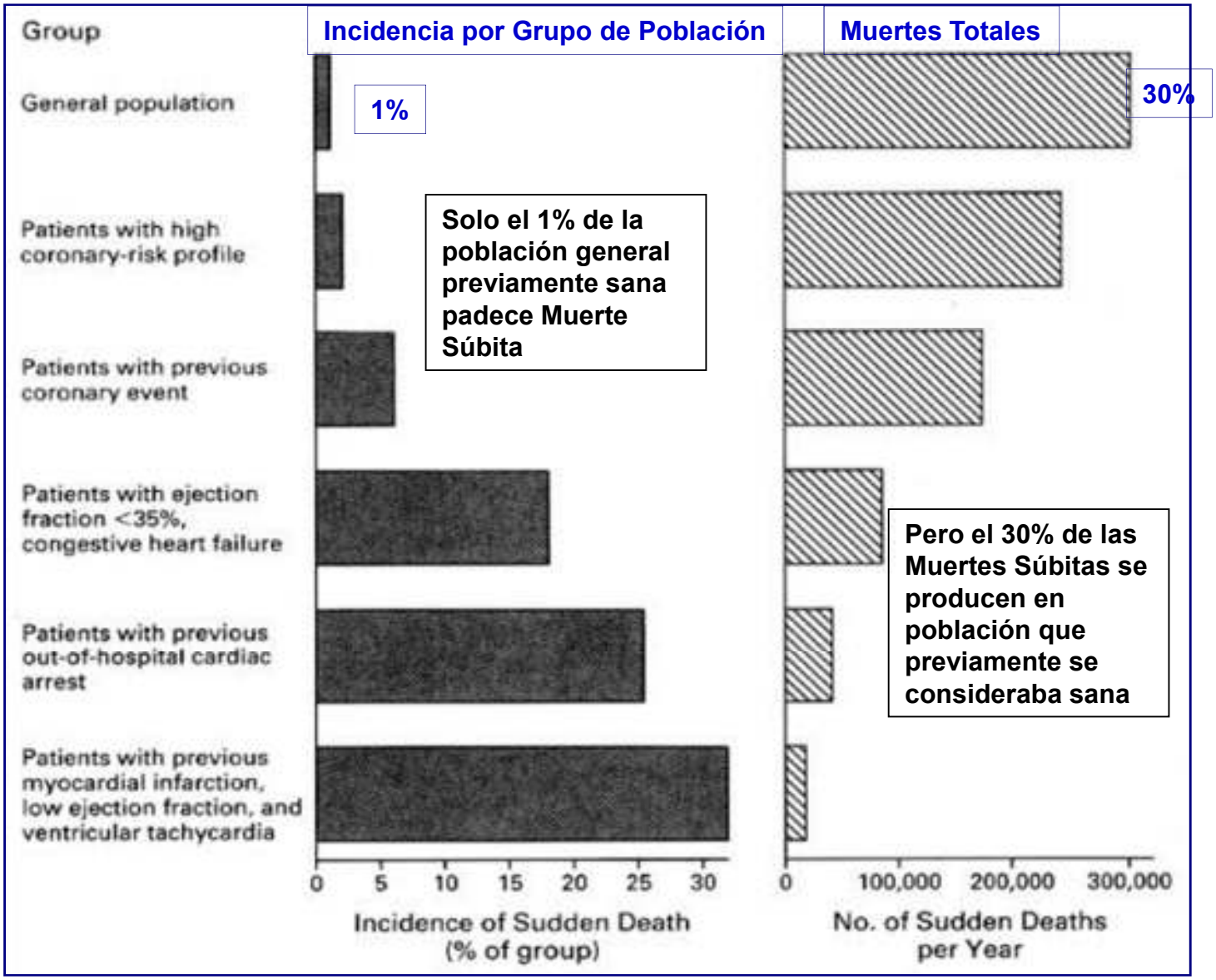
vs

Muerte Súbita

Muerte Súbita Cardiaca y Parada Cardiaca

Muerte súbita y parada cardiaca suelen utilizarse como sinónimos. Son conceptos de límites arbitrariamente establecidos en torno a un mismo fenómeno. El concepto de muerte súbita se utiliza generalmente con un enfoque epidemiológico y el de parada cardiaca con un enfoque clínico.

Incidencia Muerte Súbita



Huikuri H. et al. NEJM 2001

Parada Cardiaca

Proceso Transversal

Lugar del Evento

SEM

Urgencia Hospitalaria

Áreas de Hospital

-Cuidados Intensivos
-Quirófanos

-Testigos
-Personal Sanitario de A.P.

Personal Sanitario del SEM

Personal Sanitario del Hospital

Cadena de supervivencia
Reconocimiento precoz y pedir ayuda
- para prevenir la parada c-
RCP precoz
- para ganar tiem
Desfibrilación precoz
Cuidados postresucitación
d de vida

SEM. Elemento clave en la atención a la PCR-EH

Incidencia
Parada Cardiaca Súbita Extra-Hospitalaria (PC-EH)

- 35 - 126 PC-EH / 100000 hab. /año (8/100000 en niños); USA*; Europa#
- 50 - 60% Atendidas por Servicios de Emergencias
- Ritmo Desfibrilable 23%
- Supervivencia: 5 - 9,5% (adultos); 6 - 7,8% niños

- 17000 - 27000 PC-EH / año en España

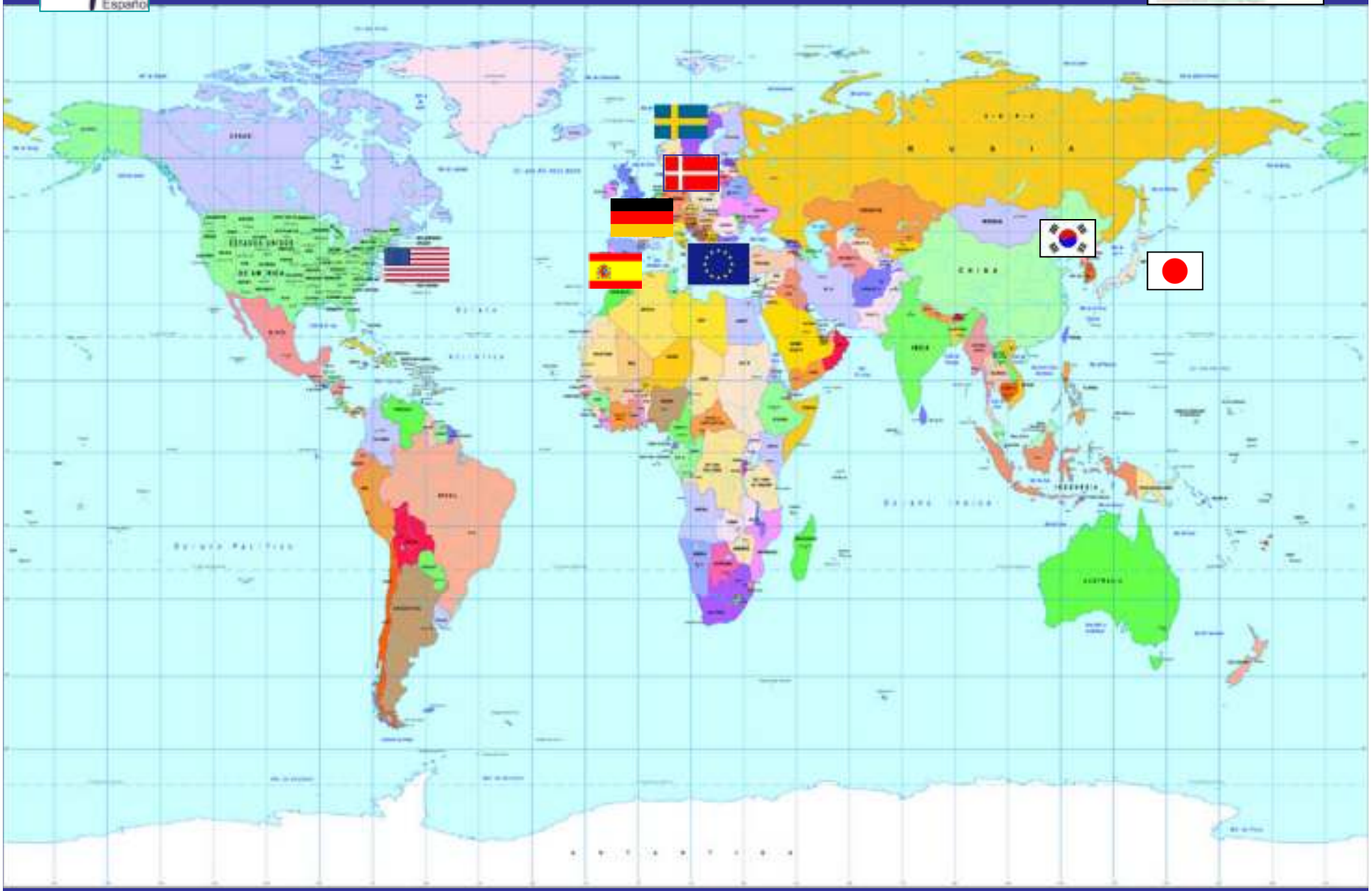
*Go AS, et al. Heart disease and stroke statistics 2013 update: A report from the American Heart Association. Circulation 2013-Update; Circulation 2013;127:e6-e245
#Atwood C, et al. Incidence of EMS-treated out-of-hospital cardiac arrest in Europe. Resuscitation 2005; 67: 75- 80.

Qué sabemos sobre la PCR-EH

Consejo Español

OHSCAR

Out-of-Hospital Spanish Cardiac Arrest Registry



Heart Disease and Stroke Statistics 2013 UPDATE

Statistics at Your Fingertips

Heart Disease and Stroke Statistics—2013 Update

A Report From the American Heart Association

Circulation. 2013;127:e6-e245

Table 16-1. Incidence and Outcome of Out-of-Hospital Cardiac Arrest in the United States

	Overall (95% CI)	Adults (95% CI)	Children (95% CI)
Incidence (per 100 000)			
EMS assessed	126.4 (124.0–128.8)	147.7 (144.8–150.7)	11.0 (9.6–12.4)
EMS treated	63.8 (62.1–65.4)	80.1 (77.9–82.2)	8.8 (7.6–10.1)
Bystander-witnessed shockable rhythm (including VT, VF, shockable by AED)	10.0 (9.4–10.6)	9.8 (9.0–10.6)	0.3 (0.1–0.5)
Survival to discharge, %			
EMS assessed	4.8 (4.4–5.2)	5.3 (4.9–5.7)	6.3 (3.3–9.3)
EMS treated	9.5 (8.8–10.2)	9.8 (9.0–10.6)	7.8 (4.2–11.5)
Bystander-witnessed shockable rhythm	28.4 (25.1–31.8)	28.4 (25.1–31.8)	57.1 (20.4–93.8)

SEM: 50% / Ritmo DF: 23% / Supervivencia Alta Hospitalaria: 9,5%

Incidencia 126,4 / 100000 hab. / año

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Resuscitation Outcomes Consortium

ROC is a clinical trial network focusing on research in the area of pre-hospital cardiopulmonary arrest and severe traumatic injury.

Mission

The mission of the Resuscitation Consortium is to provide infrastructure and project support for clinical trials and other outcome-oriented research in the areas of cardiopulmonary arrest and severe traumatic injury that will rapidly lead to evidence-based change in clinical practice. The focus on pre-hospital and early hospitalization interventions recognizes the critical importance of this time frame and early congruence between the emergency cardiac and trauma populations. ROC Investigators will conduct collaborative trials of variable size and duration (equally directed towards the cardiac and trauma populations), leveraging the combined power of the member institutions and promoting the rapid translation of promising scientific and clinical advances for the public good.

Login

user:

pass:

login

Get an account

Press Releases

2012/01/26: NIH Launches Trials to Evaluate CPR and Drugs After Sudden Cardiac Arrest
2009/11/20: Effect of Real-time CPR Feedback
2009/11/06: Study on Resuscitation Methods for Cardiac Arrest (PRIMED) Halted
2009/05/12: Study of Concentrated Saline for Traumatic Brain Injury Halted
2009/03/26: Study of Concentrated Saline for Shock Halted
2006/03/24: NHLBI Announces Formation and Funding of ROC

National Heart Lung and Blood Institute
American Heart Association
US Army Medical Research & Materiel Command
CIHR IRSC
HEART & STROKE FOUNDATION OF CANADA
DEFENCE R&D DÉFENSE
Defence R&D Canada

Contact: 1107 NE 45th St, Suite 505, Seattle, WA 98105-4680 — 800-312-8586, 206-685-1302 — Fax 206-543-8131 — rochelp@uwctc.org
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Participants

Participating Sites

Regional Clinical Centers

- Dallas/Fort Worth Center for Resuscitation Research
- The Milwaukee Resuscitation Research Center
- Ottawa Ontario RCC
- British Columbia RCC
- Pittsburgh Resuscitation Network
- Oregon Health & Sciences University - Portland Resuscitation Outcomes Consortium
- Seattle-King County Center for Resuscitation Research at the University of Washington
- Alabama Resuscitation Center
- Toronto Regional RESuscitation RESearCh oUt of hospital NETwork
- UCSD/San Diego Resuscitation Research Center

Satellite Centers

- Memphis Resuscitation Research Center
- San Francisco Clinical Center
- Cincinnati Clinical Center
- Houston Clinical Center
- Houston Clinical Coordinating Center
- Houston Data Coordinating Center
- Toronto Sunnybrook Clinical Center
- Baltimore Clinical Center

https://roc.uwctc.org/tiki/roc-public-home

myCares.NET

Welcome To:

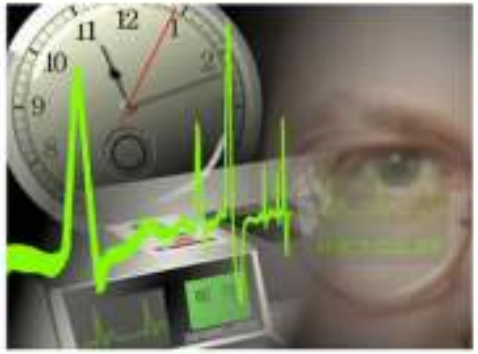
Cardiac Arrest Registry to Enhance Survival (CARES)

Sponsored by:

CDC Department of Health and Human Services
Centers for Disease Control and Prevention

EMORY UNIVERSITY SCHOOL OF MEDICINE

American Heart Association. Learn and Live.



