

# MORTALIDAD EN LOS SERVICIOS DE URGENCIAS PEDIÁTRICOS EUROPEOS

Estudio prospectivo, multicéntrico,  
internacional

*Eduarne López y Grupo de Estudio de la Mortalidad de la Sociedad Española de Urgencias de Pediatría,  
Pediatric Emergency Departments European Mortality Study group (PEDEMS) from REPEM*



# Conflicto de interés

Los autores declaran no tener ningún conflicto de interés

# Justificación

Analizar las causas de muerte en los servicios de urgencias pediátricos (SUP) y el tratamiento de estos niños en entornos prehospitalario y hospitalario puede ayudar al desarrollo de buenas prácticas de manejo y prevención.

# Objetivo

- Identificar las **causas de fallecimiento** en los servicios de urgencias pediátricos europeos
- Analizar el **manejo** de estos pacientes en los ámbitos **hospitalario y pre-hospitalario**

# Método

- RISEUP-SPERG.
- Fase I: retrospectiva. 2008-2012. 18 SUP españoles.

Original article 1

## Mortality in Spanish pediatric emergency departments: a 5-year multicenter survey

Eduarne Lopez, June Udaondo, Mikel Olabari, Lorea Martínez-Indart, Javier Benito and Santiago Mintegi; on behalf of the Mortality Group of RISEUP-SPERG (Red de Investigación de la Sociedad Española de Urgencias de Pediatría-Spanish Pediatric Emergency Research Group)

**Background** Analysis of the causes of death in children in the pediatric emergency department (ED) may aid the development of management and prevention practices.

**Objective** To identify the causes of death in Spanish pediatric EDs and to analyze the management of these children in the prehospital and hospital settings.

**Methods** This was a retrospective descriptive multicenter survey including all patients whose death was certified in 18 Spanish pediatric EDs between 2008 and 2013.

**Results** During the study period, 3 542 426 episodes were registered in the EDs. Of these, 54 patients died (mortality rate: 1.5/100 000 visits). Data of 53 patients are analyzed (male 36, 68%, 31 younger than 2 years old and 43.3% nonpreviously healthy children). The main causes of death were related to their previous illnesses (24.5%), sudden infant death syndrome (20.7%), and trauma (18.9%). Prehospital cardiopulmonary resuscitation (CPR)

was performed in 31 patients, and exclusively by health workers in 19 patients. In 35 patients, the parents witnessed the event and seven began CPR. Thirty children were transferred to the pediatric EDs by medical transport (56.6%) and all of them received prehospital CPR (vs. one patient out of 23 arrived in a nonmedical transportation). In 37 patients, CPR was performed in the pediatric EDs. Overall, CPR lasted 40 ± 23 min (range, 10–120 min). CPR was not performed in seven patients at any time.

**Conclusion** The main causes of death in Spanish pediatric EDs are related to previous illnesses, sudden infant death syndrome, and nonintentional lesions. Several actions have to be considered to improve the quality of care of these children in prehospital and emergency settings. *European Journal of Emergency Medicine* 00:000–000 Copyright © 2015 Wolters Kluwer Health, Inc. All rights reserved.

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**Keywords:** child mortality, emergency department, nonintentional lesions, prehospital cardiopulmonary resuscitation, sudden infant death syndrome

Pediatric Emergency Department, Cruces University Hospital, University of the Basque Country, Basque Country, Spain

Correspondence to Santiago Mintegi, MD, PhD, Pediatric Emergency Department, Hospital Universitario Cruces, Plaza de Cruces s/n, 48903 Barakaldo, Spain  
Tel: +34 948 006 463; fax: +34 948 006 076;  
email: santiago.mintegi@osakidetza.euzes

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### Introduction

The presentation of children and adolescents to the pediatric emergency departments (EDs) has increased in recent years in developed countries [1–3]. This is a universal increase irrespective of hospital type and the circumstances of the community where it is located [2,4,5].

Most of these children do well, presentation of critically ill or injured children being very uncommon in the pediatric EDs of industrialized countries. The death of a child in an ED is a rare occurrence, but it has a significant impact on the family and staff involved [6]. The death of a child is one of the hardest situations for pediatric EDs and other staff to deal with and requires skill, sympathy, and composure. There are many factors that need to be taken into account when considering the termination of resuscitation efforts and the management of the death of

Members of the Mortality Group of RISEUP-SPERG (Red de Investigación de la Sociedad Española de Urgencias de Pediatría Spanish Pediatric Emergency Research Group): Raúl Morales, MD<sup>1</sup>, Sofía Lara-Palacios, MD<sup>1</sup>, M. Paz Sordo de la Guardia, MD<sup>2</sup>, María Sánchez, MD<sup>3</sup>, Victoria Toranzo, MD, PhD<sup>4</sup>, Lorena Sánchez, MD<sup>5</sup>, Rafael Muñoz, MD<sup>6</sup>, Juan Carlos, MD<sup>7</sup>, Ana Jorik, MD<sup>8</sup>, Silvia Nizalá, MD<sup>9</sup>,<sup>10</sup>,<sup>11</sup>, Andrés González, MD<sup>12</sup>, Ramón Fernández, MD<sup>13</sup>, María Tabor, MD<sup>14</sup>, M. Elena Cabases, MD<sup>15</sup>, M. Inés María, MD<sup>16</sup>.<sup>1</sup> Pediatric Emergency Department, Santa Cruz i Sant Pau Hospital, Barcelona, Catalonia, Spain; <sup>2</sup> Pediatric Emergency Department, University Hospital of Las Palmas de Gran Canaria, University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Canary Islands, Spain; <sup>3</sup> Pediatric Emergency Department, Ntra. Sra. University Hospital, Autonomous University of Madrid, Madrid, Spain; <sup>4</sup> Pediatric Emergency Department, Rio Hortega University Hospital, University of Valladolid, Valladolid, Castile-León, Spain; <sup>5</sup> Emergency Department, Sant Joan de Déu-Barcelona Children's Hospital, Catalonia, Spain; <sup>6</sup> Pediatric Emergency Department, Parc Taulí University Hospital, University of Barcelona, Sabadell, Catalonia, Spain; <sup>7</sup> Pediatric Emergency Department, Gregorio Marañón General University Hospital, Complutense University of Madrid, Madrid, Spain; <sup>8</sup> Pediatric Emergency Department, Príncipe de Asturias University Hospital, University of Cantabria, Cantabria, Spain; <sup>9</sup> Pediatric Emergency Department, Laxido Hospital, Laxido, Galicia, Spain; <sup>10</sup> Pediatric Emergency Department, HM Torreladuna University Hospital, San Pablo – CEU University, Madrid, Spain; <sup>11</sup> Pediatric Emergency Department, HM San Carlos University Hospital, San Pablo – CEU University, Madrid, Spain; <sup>12</sup> Pediatric Emergency Department, Basurto University Hospital, University of the Basque Country, Bizkaia, Basque Country, Spain; <sup>13</sup> Pediatric Emergency Department, Caballeros University Hospital, University of Oviedo, Oviedo, Asturias, Spain; <sup>14</sup> Pediatric Emergency Department, Vigo University Hospital, University of Vigo, Vigo, Galicia, Spain; <sup>15</sup> Pediatric Emergency Department, Del Tago University Hospital, Alfonso X, University, Madrid, Spain; and <sup>16</sup> Pediatric Emergency Department, 12 de Octubre University Hospital, Complutense University of Madrid, Madrid, Spain.