CARES Introduction

More information on Cares

Press on Cares

Maps

IRB/HIPAA

CARES

The Cardiac Arrest Registry to Enhance Survival (CARES) was initiated in October 2004 as a cooperative agreement between the Center for Disease Control and Prevention (CDC) and the Department of Emergency Medicine at Emory University School of Medicine to identify incidents of prehospital cardiac arrest. The CARES Program is designed to consolidate all essential data elements of a prehospital cardiac arrest event in an efficient manner. With the standardized collection system, participants can track ongoing system performance in several, tailored reports. If you have any questions about this program, please send an email to cares@emory.edu.

Bryan McNally, MD, MPH (Principal Investigator)
Arthur Kellerman, MD, MPH (CO-Investigator)
Monica Mehta, MPH (Program Coordinator)
Rachel Robb, MPSc (Program Coordinator)
Kimberly Vellano, MPH (Program Coordinator)

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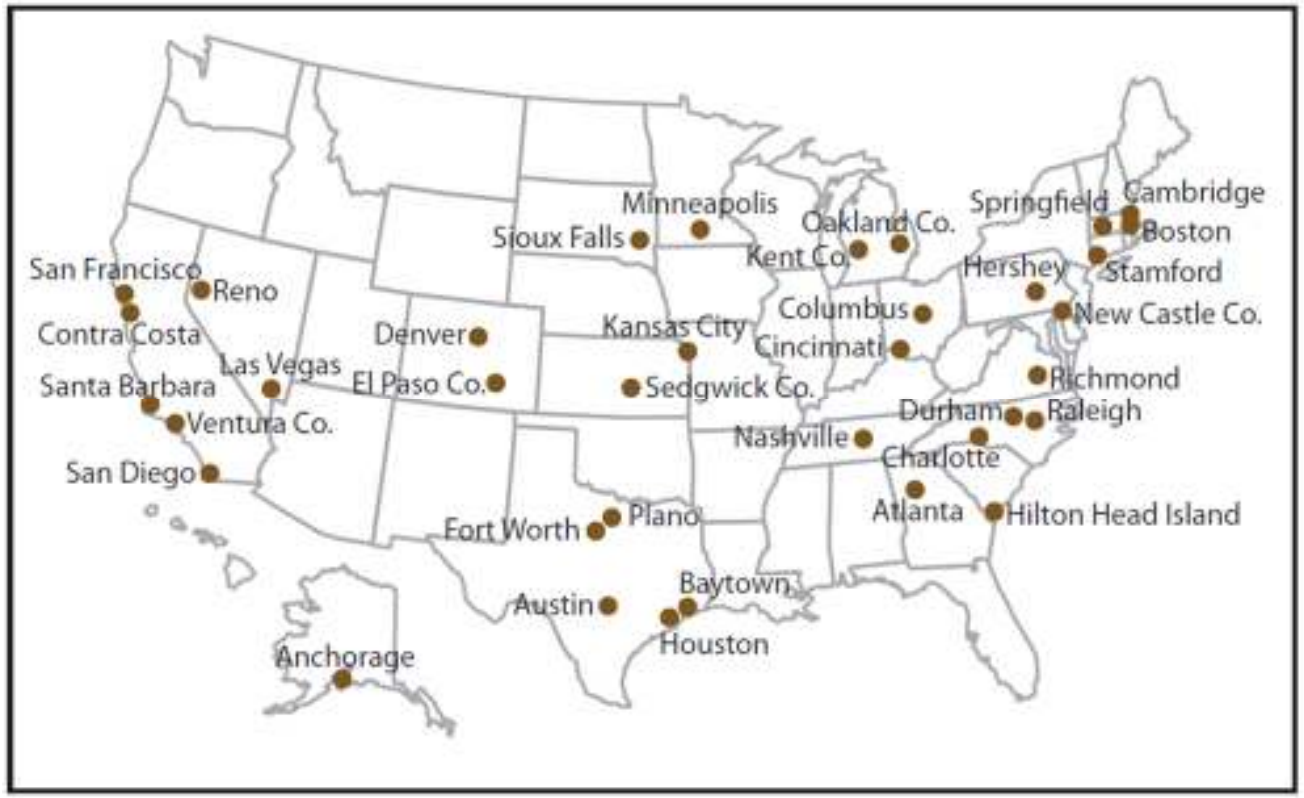
https://mycares.net/

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Surveillance Summaries / Vol. 60 / No. 8
July 29, 2011

CDC
Centers for Disease Control and Prevention

Out-of-Hospital Cardiac Arrest Surveillance — Cardiac Arrest Registry to Enhance Survival (CARES), United States, October 1, 2005–December 31, 2010



Cardiac Arrest Registry

Part A : Demographic Information

1 - Street Address (Where Arrest Occurred)

1 - City | 1 - State | 1 - Zip Code

2 - First Name | 3 - Last Name

4 - Age: ☐ Days ☐ Months ☐ Years

5 - Date of Birth

6 - Gender: ☐ Male ☐ Female

7 - Race/Ethnicity: ☐ American Indian/Alaska ☐ Asian ☐ Black/African American ☐ Hispanic/Latino ☐ Native Hawaiian/Pacific Islander ☐ White ☐ Unknown

Part B : Run Information

8 - Date of Arrest: ___ / ___ / ___

9 - Call #

First Responding Agency / Hospital Destination

10 - Fire/First Responder

11 - Destination Hospital

Arrest Information

12 - Location Type
- ☐ Home/ Residence
- ☐ Public Building
- ☐ Street/Hwy
- ☐ Nursing Home
- ☐ Residence/Institution
- ☐ Physician Office/Clinic
- ☐ Educational Inst.
- ☐ Hospital
- ☐ Recreation/Sport
- ☐ Industrial Place
- ☐ Farm
- ☐ Mine / Quarry
- ☐ Jail
- ☐ Airport
- ☐ Other

13 - Arrest Witnessed
- ☐ Witnessed Arrest
- ☐ Unwitnessed Arrest

14 - Arrest After Arrival of 911 Responder
- ☐ Yes
- ☐ No

15 - Presumed Cardiac Arrest Etiology
- ☐ Presumed Cardiac Etiology
- ☐ Trauma
- ☐ Respiratory
- ☐ Drowning
- ☐ Electrocution
- ☐ Other

Resuscitation Information

16 - Resuscitation Attempted by 911 Responder
- ☐ Yes
- ☐ No

17 - Was an AED Used During Resuscitation
- ☐ Yes
- ☐ No
- ☐ AED Present but not Used
- ☐ AED Malfunctioned

18 - Who First Applied Monitor/Defibrillator, AED
- ☐ Not Applicable
- ☐ Lay Person
- ☐ Lay Person Family Member
- ☐ Lay Person Medical Provider
- ☐ First Responder
- ☐ Responding EMS Personnel

19 - Who Initiated CPR
- ☐ Not Applicable
- ☐ Lay Person
- ☐ Lay Person Family Member
- ☐ Lay Person Medical Provider
- ☐ First Responder
- ☐ Responding EMS Personnel

Of AED Shocks

Of Manual Shocks

First Cardiac Arrest Rhythm of Patient and ROSC Information

20 - First Arrest Rhythm of Patient
- ☐ Ventricular Fibrillation
- ☐ Ventricular Tachycardia
- ☐ Asystole
- ☐ Idioventricular/PEA
- ☐ Unknown Shockable Rhythm
- ☐ Unknown Unshockable Rhythm

21 - ROSC
- ☐ Yes
- ☐ No

22 - Sustained ROSC
- ☐ Yes
- ☐ No

23 - Out of Hospital Disposition
- ☐ Resuscitation not initiated at scene due to obvious signs of death, DNR, resuscitation considered futile, or resuscitation is not required
- ☐ Resuscitation terminated at scene due to medical control order, protocol/policy requirements completed
- ☐ Transported to Hospital with or without ROSC

24 - End of the Event
- ☐ Dead in Field
- ☐ Pronounced Dead in ED
- ☐ Ongoing Resuscitation in ED

Hypothermia Information

25 - Was hypothermia care provided in the field
- ☐ Yes
- ☐ No

26 - When was hypothermia care initiated
- ☐ During Resuscitation
- ☐ After Resuscitation

Hospital Information

27 - Emergency Room Outcome
- ☐ Resuscitation terminated in ED
- ☐ Admitted to ICU/CCU
- ☐ Admitted to floor
- ☐ Transferred to another acute care facility from the ED

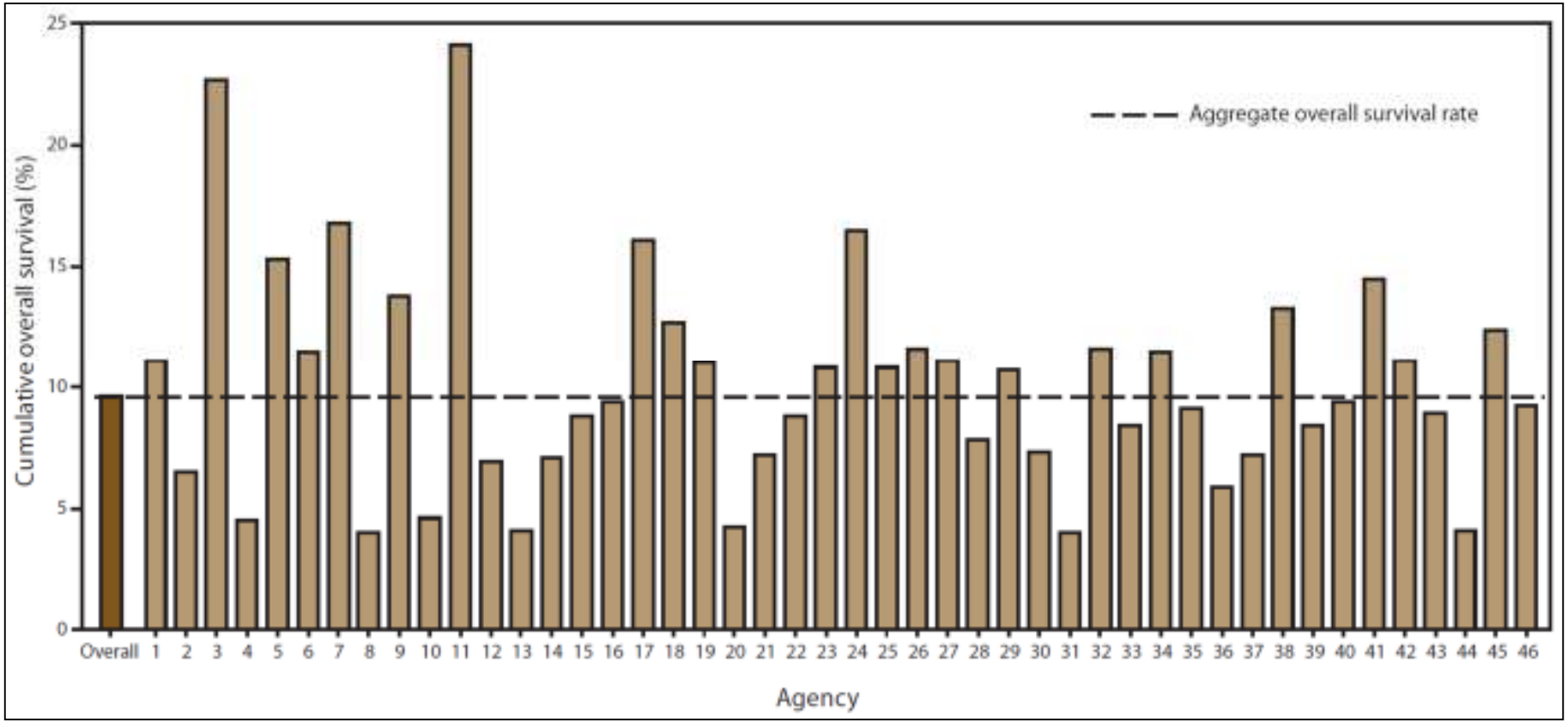
28 - Hospital Outcome
- ☐ Died in the hospital
- ☐ Discharged alive
- ☐ Transferred to another acute care hospital
- ☐ Patient has not been disposed

29 - Discharge From The Hospital
- ☐ Home/Residence
- ☐ Rehabilitation facility
- ☐ Skilled Nursing Facility/Hospice

30 - Neurological Outcome At Discharge From Hospital
- ☐ Good Cerebral Performance
- ☐ Moderate Cerebral Performance
- ☐ Severe Cerebral Performance
- ☐ Coma, vegetative state

31 - Was hypothermia care initiated/continued in the hospital
- ☐ Yes
- ☐ No

Copyright 2008 Samsi


Aggregate overall survival rate
Cumulative overall survival (%)
0
5
10
15
20
25
Overall 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
Agency

Resuscitation Science

Improved Survival After Out-of-Hospital Cardiac Arrest Is Associated With an Increase in Proportion of Emergency Crew–Witnessed Cases and Bystander Cardiopulmonary Resuscitation

Jacob Hollenberg, MD, PhD; Johan Herlitz, MD, PhD; Jonny Lindqvist, MSc; Gabriel Riva, MD; Katarina Bohm, RN; Mårten Rosenqvist, MD, PhD; Leif Svensson, MD, PhD

Circulation 2008; 118: 389-396

Año	PCEH presenciado por SEM %	RCP por testigos %	Ritmo FV %	PCEH en el Hogar %	Causa Cardiaca %	Superviv 1 mes %	Superviv 1 mes FV %	Superviv 1 mes No FV %	Superviv al ingreso hospital %
1992	9	31	33	63	73	4,8	12,7	1,2	15,3
2005	15	50	24	64	63	7,3	22,3	2,3	21,7
S.E. (p)	<0,0001	<0,0001	<0,0001	NS	<0,0001	<0,0001	<0,0001	0,044	<0,0001

Improved Survival After Out-of-Hospital Cardiac Arrest Is Associated With an Increase in Proportion of Emergency Crew–Witnessed Cases and Bystander Cardiopulmonary Resuscitation

Jacob Hollenberg, MD, PhD; Johan Herlitz, MD, PhD; Jonny Lindqvist, MSc; Gabriel Riva, MD; Katarina Bohm, RN; Mårten Rosenqvist, MD, PhD; Leif Svensson, MD, PhD

Circulation 2008; 118: 389-396

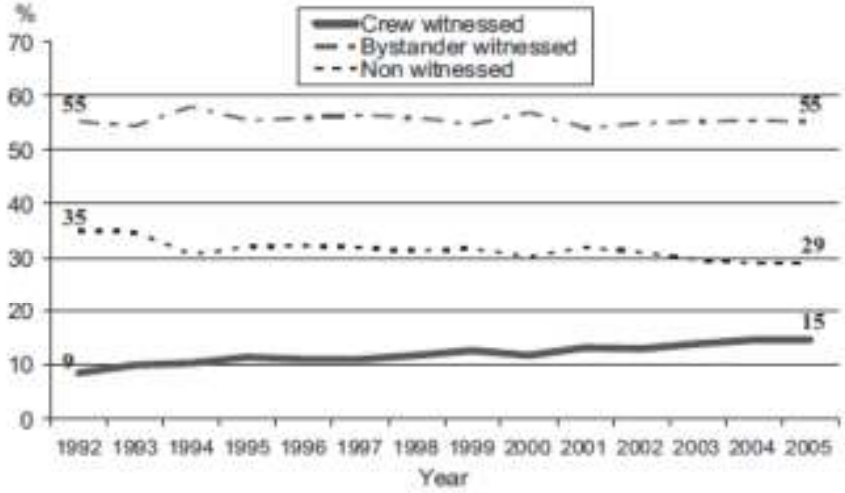


Figure 1. Proportion of patients in relation to witnessed status of arrest.