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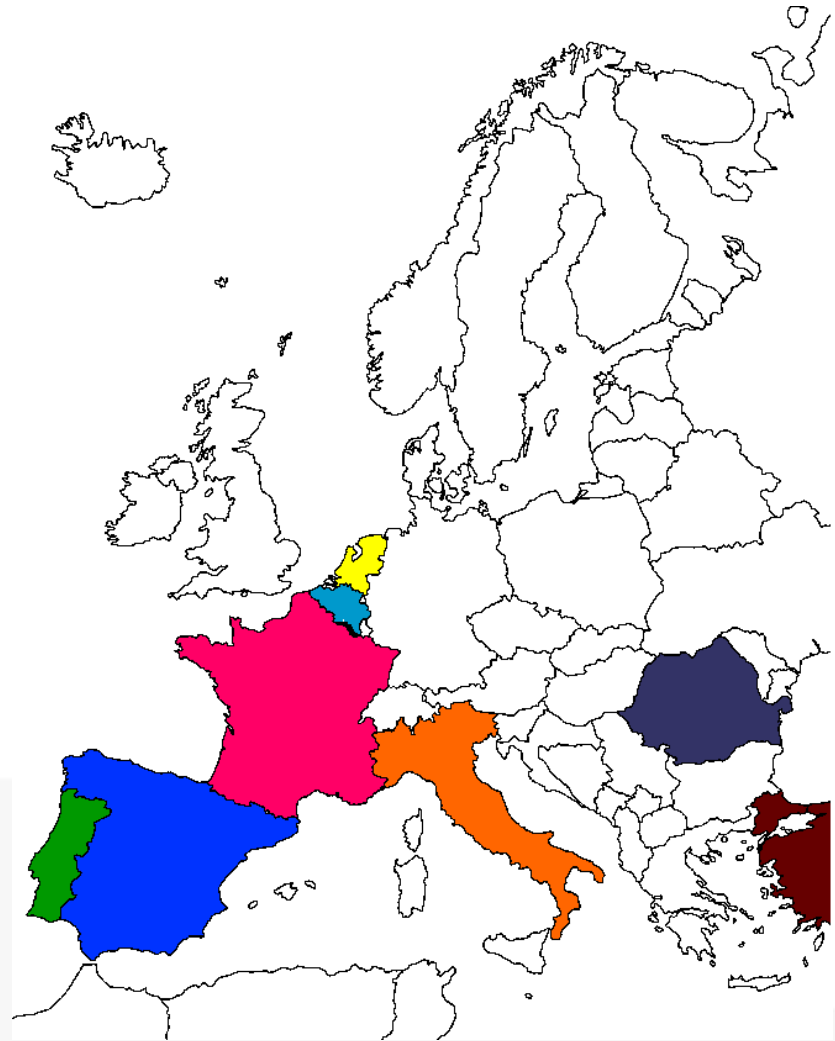
DOI: 10.1097/MEJ.0000000000000085

# Método

- **Fase II:** estudio prospectivo multicéntrico europeo.
  - **Criterios de inclusión:** pacientes cuya muerte fue certificada en los SUP.
  - Noviembre 2014 hasta Octubre 2017
  - Cuestionarios electrónicos

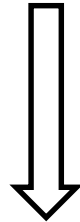
# Método

- 42 SUP hospitalarios de 8 países:
  - 34 españoles
  - Bélgica, Francia, Italia, Holanda, Portugal, Rumania, Turquía
  - 55% centros terciarios



# Resultados

Episodios en Urgencias: 3.921.413



Fallecidos: 75  
1,91/100.000 episodios (1,90-1,92)