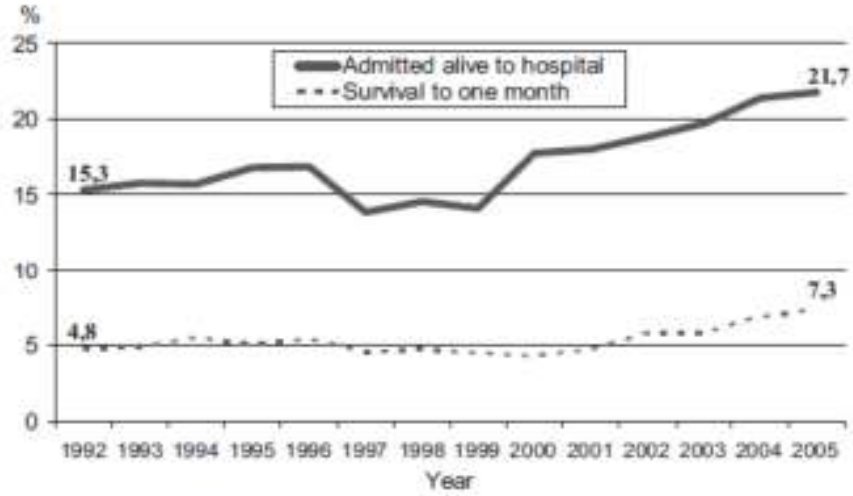


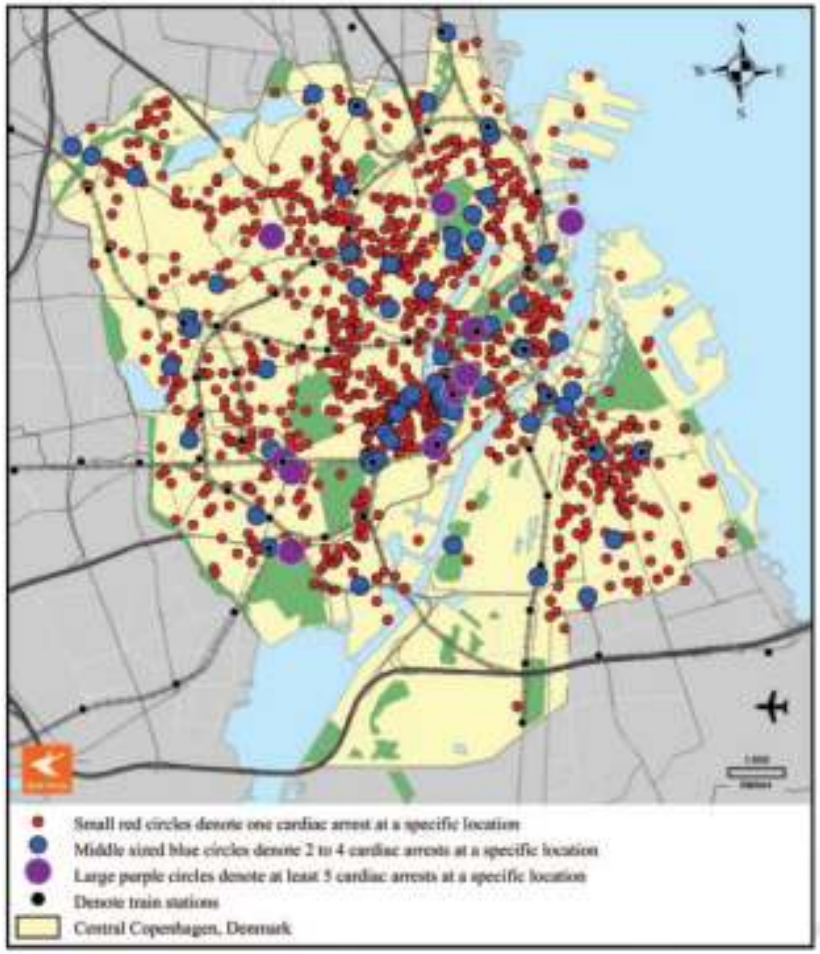
Figure 2. Admission to hospital and survival to 1 month.

Location of Cardiac Arrest in a City Center

Strategic Placement of Automated External Defibrillators in Public Locations

Fredrik Folke, MD; Freddy Knudsen Lippert, MD; Søren Loumann Nielsen, MD;

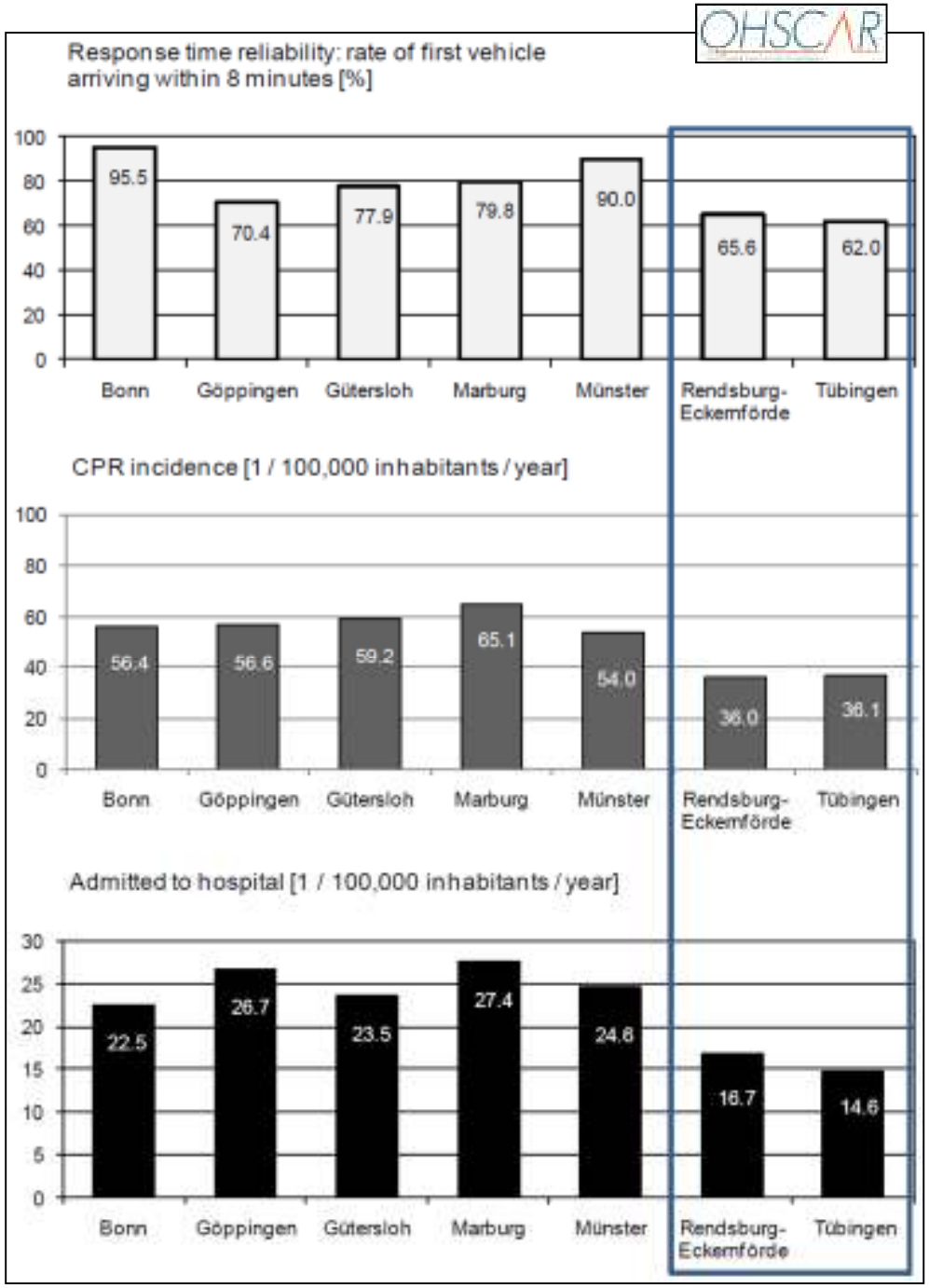
(*Circulation*. 2009;120:510-517.)



Grid Cell Characteristics†	Multivariable Rate Ratio of Cardiac Arrest (95% CI)
Major train station	7.79 (3.12–19.47)
High-density public area‖	5.02 (3.44–7.31)
Large shopping mall	3.35 (0.86–13.14)
Central bus terminal	3.95 (1.90–8.22)
Sports center	1.66 (0.40–6.85)
Supermarket	2.23 (1.44–3.47)
Small train station	4.88 (2.77–8.59)
Ferry terminal	5.60 (1.30–24.10)
Public swimming pool	2.37 (0.67–8.46)
Large industrial business	2.07 (1.47–2.93)
High school	1.86 (0.96–3.58)
Primary school	1.48 (0.99–2.23)

The impact of response time reliability on CPR incidence and resuscitation success: a benchmark study from the German Resuscitation Registry

Neukamm *et al. Critical Care* 2011, **15**:R282

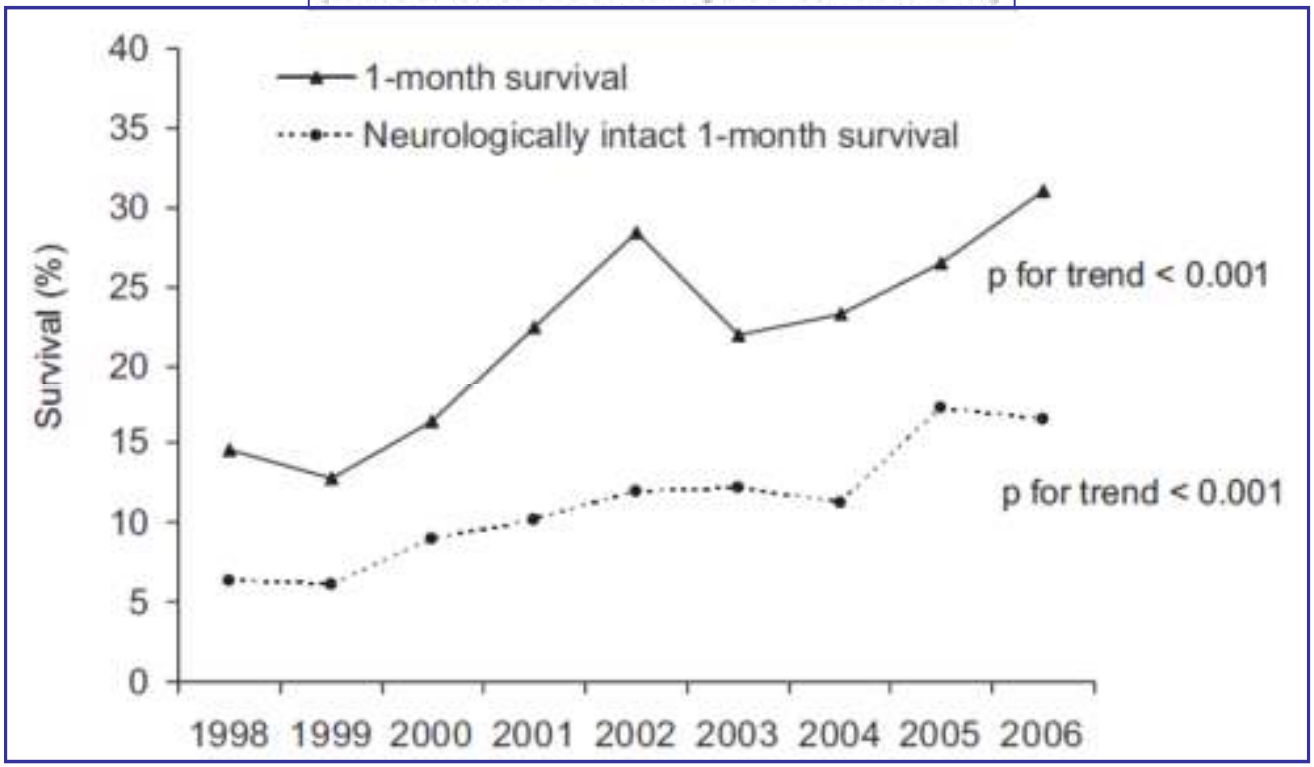


Continuous Improvements in "Chain of Survival" Increased Survival After Out-of-Hospital Cardiac Arrests

A Large-Scale Population-Based Study

Taku Iwami, MD, PhD; Graham Nichol, MD, MPH; Atsushi Hiraide, MD, PhD;

(*Circulation*. 2009;119:728-734.)