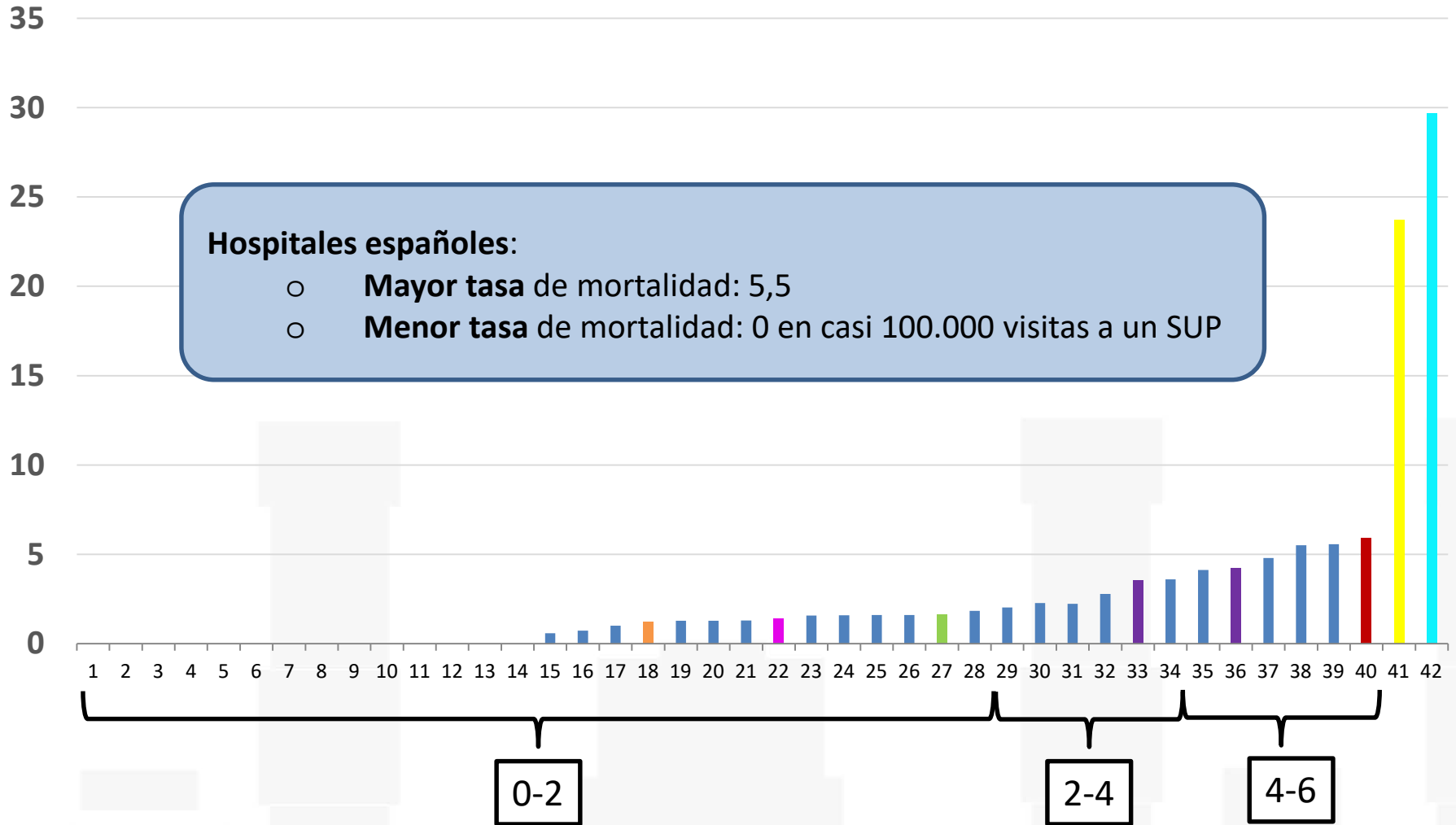


# Tasas de mortalidad

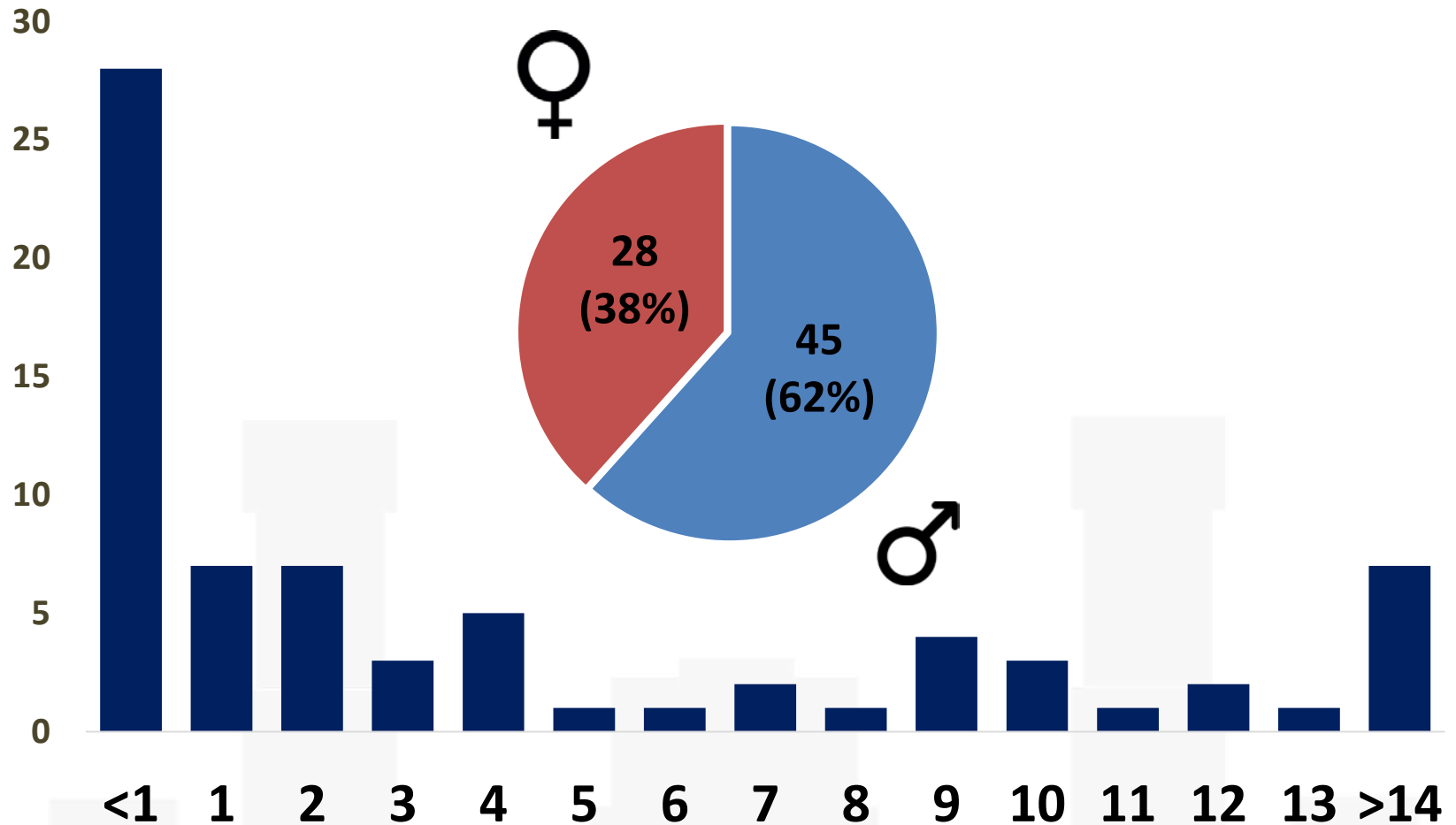
	Visitas a los SUP	Fallecidos	Tasa de mortalidad
<b>RiSEUP (34)</b>	3.200.754	52	<b>1,62 (1,61-1,63)</b>
<b>Otros europeos (8)</b>	720.659	23	<b>3,19 (3,15-3,23)</b>

Fase retrospectiva: 1.52 / 100.000 episodios (1,51-1,53)