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Nationwide Public-Access Defibrillation in Japan

Tetsuhisa Kitamura, M.D., Taku Iwami, M.D., Takashi Kawamura, M.D.,

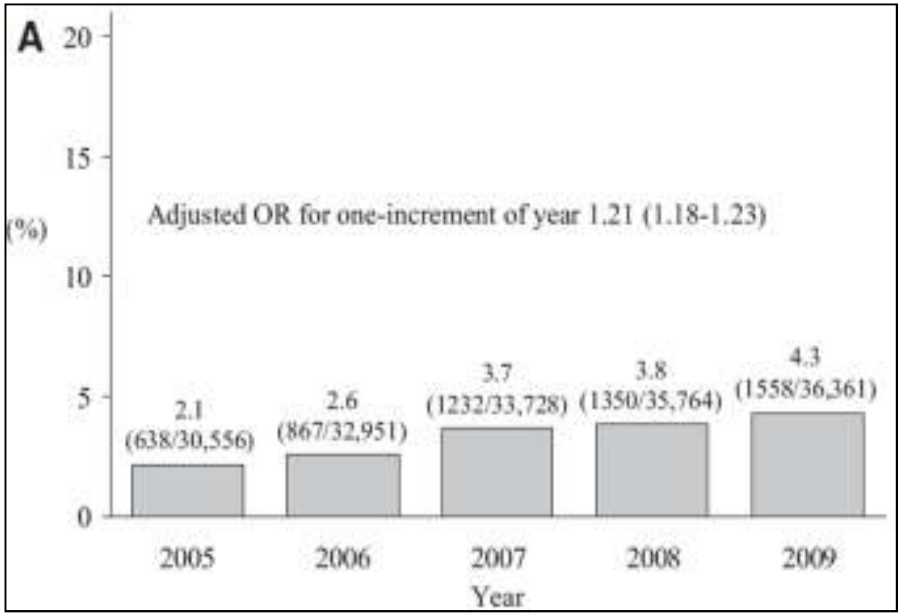
N Engl J Med 2010;362:994-1004.

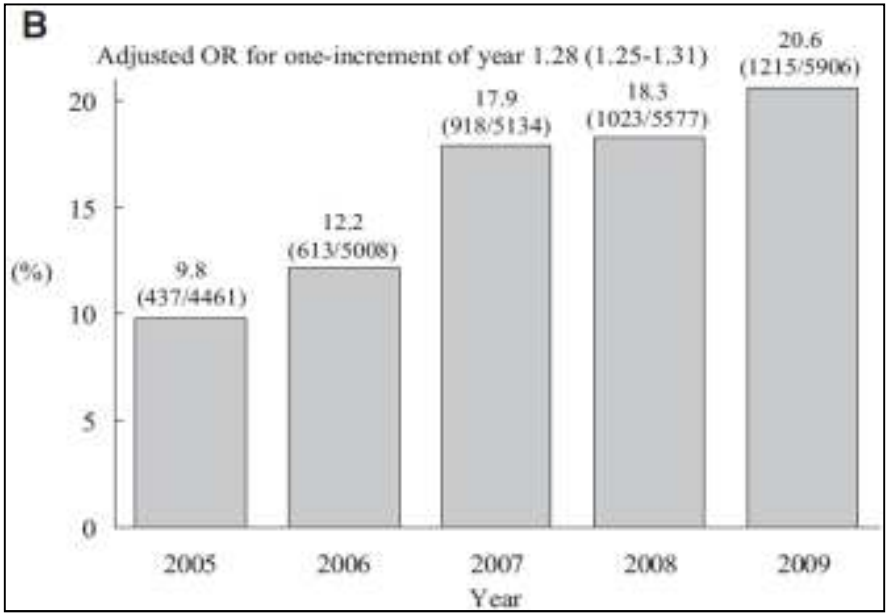
Variable	Total	2005	2006	2007	P Value for Trend
Bystander-witnessed arrests with ventricular fibrillation					
No. of events	12,631	3841	4388	4402	
Patient's age — yr	64.4±15.1	64.4±14.8	64.6±15.0	64.1±15.4	0.33
Male sex — no. of patients (%)	10,055 (79.6)	3066 (79.8)	3488 (79.5)	3501 (79.5)	0.75
Relationship of bystander to patient — no. (%)					<0.001
Family member	7376 (58.4)	2324 (60.5)	2577 (58.7)	2475 (56.2)	
Other	5255 (41.6)	1517 (39.5)	1811 (41.3)	1927 (43.8)	
CPR initiated by bystander — no. of events (%)†	6127 (48.5)	1662 (43.3)	2106 (48.0)	2359 (53.6)	<0.001
Chest compression only	3148 (24.9)	744 (19.4)	1037 (23.6)	1367 (31.1)	
Conventional CPR‡	2979 (23.6)	918 (23.9)	1069 (24.4)	992 (22.5)	
Time from collapse to initiation of CPR — min	6.0±5.8	6.5±6.0	6.0±5.6	5.7±5.8	<0.001
Time from collapse to first shock — min§	11.6±6.3	12.0±6.2	11.4±6.2	11.6±6.5	0.36
Restoration of spontaneous circulation before arrival at hospital — no. of patients (%)	3118 (24.7)	821 (21.4)	1049 (23.9)	1248 (28.4)	<0.001
Survival at 1 mo — no. of patients (%)	3011 (23.8)	745 (19.4)	1019 (23.2)	1247 (28.3)	<0.001
Survival at 1 mo with minimal neurologic impairment — no. of patients (%)¶	1815 (14.4)	406 (10.6)	566 (12.9)	843 (19.2)	<0.001
First shock with the use of a public-access AED					
No. of patients receiving shock	462	45	143	274	

Nationwide Improvements in Survival From Out-of-Hospital Cardiac Arrest in Japan

Tetsuhisa Kitamura, MD, MSc, DrPH; Taku Iwami, MD, MPH, PhD; Takashi Kawamura, MD, PhD;

Circulation. 2012;126:2834-2843





A trend in epidemiology and outcomes of out-of-hospital cardiac arrest by urbanization level: A nationwide observational study from 2006 to 2010 in South Korea☆,☆☆

Young Sun Ro[a], Kyoung Jun Song[b], Eui Jung Lee[c], Joo Yeong Kim[d], Ki Ok Ahn[e], Sung Pil Chung[f],

Resuscitation 2013 http://dx.doi.org/10.1016/j.resuscitation.2012.12.020

Conclusions: In this nationwide cohort study from 2006 to 2010, the standardized incidence rate and survival to discharge rate of EMS-assessed OHCAs increased annually in metropolitan and urban communities but did not increase in rural communities. Further investigations should be undertaken to improve the performance and outcomes in rural communities.

Global incidences of out-of-hospital cardiac arrest and survival rates: Systematic review of 67 prospective studies☆,☆☆

Jocelyn Berdowski[a,*], Robert A. Berg[b], Jan G.P. Tijssen[a], Rudolph W. Koster[a]

Resuscitation 81 (2010) 1479–1487

	Europe			North America			Asia			Australia		
	Primary estimate[a]	Estimate weighted according to person-years[b]	Median estimate[c]	Primary estimate[a]	Estimate weighted according to person-years[b]	Median estimate[c]	Primary estimate[a]	Estimate weighted according to person-years[b]	Median estimate[c]	Primary estimate[a]	Estimate weighted according to person-years[b]	Median estimate[c]
Incidence EMS attended OHCA	86.4	87.4	81.6	98.1	96.5	101.2	52.5	65.4	66.8	112.9	108.9	113.6
Incidence EMS treated OHCA	40.6	34.4	54.2	47.3	53.1	70.6	45.9	59.4	49.8	51.1	49.7	53.5
Incidence EMS treated OHCA, cardiac cause	35.0	25.7	42.8	54.6	53.2	58.8	28.3	35.1	25.5	44.0	41.3	39.8
Incidence EMS treated OHCA, VF	12.8	10.7	15.9	14.0	15.0	17.2	3.2	3.2	3.1	14.9	14.7	15.8
Percentage EMS treated OHCA	60.3%	58.9%	61.2%	57.6%	58.4%	56.5%	95.7%	95.3%	74.0%	46.3%	46.7%	43.5%
Percentage VF	35.2%	31.6	35.5%	28.1%	33.0%	30.4%	11.2%	9.1%	7.4%	39.8%	37.0%	39.0%
Percentage survival to discharge	9.4%	7.6%	10.0%	6.3%	6.8%	6.8%	2.2%	3.0%	1.2%	10.7%	9.7%	12.8%
Percentage survival to discharge, VF	19.0%	15.7%	23.3%	15.9%	15.5%	14.6%	12.3%	13.6%	12.8%	16.6%	14.2%	13.9%

Incidence is per 100,000 person-year

Presentación Proyecto OHSCAR

¿Qué sabemos sobre la PCR en España?

Consejo Español

OHSCAR

Out-of-Hospital Spanish Cardiac Arrest Registry

Supervivencia en España de las paradas cardíacas extrahospitalarias

J.A. ÁLVAREZ FERNÁNDEZ[a,b], M. ÁLVAREZ-MON SOTO[a] Y M. RODRÍGUEZ ZAPATA[a]

MEDICINA INTENSIVA, VOL. 25, NÚM. 6, 2001

TABLA 2. **Referencias españolas para el análisis**

SEM	Autores	Fuente	Lugar	Población	Meses	PCR-EH	100.000 habitantes /año	SV (%) Alta del hospital
No	Coletas J et al	Emergencias 1991; 3: 103-111	Perecamps	1.714.355	12	181	11	4,4
No	Duque F et al	Emergencias 1993; 5: 239-240	Las Palmas	355.153	12	144	41	6,9
No	Toboso JM et al	Resuscitation 1996; 31: S9	Calella	80.318	12	61	76	1,6
No	Lucas FJ et al	Med Intensiva 1997 (Supl 1); 21: 152	Albacete	142.479	36	192	45	11,8
No	Echevarría C et al	Emergencias 1997; 9 (Extra 1): 452	Gerona	70.000	48	30	11	0
No	Carpintero JM et al	Emergencias 1998; 10: 16-18	Logroño	260.000	24	87	17	20
Sí	Medina JC	Emergencias 1991; 3: 118-122	Madrid (ciudad)	3.114.598	12	9	0,3	11,1
Sí	Pascual J	Aten Primaria 1992; 9: 80-84	Ciudad Real	484.353	36	142	10	8,5
Sí	García-Escudero G et al	Emergencias 1993; 5: 182	Córdoba	150.407	6	47	63	11
Sí	Álvarez JA et al	Med Intensiva 1993; 17 (Supl 1): S 122	Madrid (región)	4.968.344	12	401	8	11
Sí	Sánchez-Vega P et al	Emergencias 1993; 5: 173-174	Madrid (HEMS)	5.037.050	12	29	0,6	1
Sí	Rodríguez LJ et al	Emergencias 1993; 5: 184	Ciudad Real	476.890	24	83	9	16
Sí	García-Viada M et al	Emergencias 1996; 8: 254-255	Madrid (región)	5.181.659	12	334	6	10,1
Sí	Cerdá J et al	Emergencias 1996; 8: 246-247	Manresa	65.724	9	69	140	12,8
Sí	Herreras VJ et al	Emergencias 1996; 8: 314	Valencia	2.172.840	12	88	4	13,4
Sí	Cameno N et al	Resuscitation 1996; 31: S8	Vitoria	250.000	12	43	17	2,3
Sí	Fernández-Moreira C et al	Emergencias 1997; 9: 287-288	Madrid (ciudad)	3.035.418	30	222	3	10
Sí	González-Tapia E et al	Emergencias 1997; 9: 58	Ciudad Real	484.275	54	150	7	11,1
Sí	Soler W et al	Emergencias 1997; 9: 300-301	Navarra	181.776	6	20	22	10
Sí	García-Fernández JA et al	Emergencias 1998; 10: 282-283	Vigo	286.774	6	49	34	10
Sí	Acebedo FJ et al	Emergencias 1998; 10: 356-357	Madrid (ciudad)	3.029.734	6	24	2	33
Sí	Martín-Castro C et al	Med Clin (Barc) 1999; 113: 121-123	Granada	591.224	18	176	20	5,1
Sí	García-Carlos P et al	Datos no publicados. Autor como fuente	Islas Canarias	1.606.534	48	1061	17	11,6
		Población total = 24.967.936	M	1.466.952	20	158	24	10,1
		PCR-EH totales = 31.078	DEP	53.911	18	440	3	3,6

SEM: equipos de emergencia; PCR-EH: paradas cardíacas extrahospitalarias; SV: supervivencia; M: media; DEP: desviación estándar de la población; HEMS: helicóptero sanitario.

Supervivencia de la parada cardiorrespiratoria extrahospitalaria en Gipuzkoa: cuatro años de seguimiento

E. Uriarte Itzazelaia*, D. Alonso Moreno**, G. Odriozola Aranzábal***, I. Royo Gutiérrez, I. Chocarro Aguirre**, J. Alonso Jiménez-Bretón****

emergencias 2001;13:381-386

TABLA 2. Tasas de supervivencia de la PCR extrahospitalaria

Recuperación de circulación espontánea	123/1.248 (10%)
Supervivencia al alta hospitalaria	34/1.248 (2,72%)
Supervivencia al año del episodio de PCR	27/1.248 (2,16%)

Nota: En el denominador (1.248) se incluyen todos los pacientes encontrados inconscientes, en apnea y sin pulso, incluso aquellos que por diferentes motivos no eran candidatos de iniciar RCP.

44,6 / 100000 hab. y año

Supervivencia tras parada cardíaca extrahospitalaria en un hospital general

J. M.ª Carpintero Escudero[1], F. J. Ochoa Gómez[1], A. Villar Arias[2], J. I. Ruiz Azpiazu[2], L. Bragado Blas[2], E. Ramalle-Gómara[3]

emergencias 2002;14:118-123

RESUMEN

Objetivo: La supervivencia tras una parada cardíaca extrahospitalaria (PC) es baja. Se estudian las principales características y la supervivencia de las PC reanimadas, así como si la implantación de un Servicio de Emergencias extrahospitalario (SME) ha modificado estos resultados.
Métodos: Se presenta un estudio retrospectivo de todas las PC reanimadas durante los últimos siete años, en el Servicio de Urgencias de un hospital general de una pequeña Comunidad que, durante la mayor parte del estudio, no disponía de SME. La recogida de datos se realizó de la historia clínica y de una hoja de registro específica "estilo Utstein". Las variables analizadas fueron la edad, el sexo, el tiempo desde la PC hasta el inicio de la Resucitación Cardiopulmonar (RCP), la etiología estimada de PC (cardíaca o no), el ritmo electrocardiográfico (ECG) basal y la supervivencia tras la RCP.
Resultados: Se realizaron maniobras de RCP en 487 pacientes. Un 41% recuperó el pulso y el 20% fue dado de alta del hospital con vida, la mayoría (14%) con buena recuperación cerebral. Los supervivientes presentaron fibrilación ventricular (FV) como ritmo ECG basal más frecuente de PC, y un menor intervalo de tiempo entre la PC y el inicio de las maniobras de RCP.
Conclusiones: En nuestra serie la supervivencia tras PC extrahospitalaria concuerda con la bibliografía, siendo los factores relacionados con la misma el ritmo ECG basal de FV y el tiempo en iniciar la RCP. No se registraron diferencias estadísticamente significativas tras la implantación de un SME en la Comunidad.

46 / 10000 hab. y año

RCE 41%

Supervivencia 20%

Supervivencia en las paradas cardiorrespiratorias

pulmonar

a,c

LÍNICA HOSPITAL CLÍNICO SAN CARLOS. MADRID.

PONTIFICIA COMILLAS DE MADRID.

-305

RESUMEN

Objetivo: Describir el perfil epidemiológico de las paradas cardiorrespiratorias extrahospitalarias atendidas por el Servicio de Urgencias Médicas de Madrid 112 (SUMMA 112) y la supervivencia a la llegada al hospital.

Material y método: Se ha realizado un estudio observacional de cohorte clínico retrospectivo desde enero de 2002 a diciembre de 2003, sobre 582 paradas cardiorrespiratorias extrahospitalarias tratadas por las unidades de emergencia del SUMMA 112 de Madrid. Se estudiaron como variables independientes: fecha y hora de la parada; edad y sexo del paciente; ritmo inicial de la parada; si la causa era médica o traumática; si fue presenciada y quién la presenció; si se realizaron maniobras de resucitación cardiopulmonar (RCP) previa a la llegada de los servicios de emergencia; si estaba presente el equipo de emergencia cuando se produjo la parada; si se recuperó pulso y/o ritmo en algún momento. Como variable dependiente se consideró si el paciente llegó con vida al hospital.

Resultados: De los pacientes atendidos, llegaron con vida al hospital 148 lo que representa un 25,4%. Si la unidad de emergencia es la que presencia la PCR la supervivencia es significativamente mayor ($p < 0,001$) y alcanza al 43,8% frente al 21,9% cuando no está presente (RR 2,0; 95% CI 1,5-2,6). La mayor tasa de supervivencia (40,0%) es para la fibrilación ventricular/taquicardia ventricular (FV/TV) frente a otros ritmos (RR 1,9; 95% IC 1,5-2,5).

Conclusiones: Se atienden más PCR en hombres, con una mediana de edad de 65 años. Cuando está presente un equipo de emergencias en el momento de la PCR la supervivencia es el doble que cuando no lo está. La supervivencia es mayor cuando el ritmo inicial de la parada es FV/TV.

RCE 25,4%

Características generales de la parada cardiaca extrahospitalaria registrada por un servicio de emergencias médicas

JUAN B. LÓPEZ-MESSA[1], JOSÉ I. ALONSO-FERNÁNDEZ[1], JESÚS M. ANDRÉS-DE LLANO[2], JOSÉ R. GARMENDIA-LEIZA[2], JULIO ARDURA-FERNÁNDEZ[2], FLOR DE CASTRO-RODRÍGUEZ[3], JUAN M. GIL-GONZÁLEZ[3]

Emergencias 2012;24:28-34

Ritmo circadiano y variaciones temporales en el paro cardiaco súbito extrahospitalario

J.B. López-Messa[a,*], J.I. Alonso-Fernández[a], J.M. Andrés-de Llano[b], J.R. Garmendia-Leiza[b], J. Ardura-Fernández[b], F. de Castro-Rodríguez[c] y J.M. Gil-González[c]

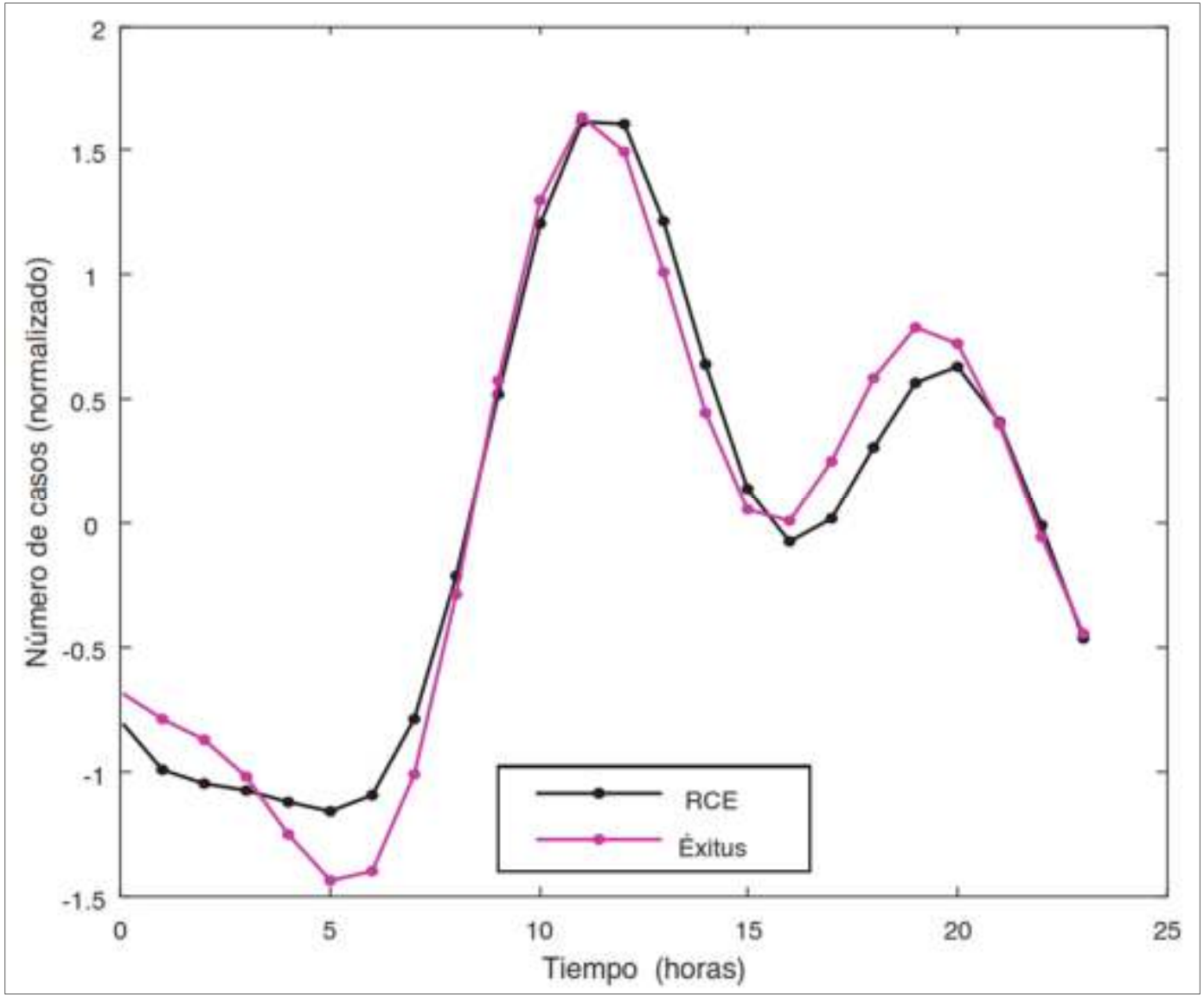
Med Intensiva 2012; 36: 406-9

Tabla 1. Características generales de todos los pacientes y análisis comparativo según el objetivo primario

Variables	Grupo estudiado n = 1.286	RCE n = 285 (22,2%)	Fallecimientos n = 1.001 (77,8%)	p
Edad en años [mediana (RIC)]	73,0 (21,0)	70,0 (23,0)	73,0 (21,0)	< 0,01
Sexo hombre [n (%)]	855 (66,5)	202 (70,9)	653 (65,2)	0,08
Lugar de la parada [n (%)]				< 0,001
Hogar	928 (72,2)	161 (17,3)	767 (82,7)	
Lugar público	274 (21,3)	86 (31,4)	188 (68,6)	
Centro sanitario de AP	84 (6,5)	38 (45,2)	46 (54,8)	
Testigo que alerta [n (%)]				< 0,001
Familiar-conviviente	632 (49,1)	109 (17,2)	523 (82,8)	
Transeúnte	406 (31,6)	103 (25,4)	303 (74,6)	
Personal AP	202 (15,7)	64 (31,7)	138 (68,3)	
Fuerzas de seguridad	33 (2,6)	7 (21,2)	26 (78,8)	
Otros	13 (1,0)	2 (15,4)	11 (84,6)	
Ritmo desfibrilable [n (%)]	197 (15,3)	92 (32,3)	105 (10,5)	< 0,0001
Periodo horario [n (%)]				0,16
0 – 8 h	292 (22,7)	54 (18,5)	238 (81,5)	
8 – 16 h	587 (45,7)	142 (24,2)	445 (75,8)	
16 – 24 h	407 (31,6)	89 (21,9)	318 (78,1)	
Intervalo alerta 112-atención inicial en minutos [mediana (RIC)]	11,7 (11,8)	12,2 (14,1)	11,7 (11,1)	0,28
Intervalo despacho SEM-atención inicial en minutos [mediana (RIC)]	8,0 (9,0)	8,0 (9,0)	9,0 (8,0)	0,49

RIC: rango intercuartílico. AP: atención primaria.

Incidencia: 34 / 100000 hab. y año


2
1.5
1
0.5
0
-0.5
-1
-1.5
0
5
10
15
20
25
Número de casos (normalizado)
Tiempo (horas)
RCE
Éxitus

Factores asociados a la mortalidad extrahospitalaria de las paradas cardiorrespiratorias atendidas por unidades de soporte vital básico en el País Vasco

Sendoa Ballesteros-Peña[a,*], Luís C. Abecia-Inchaurregui[b] y Enrique Echevarría-Orella[c]

Rev Esp Cardiol. 2012. http://dx.doi.org/10.1016/j.recesp.2012.09.016

Intentos de RCP
n = 1.050

Retorno de
circulación espontánea
n = 165

Consejo Español

OHSCAR
Out-of-Hospital Spanish Cardiac Arrest Registry

Dificultades:

- Variabilidad
- Validez

Resuscitation 82 (2011) 965–966

Contents lists available at ScienceDirect

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Editorial

A prize worth the effort: A common European registry of out-of-hospital cardiac arrest

Douglas Chamberlain*
25 Woodland Drive, Hove BN3 6DH, United Kingdom

Objetivos de un Registro de PCEH:

- Epidemiológico
- Evaluar cambios con la aplicación de las Guías
- Comparar la efectividad y eficiencia de diversos sistemas

Barreras:

- Calidad de la recogida de datos
- Dificultad de unificar y simplificar los datos recogidos
- Coordinación SEM con Hospital
- Variaciones de Definición (Utstein)

Regional Variation in Out-of-Hospital Cardiac Arrest Incidence and Outcome

JAMA. 2008;300(12):1423-1431

Table 3. Incidence and Outcome of EMS-Assessed Out-of-Hospital Cardiac Arrest[a]

	Alabama (n = 715)	Dallas (n = 2462)	Iowa (n = 1028)	Ottawa (n = 2965)	Pittsburgh (n = 1217)	Portland (n = 1320)	Seattle (n = 2349)	Toronto (n = 5155)	Vancouver (n = 2373)	Overall (n = 19 584)
Adjusted incidence rate per 100 000	106.7	159.0	93.1	71.8	105.1	77.5	144.0	96.8	75.9	95.0
Adjusted mortality rate per 100 000	103.3	153.2	86.1	68.9	101.1	71.4	131.8	93.5	70.0	90.0
Case-fatality rate, %	96.9	96.0	92.7	96.0	96.3	92.0	91.8	96.4	92.1	94.7
Survival to discharge, %	1.1	2.4	6.1	3.3	3.3	6.5	8.1	3.2	6.7	4.4
Vital status data missing, %	2.0	1.5	1.2	0.7	0.3	1.5	0.1	0.4	1.2	0.8