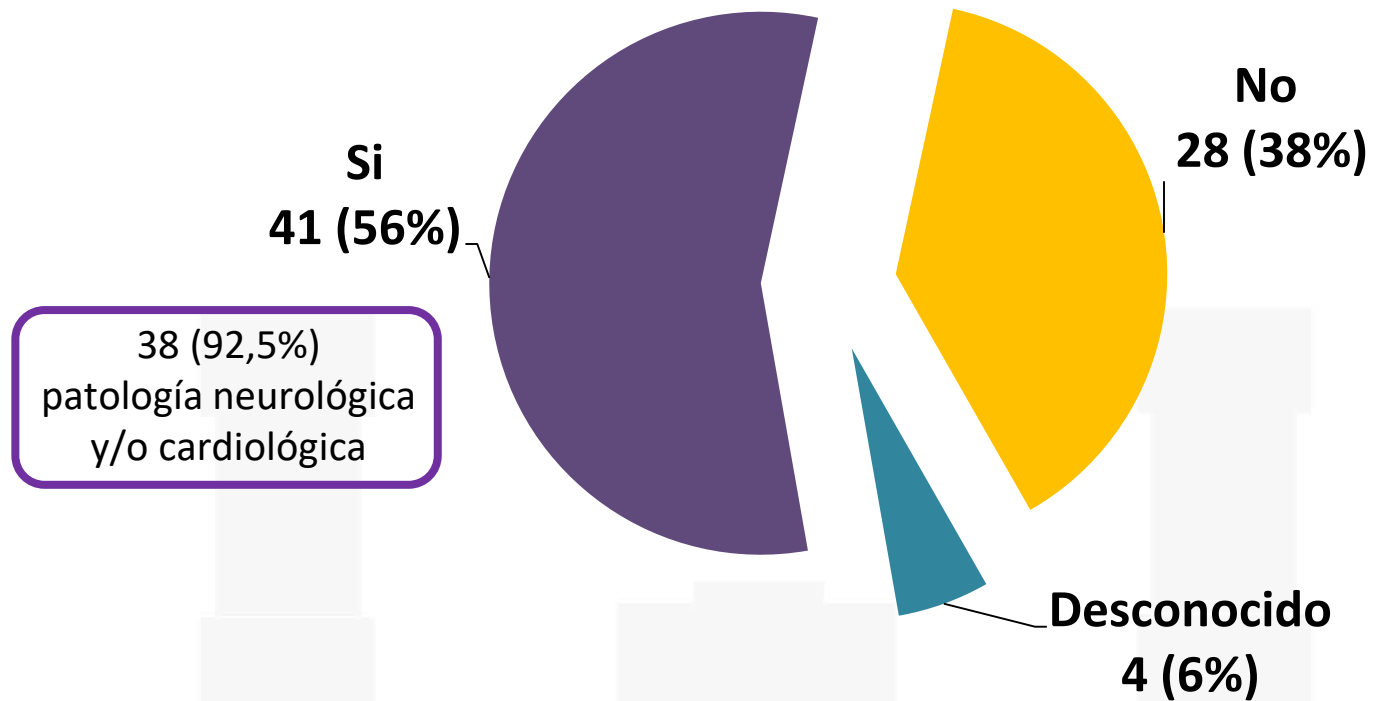
# Tasas de mortalidad



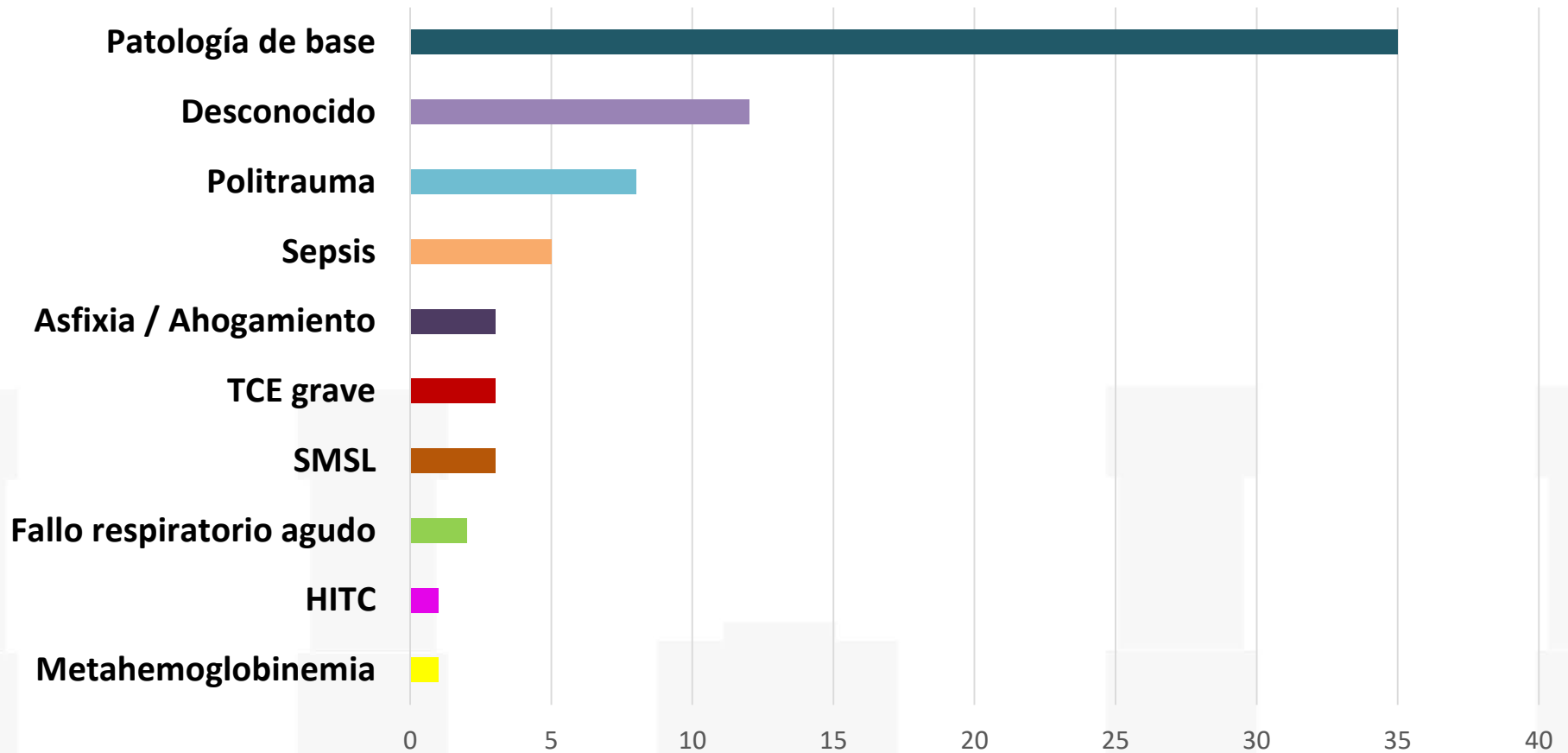
# Edad y sexo



# Patología previa



# Causas de muerte



# RCP general

- **RCP sí: 64 (87,7%)**

- Duración RCP

Mediana: 45 min

Amplitud intercuartil: 28 min

	RCP SI *	RCP NO
Patología previa	32 (78%)	9
Pacientes sanos	28 (100%)	0
Desconocidos	4	

\* p<0.01

Pre-hospital

Evento

RCP sí  
38

RCP no  
35

Hospital

RCP sí  
33

RCP no  
5

RCP sí  
26

RCP no  
9

# RCP prehospitalaria

	RCP prehospitalaria SI *	RCP prehospitalaria NO
Transporte sanitario	36	13
Transporte NO sanitario	2	22
Total	38	35

\*  $p < 0,01$

RCP prehospitalaria realizada exclusivamente por personal sanitario en 33 casos (87%)

En 50 casos solo los padres presentes en el momento de alarma y 4 (8%) iniciaron maniobras de RCP. Todo ellos siguiendo indicaciones del SEM a través del teléfono.



# Limitaciones

- Escasos hospitales europeos.
- Sistema organizativo diferente de los SUP
- Acceso limitado a informes de autopsias judiciales

# Conclusiones

- La certificación del fallecimiento en los SUP es infrecuente y en casi la mitad de los casos se relacionó con su patología de base.
- La actuación prehospitalaria muestra importantes diferencias relacionadas con la activación o no de los sistemas de emergencias prehospitalarios.
- La realización de maniobras de RCP es más frecuente en pacientes previamente sanos.

# ¿Qué era conocido?

- La muerte de un paciente en el SUP es un hecho excepcional

# ¿Qué aporta este estudio?

- Tipología del paciente pediátrico que fallece en Urgencias en Europa.
- Variabilidad del lugar de fallecimiento de los niños.
- Áreas de mejora sobre todo en la preparación de los padres y familiares para realizar maniobras de RCP.

# Hospitales colaboradores

- Puerta del Mar University Hospital. University of Cadiz, Cadiz, Spain
- HU Carlos Haya, Málaga, Spain
- Hospital Infantil Virgen del Rocío, Sevilla, Spain
- Barbastro Hospital, Huesca, Spain
- Cabueñes University Hospital. University of Oviedo, Gijón, Asturias, Spain
- Laredo Hospital, Laredo, Cantabria, Spain
- Rio Hortega University Hospital. University of Valladolid, Valladolid, Spain
- Santa Creu i Sant Pau Hospital, Barcelona, Catalonia, Spain
- Hospital Sant Joan de Déu, Barcelona, Spain
- Parc Tauli University Hospital. UAB. University of Barcelona, Sabadell, Spain
- Consorci Sanitari de Terrassa, Terrassa, Spain
- Althaia. Xarxa Assistencial Universitaria de Manresa, Barcelona, Catalonia, Spain
- Mutua Terrassa, Barcelona, Catalonia, Spain
- Quirón Dexeus University Hospital, Barcelona, Spain
- Vall d'Hebrón university Hospital, Barcelona, Spain
- Arnau de Vilanova de Lleida University Hospital, Lleida, Spain
- Hospital de La Seu d'Urgell, Lleida, Spain
- Cruces University Hospital. University of the Basque Country, Bilbao, Basque Country, Spain
- Basurto University Hospital. University of the Basque Country, Bilbao, Basque Country, Spain
- Zumarraga Hospital, Gipuzkoa, Basque Country, Spain
- Donostia University Hospital, Donostia-San Sebastian, Gipuzkoa, Basque Country, Spain
- University Hospital of Las Palmas de Gran Canaria. University of Las Palmas de Gran Canaria., Las Palmas, Spain
- Canary Islands University Hospital, La Laguna, Tenerife, Canary Islands, Spain
- Niño Jesus University Hospital. Autonomic University of Madrid, Madrid, Spain
- Gregorio Marañón General University Hospital. Complutense University of Madrid, Madrid, Spain
- HM Torrelodones University Hospital. San Pablo - CEU University, Madrid, Spain
- HM Monteprincipe University Hospital. San Pablo - CEU University, Madrid, Spain
- HM Sanchinarro University Hospital. San Pablo - CEU University, Madrid, Spain
- Del Tajo University Hospital. Alfonso X University, Madrid, Spain
- 12 de Octubre University Hospital. Autonomic University of Madrid, Madrid, Spain.
- Principe de Asturias University Hospital. Madrid, Spain
- Infanta Sofia Hospital, San Sebastian de los Reyes, Spain
- La Paz University Hospital, Universidad Autónoma de Madrid, Madrid, Spain
- Fundación Alcorcón University Hospital, Alcorcón, Madrid, Spain
- University Hospital Ghent, Ghent, Belgium
- Hôpital Necker Enfants Malades. Paris
- Ospedale dei bambini, Brescia, Italy
- Erasmus MC-Sophia's Childrens Hospital. Netherlands
- Hospital Pediátrico, CHUC , Coimbra, Portugal
- Emergency Clinical Hospital for Children Cluj Napoca, Romania
- Targu Mures Emergency Clinical County Hospital, Romania
- Ankara University School of medicine-Pediatric Emergency Department. Turkey

**Moltes gràcies**

**Eskerrik asko**

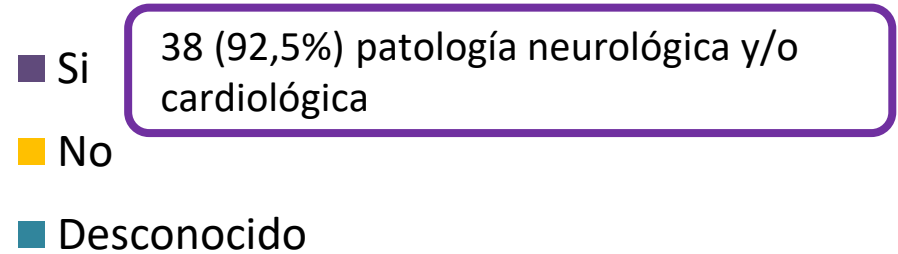
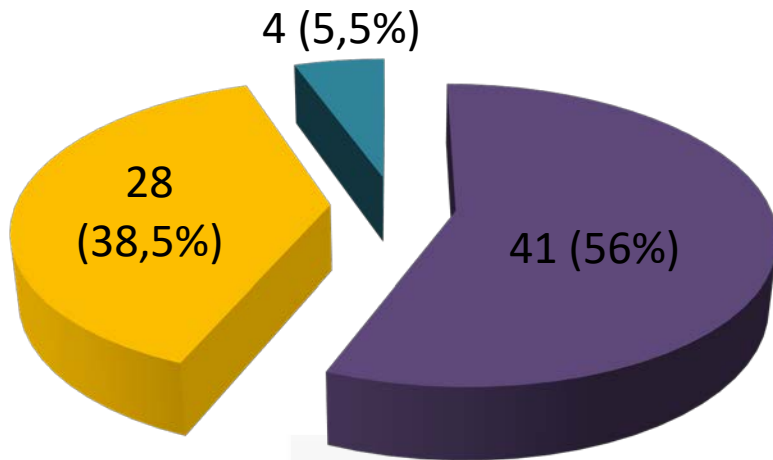
**Muchas gracias**