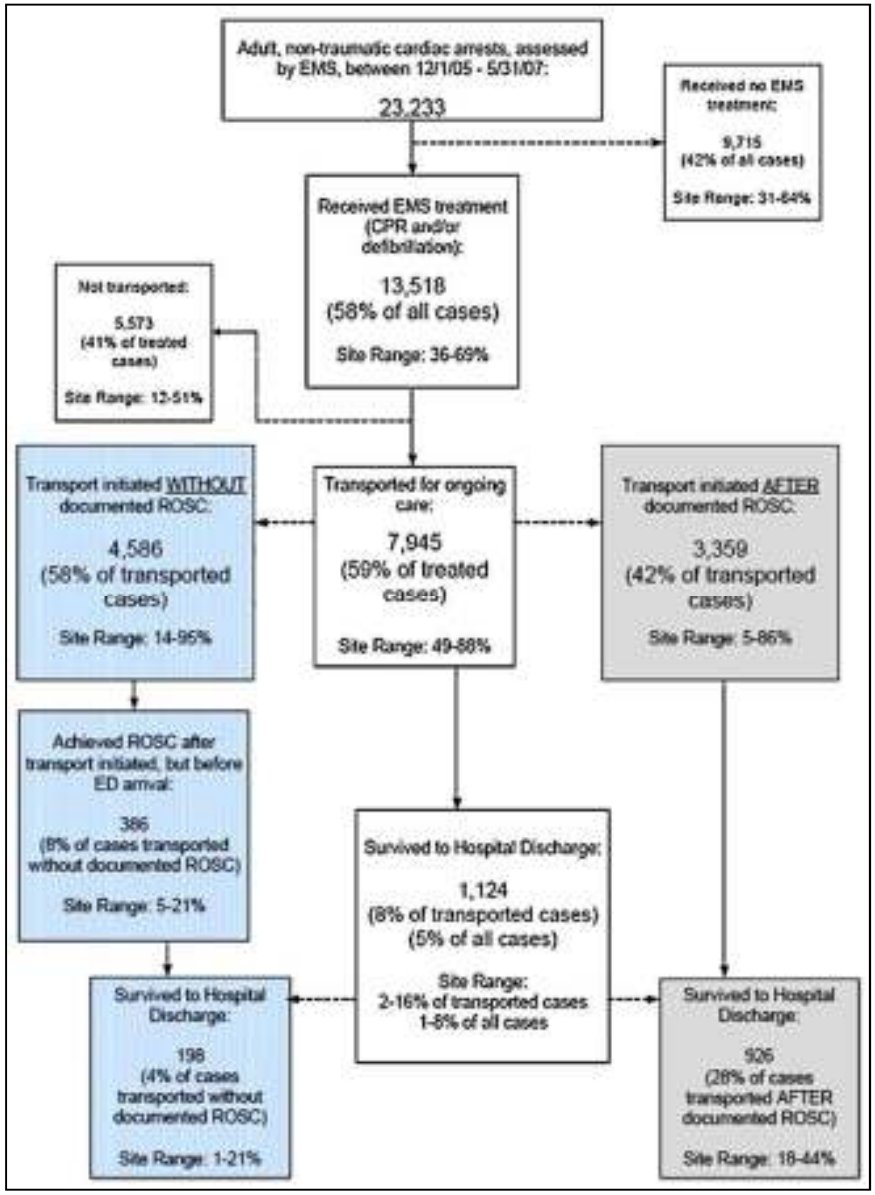
Abbreviation: EMS, emergency medical services.

[a] Milwaukee was excluded from this analysis because of self-reported incomplete data on patients in whom resuscitation was not attempted. All rates were unequal across sites at $P < .001$.

Variation in out-of-hospital cardiac arrest resuscitation and transport practices in the Resuscitation Outcomes Consortium: ROC Epistry–Cardiac Arrest☆

Dana Zive[a,*], Kent Koprowicz[b,c], Terri Schmidt[a,d], Ian Stiell[e], Gena Sears[b], Lois Van Ottingham[b], Ahamed Idris[f], Shannon Stephens[g], Mohamud Daya[a], the ROC Investigators

Resuscitation 82 (2011) 277–284

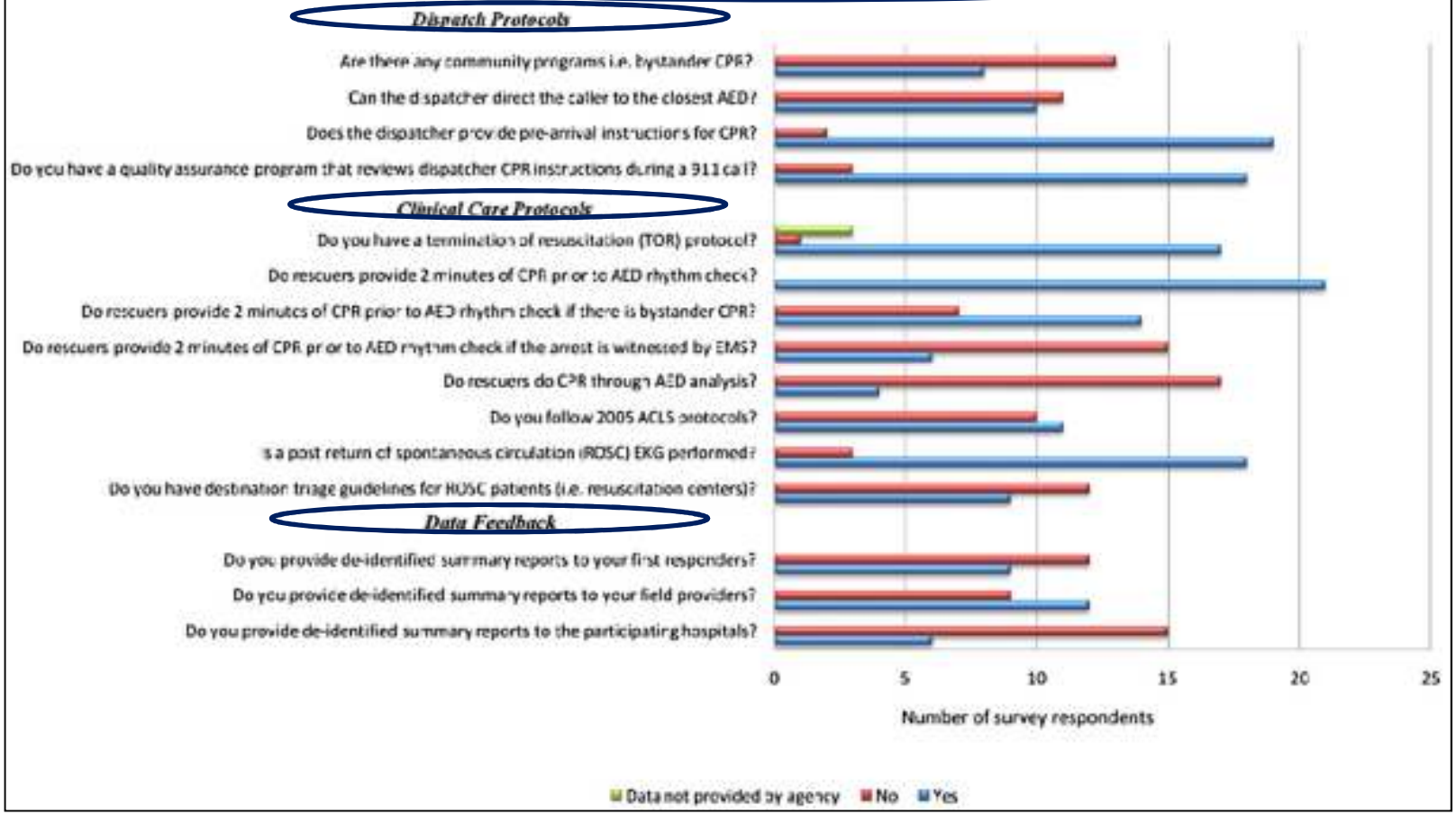


Practice variability among the EMS systems participating in Cardiac Arrest Registry to Enhance Survival (CARES)☆,☆☆

Prasanthi Govindarajan[a,*], Lisa Lin[b], Adam Landman[c], Jason T. McMullan[d], Bryan F. McNally[e], Allison J. Crouch[f], Comilla Sasson[g]

Resuscitation 83 (2012) 76–80

Practice variation in out of hospital management of cardiac arrest among surveyed EMS agencies



Validity of reported data in the Swedish Cardiac Arrest Register in selected parts in Sweden☆

A. Strömsöe[a,b,*], L. Svensson[c], Å.B. Axelsson[d], K. Göransson[e,f], L. Todorova[g], J. Herlitz[b,h]

Resuscitation (2013), http://dx.doi.org/10.1016/j.resuscitation.2012.12.026

Factors at resuscitation and survival. The data represent three counties prospectively/retrospectively (Västra Götaland, Skåne och Dalarna) in Sweden for the time period 2008–2010.

	Prospective $n = 2398$	Retrospective $n = 800$	Västra Götaland (2008–2010) $n = 494$	Skåne (2010) $n = 284$	Dalarna (2010) $n = 22$
Aetiology (cardiac)	66	55	60	51	55
Initial rhythm (%) (44/209)[a] ventricular fibrillation	26	29	25	35	22
Place (%) (0/0)[a] at home	66	69	66	74	68
Witnessed status (%) (32/89)[a]					
Crew witnessed	18	21	34	23	33
Bystander witnessed	54	50	66	77	67
Non-witnessed	28	29	26	33	41
Bystander CPR (%) (8/6)[a]	65[c]	60[c]	60	60	53
Delay (median/min)					
Occurrence of OHCA-call	3	0	2	0	0
Call-EMS arrival (1908/552)[b]	9	9	10	8	12
Call-first defibrillation	14	13	12	13	[a]
Survival (%)					
Hospitalised alive (71/42)[a]	23.6	20.7	22	18	18
Alive at one month (72/44)[a]	9.2[c]	11.9[c]	12	12	9

[a] Number of patients with missing information.
[b] Number of patients with information (crew-witnessed cases excluded).
[c] p-Value denoted as significant if <0.05.

Quality management in resuscitation – Towards a European Cardiac Arrest Registry (EuReCa)☆

J.T. Gräsner[a,*], J. Herlitz[b], R.W. Koster[c], F. Rosell-Ortiz[d], L. Stamatakis[e], L. Bossaert[f]

Resucitation 2011;82(8):989-94

Reported year	Belgium 2009	Germany 2008	Andalusia 2008	North-Holland 2008	Sweden 2008
Total population in the reported Region (Millions)	10.7	4.5	5.6	2.4	9
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

Reported year	Belgium 2009	Germany 2008	Andalusia 2008	North-Holland 2008	Sweden 2008
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

Incidencia: 19 – 53 / 100000 hab.
RCE: 20 – 30%
Alta Hospitalaria:9 - 15 %

Oportunidades

Consejo Español

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OHSCAR

Clinical Paper

Good outcome in every fourth resuscitation attempt is achievable—An Utstein template report from the Stavanger region☆

Thomas Werner Lindner[a,b,*], Eldar Søreide[a,c], Odd Bjarte Nilsen[d,e], Mathiesen Wenche Torunn[a], Hans Morten Lossius[c,f]

Resuscitation 2011;82(12):1508-13.

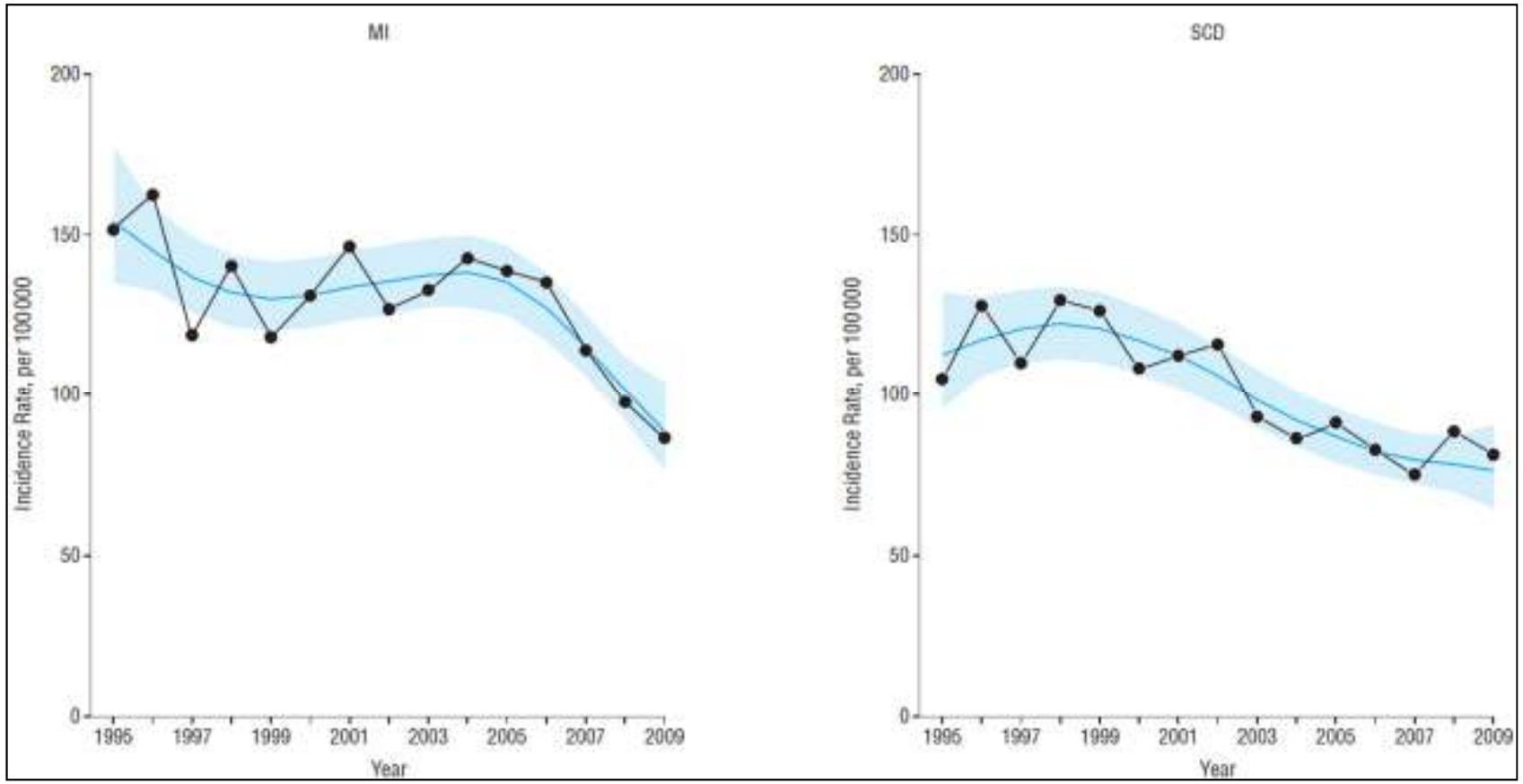
Comparisons of ROSC, survival to discharge and good cerebral outcome (CPC 1–2) rates in the two time periods (2000–2005 vs. 2006–2008)