# Comparación tasas mortalidad

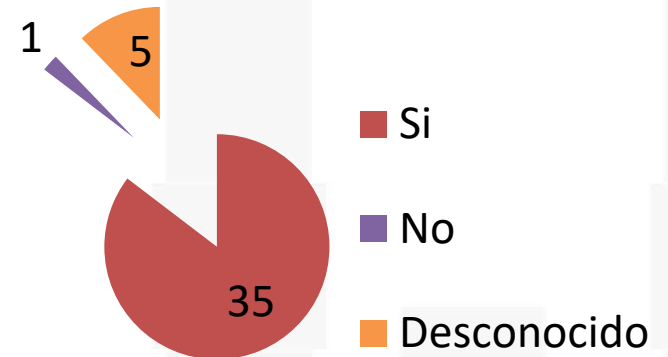
Fase **retrospectiva** (18 SUP españoles): **1,52** / 100.000 episodios (1,51-1,53)

Fase **prospectiva** (los mismos SUP): **1,76** / 100.000 episodios (1,74-1,78)

# Patología previa

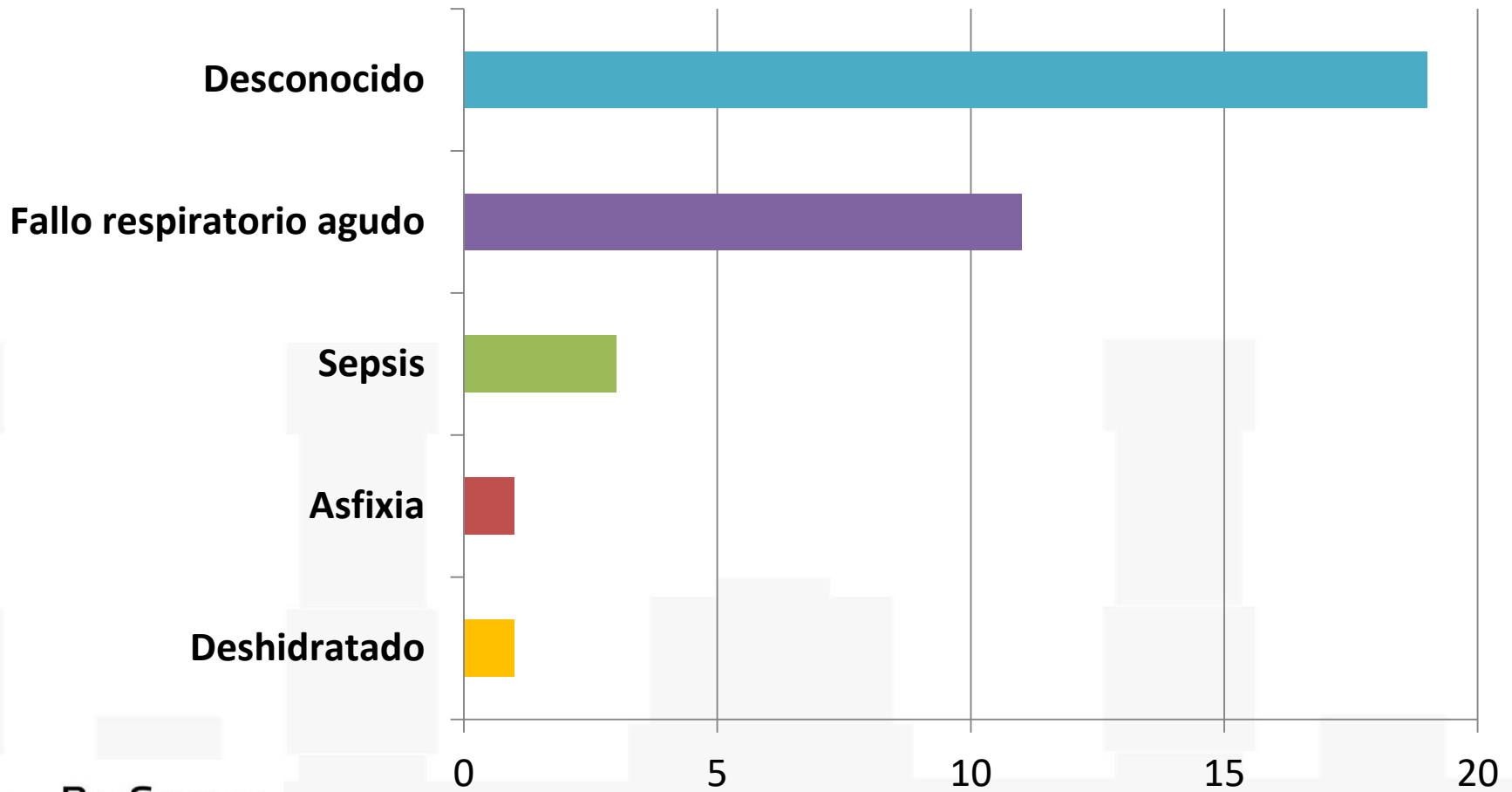


Fallecieron a causa de su enfermedad?