	Time period 2001–2005	Time period 2006–2008	*p*-Value
All rhythms (*n*)	555	291	
ROSC (%) (*n*)	38% (211)	43% (126)	0.136
Survival to discharge (%) (*n*)	18% (99)	25% (72)	0.018
CPC 1-2 (%) in all survivors (*n*)	84% (83)	97% (70)	0.010
1 Year survival (%) (*n*)	14% (75)	22% (64)	0.040
Shockable rhythms (*n*)	237	136	
ROSC (%) (*n*)	65% (155)	66% (90)	0.879
Survival to discharge (%) (*n*)	37% (87)	48% (65)	0.036
CPC 1–2 (%) in survivors of shockable rhythms (*n*)	87% (76)	99% (64)	0.041
1 Year survival (%) (*n*)	29% (69)	43% (60)	0.005

Myocardial Infarction and Sudden Cardiac Death in Olmsted County, Minnesota, Before and After Smoke-Free Workplace Laws

Richard D. Hurt, MD; Susan A. Weston, MS; Jon O. Ebbert, MD; Sheila M. McNallan, MPH; Ivana T. Croghan, PhD; Darrell R. Schroeder, MS; Véronique L. Roger, MD, MPH

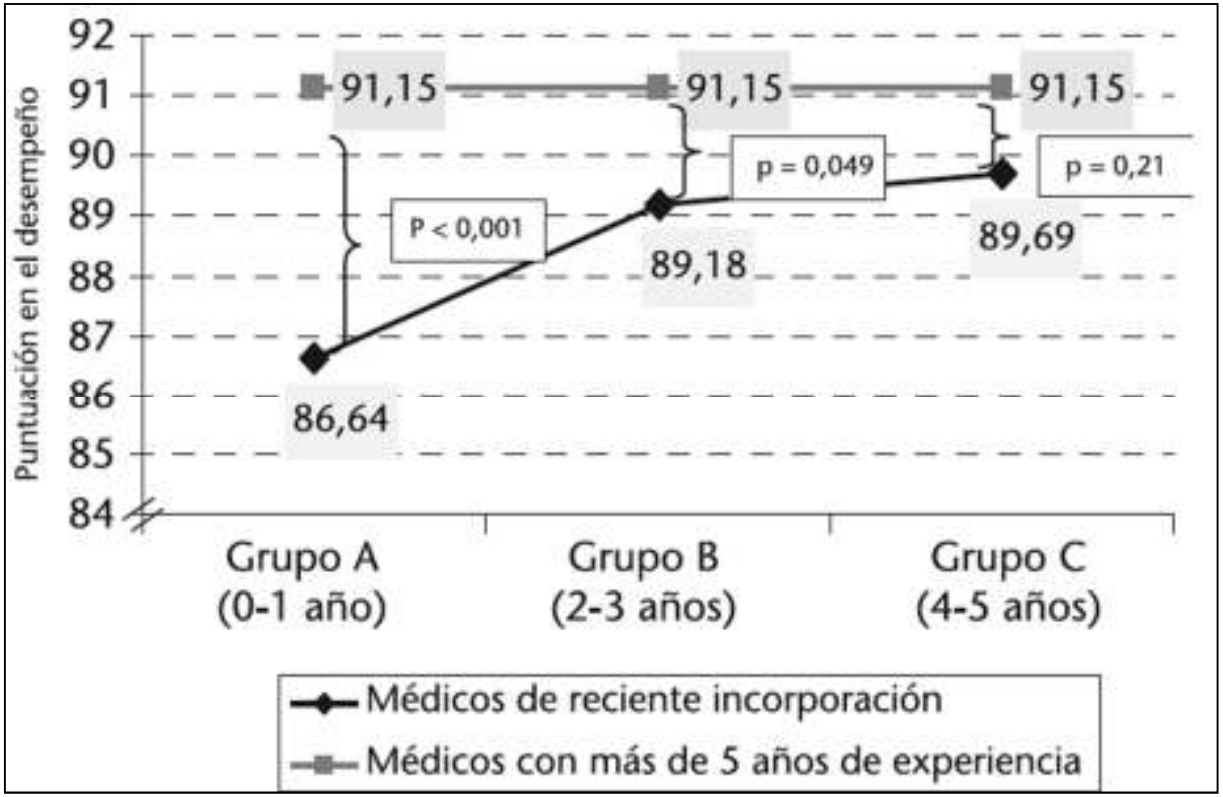
Arch Intern Med. 2012;172(21):1635-1641



La calidad asistencial y la competencia médica en la práctica clínica de emergencias, evaluada a través de un sistema de valoración del desempeño en la escena

María Isabel CASADO FLÓREZ, Ervigio CORRAL TORRES, María José GARCÍA OCHOA, Ramón DE ELÍAS FERNÁNDEZ

Emergencias 2012; 24: 84-90

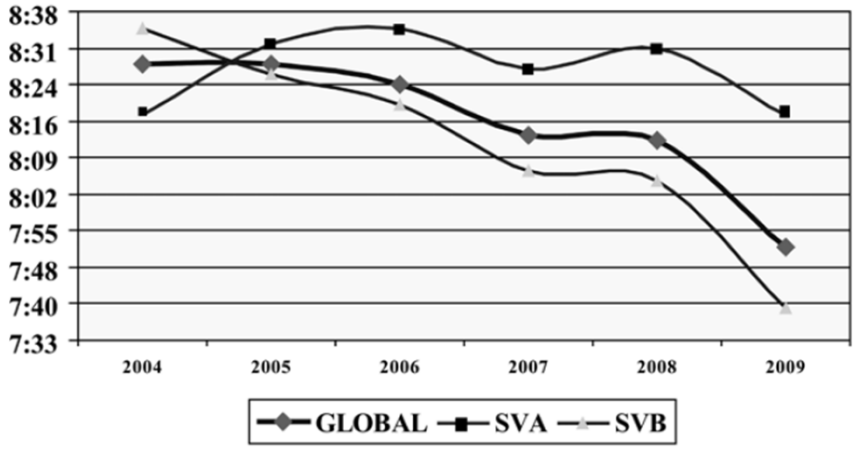


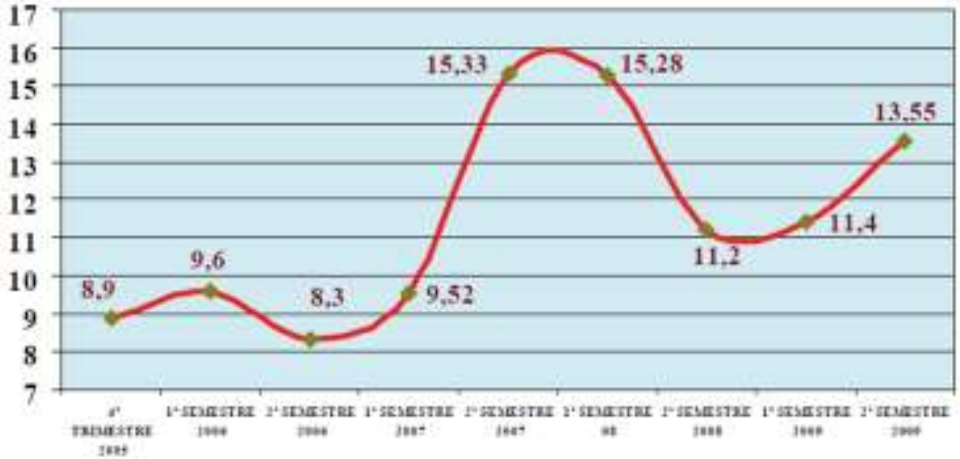
Gestión de calidad del Servicio de Emergencias SAMUR-Protección Civil

Quality management of the SAMUR-Civil Protection Emergency Unit

E. Corral, I. Casado, R.M. Suárez

An. Sist. Sanit. Navar. 2010; 33 (Supl. 1): 107-121

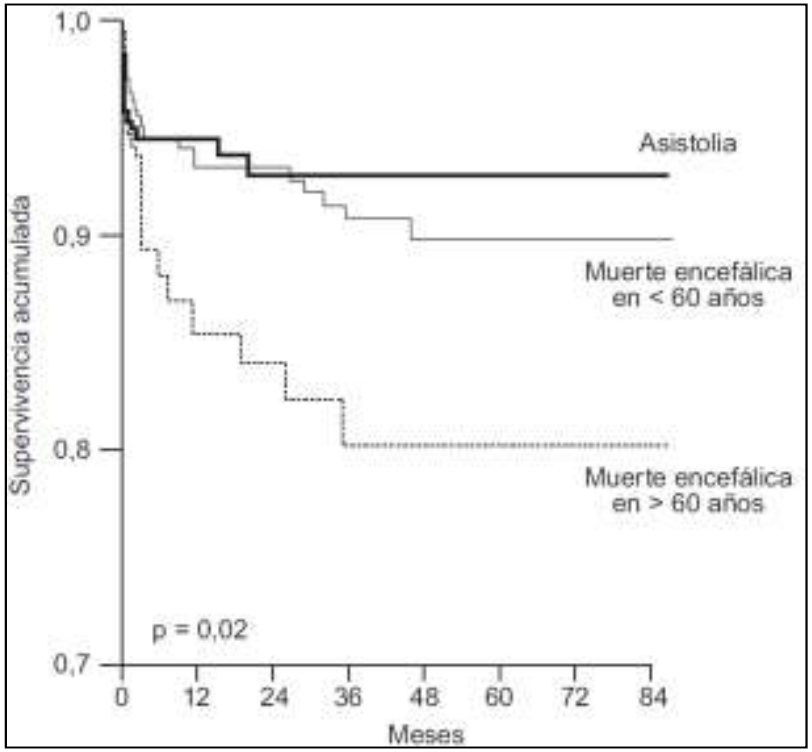


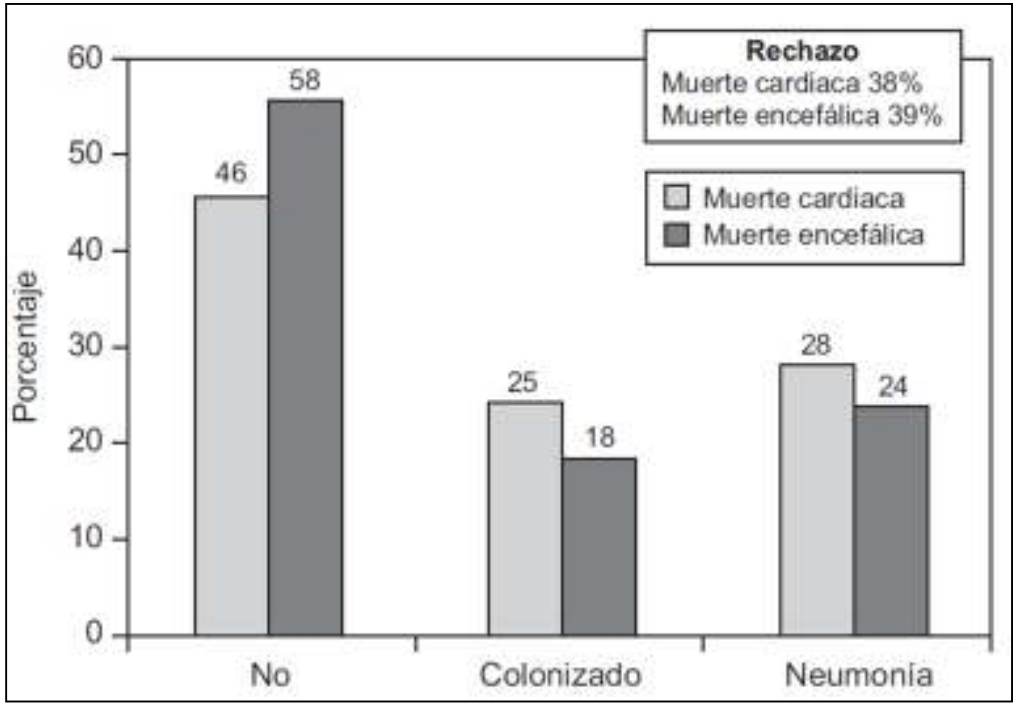


Donación tras la muerte cardíaca. Parada cardíaca en el mantenimiento del donante en muerte encefálica