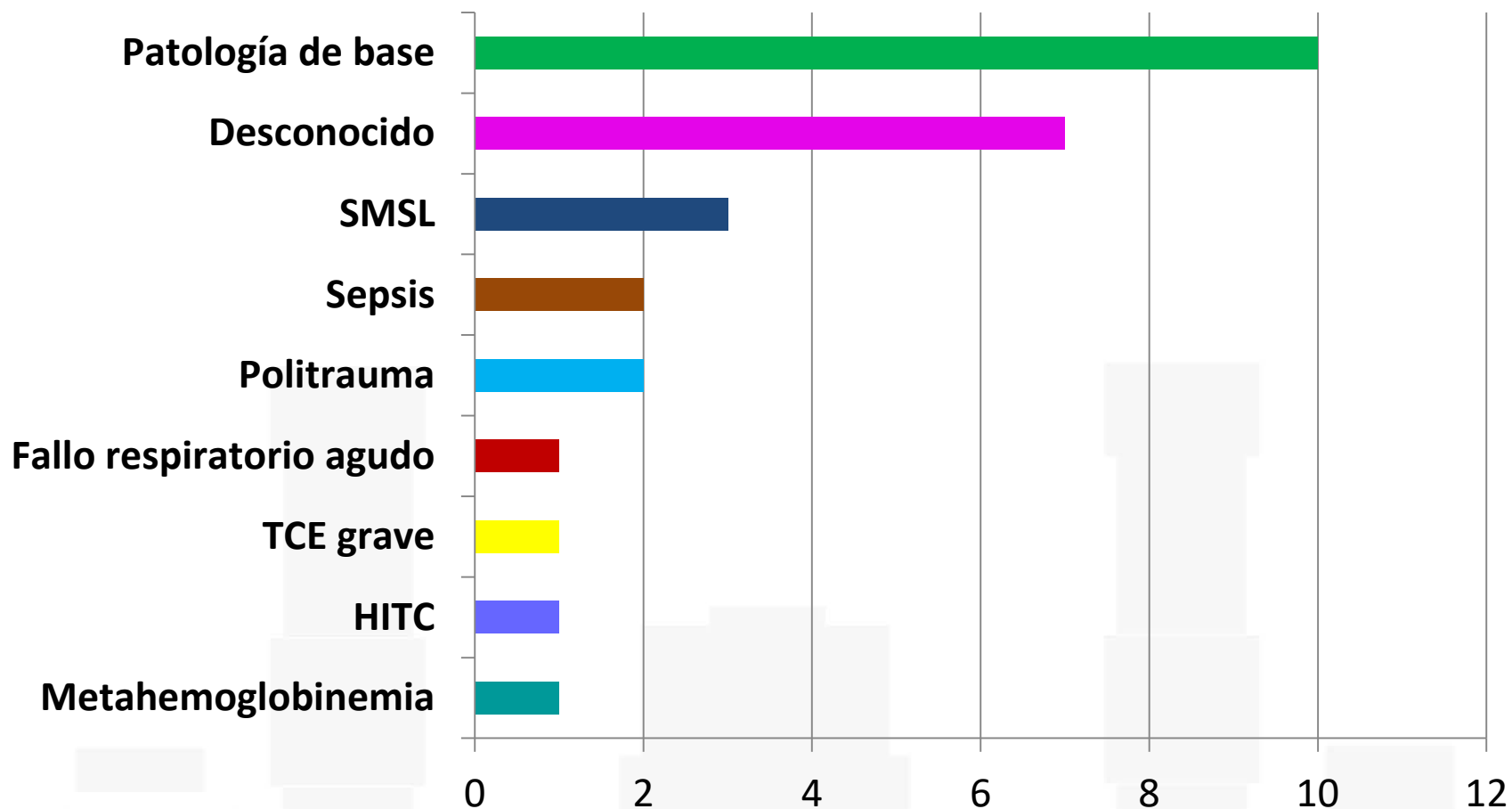




# Fallecidos por su patología de base



# Causas de muerte en < 1 año

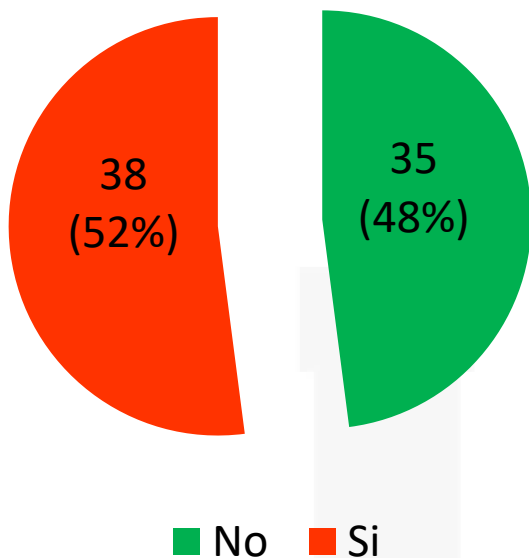


# Causas de muerte

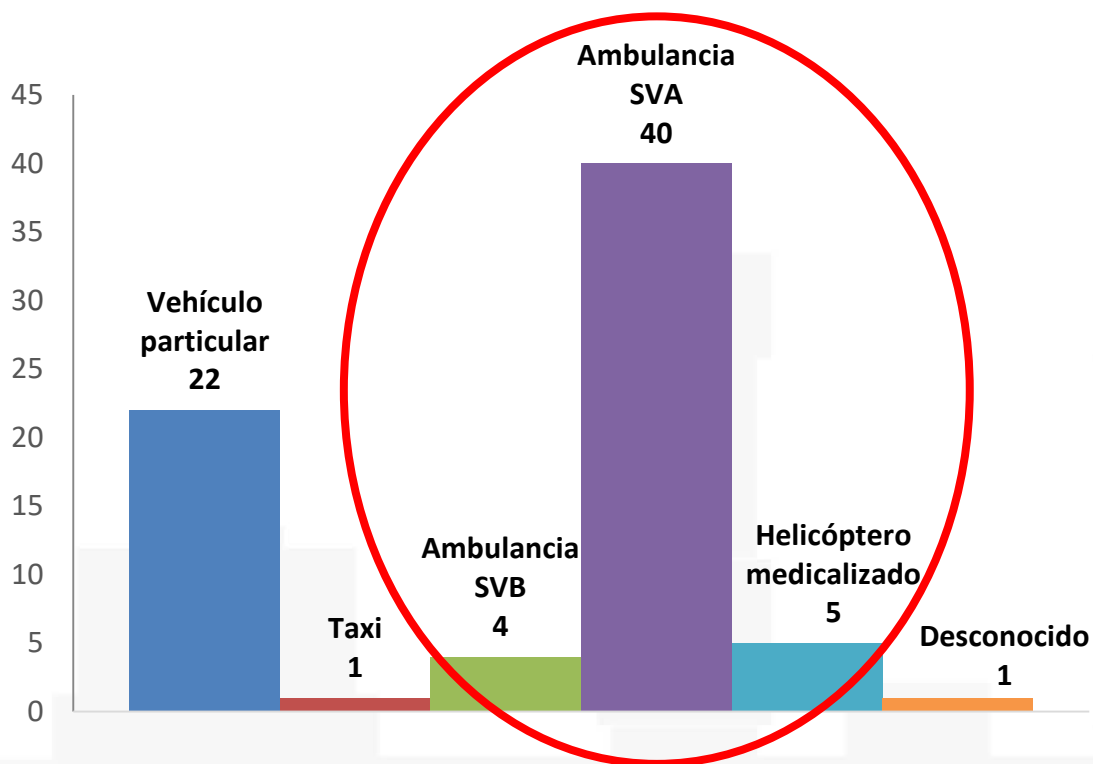
Descenso significativo en los casos de **SMSL** en comparación con el período retrospectivo (4 vs 20,7%)