F. del Río-Gallegos[a,*], J.L. Escalante-Cobo[b], J.R. Núñez-Peña[a] y E. Calvo-Manuel[c]

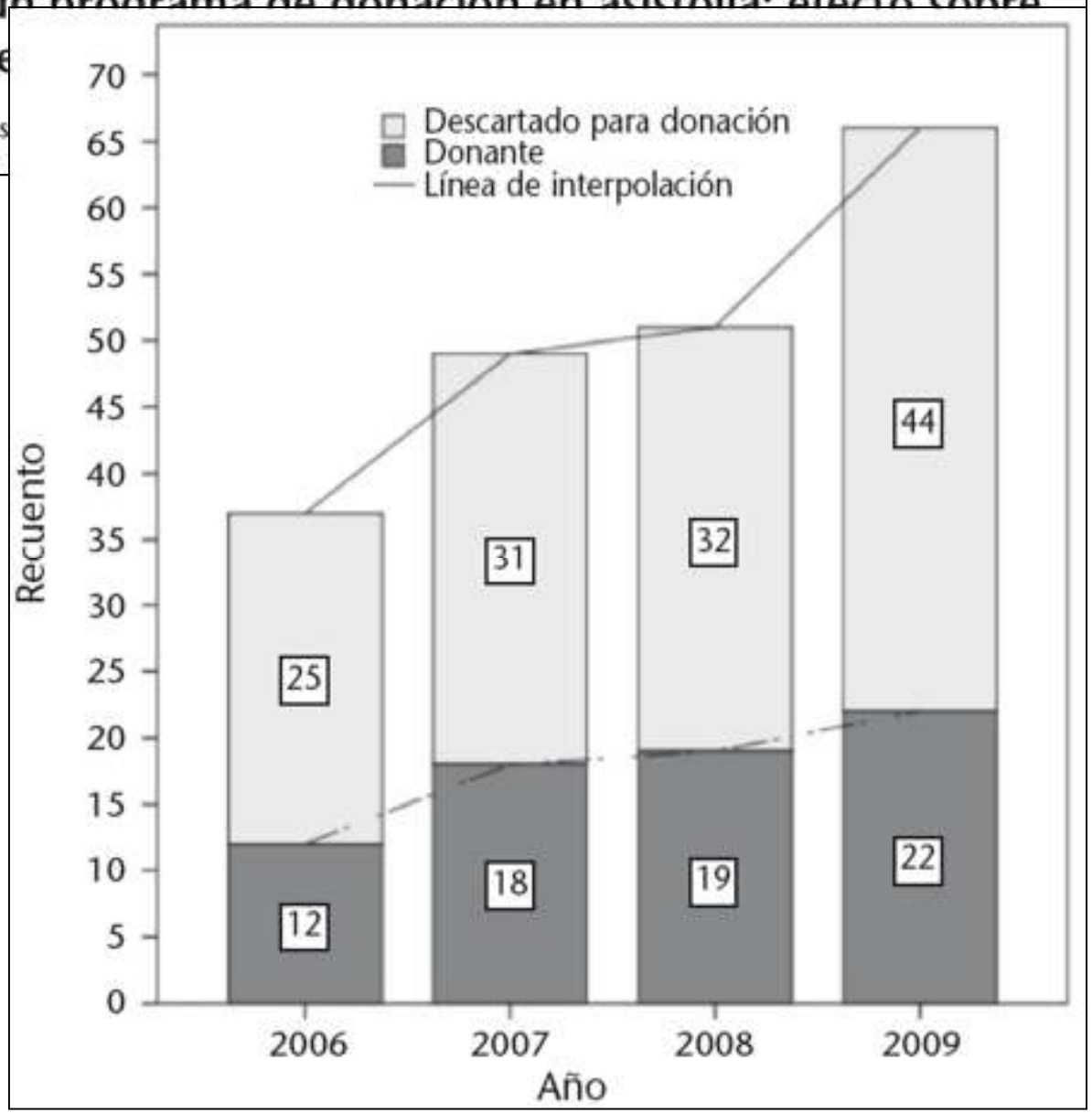
Med Intensiva. 2009;33(7):327–335





Utilización de un compresor torácico mecánico (LUCAS®) en un programa de donación en asistolia: efecto sobre la pe

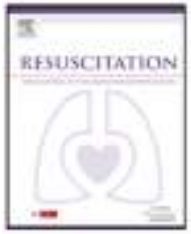
Frances
Àngels



Kidney transplant function using organs from non-heart-beating donors maintained by mechanical chest compressions☆

Alonso Mateos-Rodríguez[a,*], Luis Pardillos-Ferrer[a], José María Navalpotro-Pascual[a], Carlos Barba-Alonso[a], María Eugenia Martin-Maldonado[a], Amado Andrés-Belmonte[b]

Resuscitation 81 (2010) 904–907



Description of the cases studied.

	Manual chest compressions (n = 20 patients)	Mechanical chest compressions (n = 28 patients)	
Age ± SD (years)	41 ± 9	39 ± 10	p = 0.38
Males (%)	85%	95%	
Time to arrival on scene of cardiopulmonary arrest (min)	15 ± 7	12 ± 8	p = 0.19
Cardiac arrest alert to hospital arrival interval (min)	99 ± 24	97 ± 53	p = 0.89
Kidneys transplanted (% versus potential number)	33 (82%)	39 (70%)	p = 0.23
Primary graft failure in recipient	3 (9.1%)	2 (5.1%)	p = 0.50

Quality management in resuscitation – Towards a European Cardiac Arrest Registry (EuReCa)☆

J.T. Gräsner[a,*], J. Herlitz[b], R.W. Koster[c], F. Rosell-Ortiz[d], L. Stamatakis[e], L. Bossaert[f]

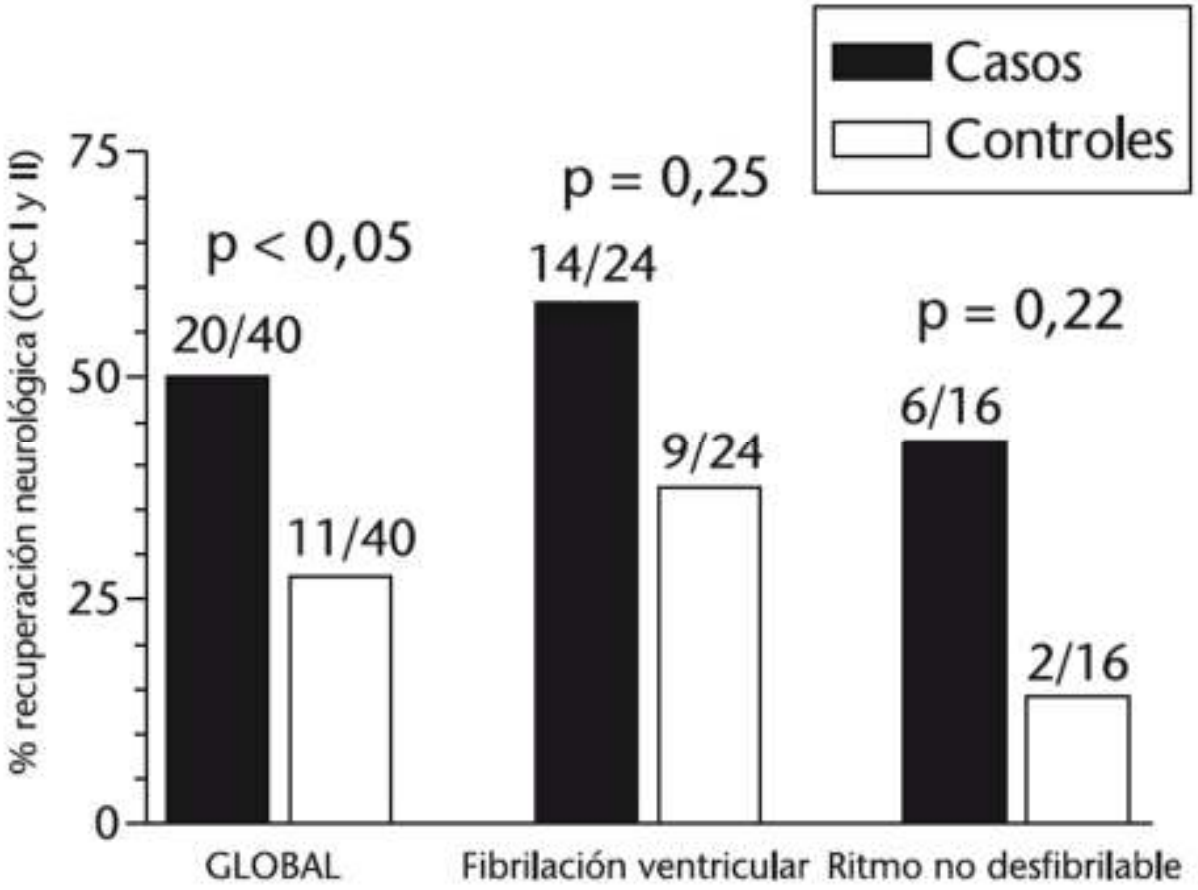
Resuscitation 82 (2011) 989–994

Conclusion: Five countries agreed to participate in an attempt to build up a common European Registry for out-of-hospital cardiac arrest. These regional/national registries show a marked difference in terms of structure and complexity. A marked variation was found between countries in the number of reported resuscitation attempts, the number of patients brought to hospital alive, and the proportion that received bystander CPR. At present, we are unable to explain the reason for the variability but our first findings could be a 'wake-up-call' for building up a high quality registry that could provide answers to this and other key questions in relation to the management of out-of-hospital cardiac arrest.

La aplicación de hipotermia moderada tras la reanimación cardiaca iniciada en el medio extrahospitalario puede incrementar la supervivencia sin deterioro neurológico. Estudio de casos y controles

Ervigio CORRAL TORRES[1], Francisco FERNÁNDEZ AVILÉS[2], Esteban LÓPEZ DE SA[1],

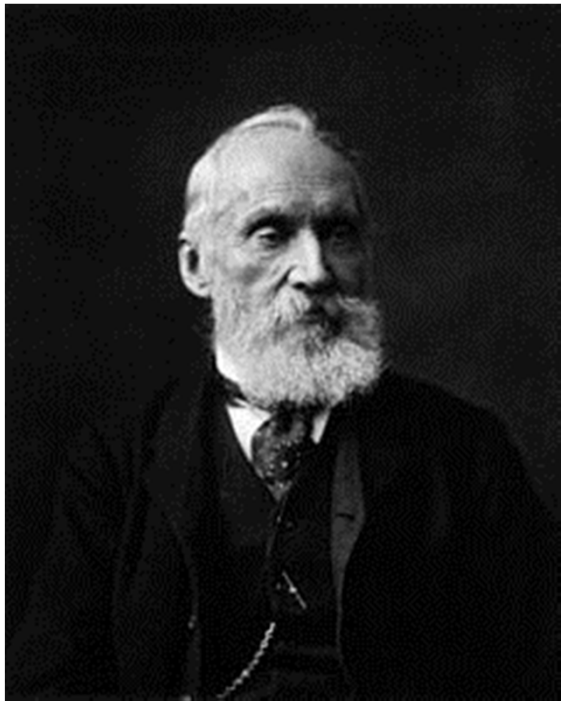
Emergencias 2012; 24: 7-12

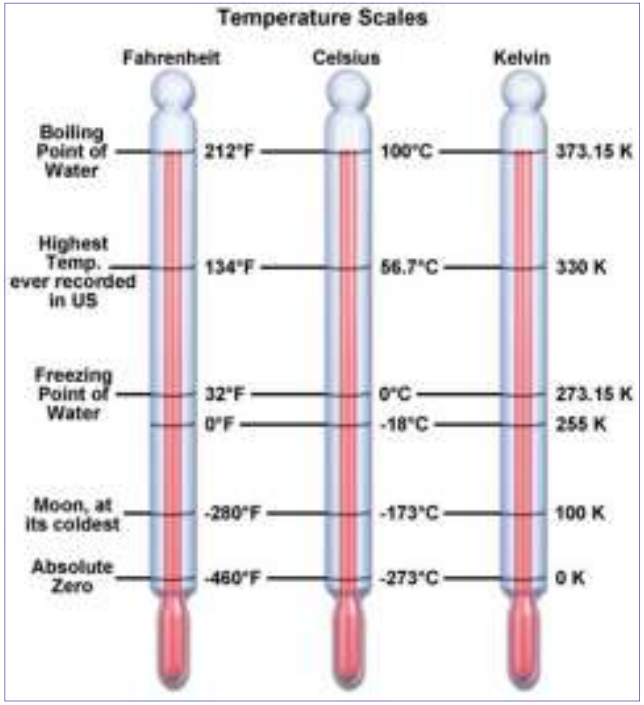


¿Es Necesario un Registro Nacional?

- Conocimiento Epidemiología
- Evaluación Comparativa
- Creación Estructura de Investigación

WT Kelvin





“If you cannot measure it, you cannot improve it”

Cardiac Arrest in France: Why a national register?

Gueuginaud PY, Bertrand C, Savary D, Hubert H.
Presse Med 2011; 40: 634-8

BMJ Group

Lyon RM. *BMJ* 2011;342:d478

OUT OF HOSPITAL CARDIAC ARREST

Time for a national register

Kmietowicz highlights the disparity in survival from cancer between the United Kingdom and other countries.[1] Cancer survival is closely studied, with large investment from government bodies and charities to ensure accurate determination of incidence and survival to drive improvement. Cancer is responsible for around a quarter of deaths in Europeans aged 45-65.[2]

Out of hospital cardiac arrest is common, occurring in around 66 per 100 000 Europeans every year,[3] with cardiovascular disease accounting for 41% of all European deaths.[2] The exact incidence of out of hospital cardiac arrest is unknown because few countries collect and report data accurately, despite the availability of the Utstein template, an internationally agreed data collection set.[4]

Survival from out of hospital cardiac arrest remains poor, with rates varying from <1% to >20%[5] and disparity between and within countries.

Unlike cancer, survival from out of hospital cardiac arrest depends on only four key elements, the chain of survival: early recognition and summoning of help, early cardiopulmonary resuscitation, early defibrillation, and advanced post-resuscitation care. Each element can be improved locally to dramatically improve survival.[6]

Establishing national registries for out of hospital cardiac arrests, reporting survival data, and improving the local links in the chain of survival would result in many more lives being saved.

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richardlyon@doctors.org.uk

Competing interests: None declared.

1 Kmietowicz Z. Cancer survival in the UK and Denmark lags behind Australia. *BMJ* 2010;341:c7372. (22 December.)
2 European Public Health Alliance. What are the leading causes of death in the EU? www.epha.org/a/2352.
3 Atwood C, Eisenberg M, Herlitz J, Rea T. Incidence of EMS-treated out-of-hospital cardiac arrest in Europe. *Resuscitation* 2005;67:75-80.
4 Chamberlain D, Eisenberg M. The Utstein cardiac arrest outcome reports. *Resuscitation* 2009;80:288-9.
5 Nichol G, Thomas E, Callaway C. Regional variation in out-of- hospital cardiac arrest incidence and outcome. *JAMA* 2008;300:1423-31.
6 Lund-Kordahl I, Olasveengen TM, Lorem T, Samdal M, Wik L, Sunde K. Improving outcome after out-of-hospital cardiac arrest by strengthening weak links of the local Chain of Survival: quality of advanced life support and post-resuscitation care. *Resuscitation* 2010;81:488-02.

Cite this as: *BMJ* 2011;342:d478

¿Tenemos Capacidad de llevarlo a cabo?

SEM. Elemento clave en la atención a la PCR-EH

FORWARD
BARACK OBAMA 2012