# Atención prehospitalaria

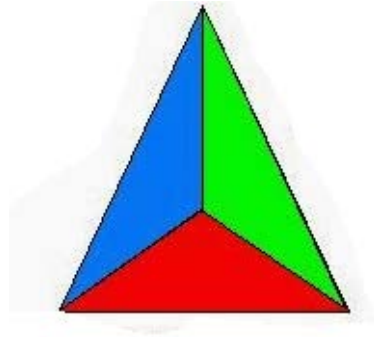
## RCP prehospitalaria



## Traslado al SUP



# En el SUP



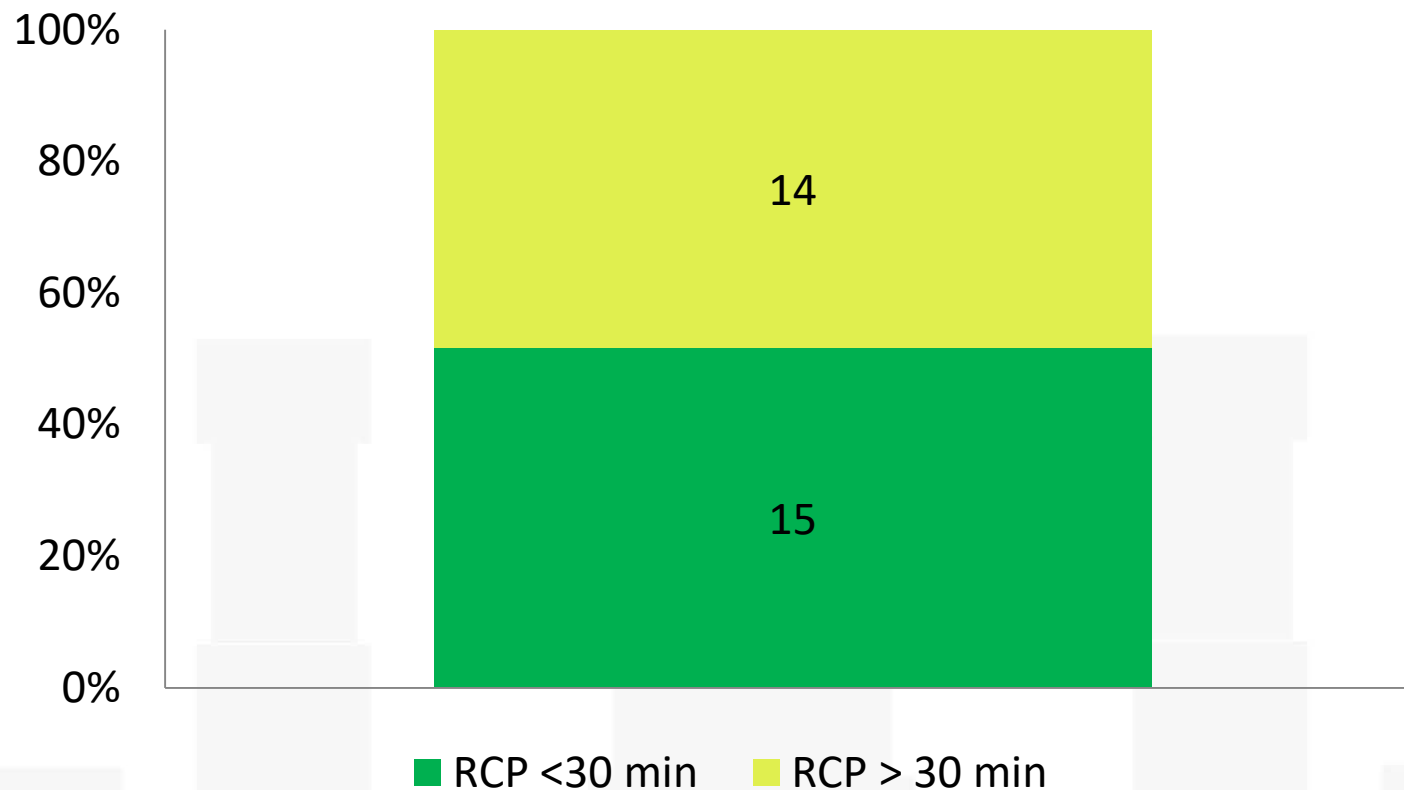
66 (90%) TEP inestable



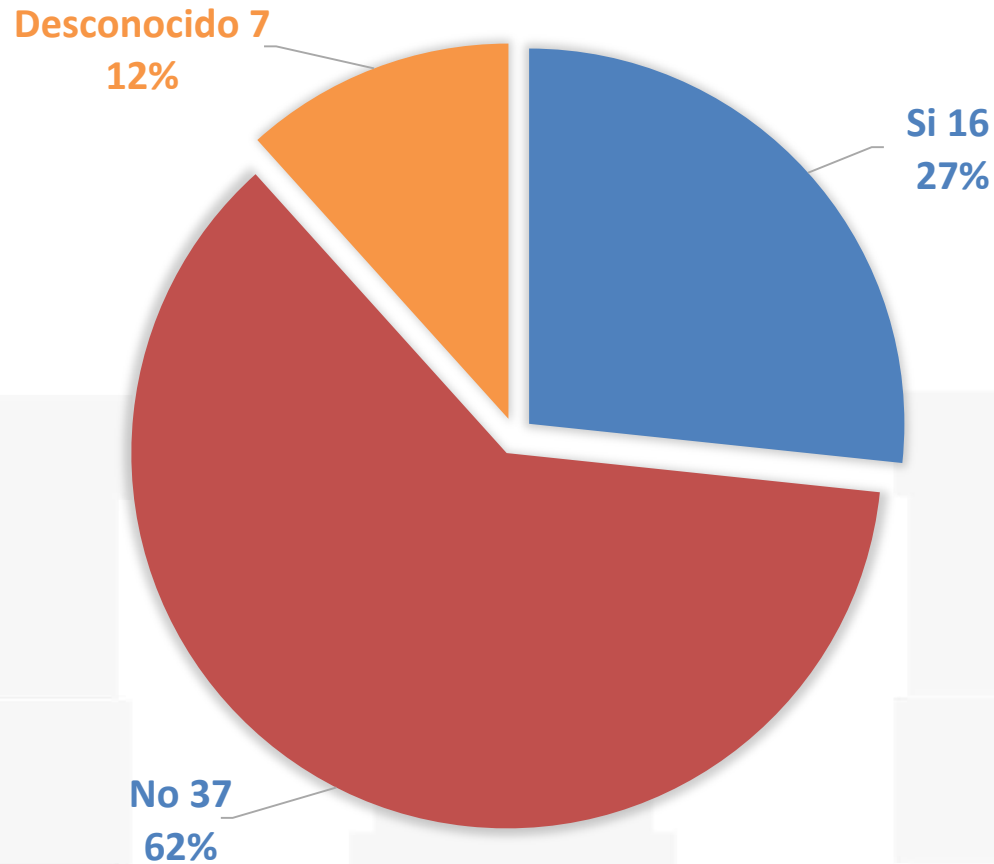
52 (79%) Fallo cardiorespiratorio

	RCP en SUP NO	RCP en SUP SI
RCP extrahospitalaria NO	9 (12%)	26
RCP extrahospitalaria SI	5	33
Total	14	59 (81%)

# Duración RCP



# RCP presenciada por los padres



# Autopsias judiciales

33 autopsias judiciales (45%)



Información de 4