

# The rhythm of progress: When a system saves lives



LUXEMBOURG  
RESUSCITATION  
COUNCIL

**Conférence Guidelines ERC**  
**19 décembre 2025**

**Pascal STAMMET**

# Financial conflicts of interest

- None



# A tour back in time



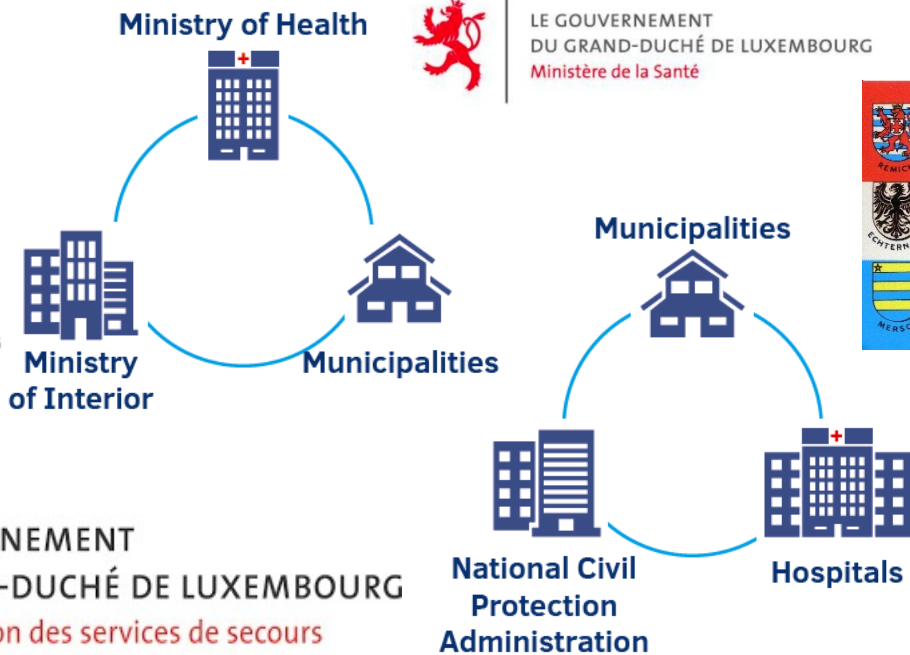
2017



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Administration des services de secours



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère de la Santé



**SAMU**  
Lëtzebuerg



2 Call centers



Different chains of command  
according to the authority



Larger urban areas:  
professional fire  
fighters on site



Rural areas:  
mostly volunteer  
firefighters, at home

> 07/2018

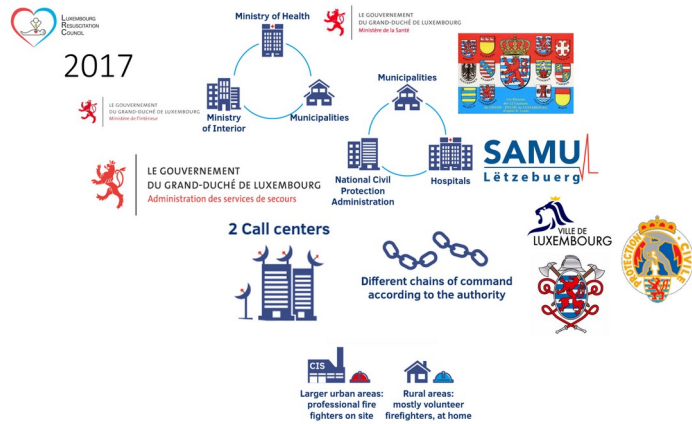


LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère des Affaires intérieures

Ministry of Internal Affairs

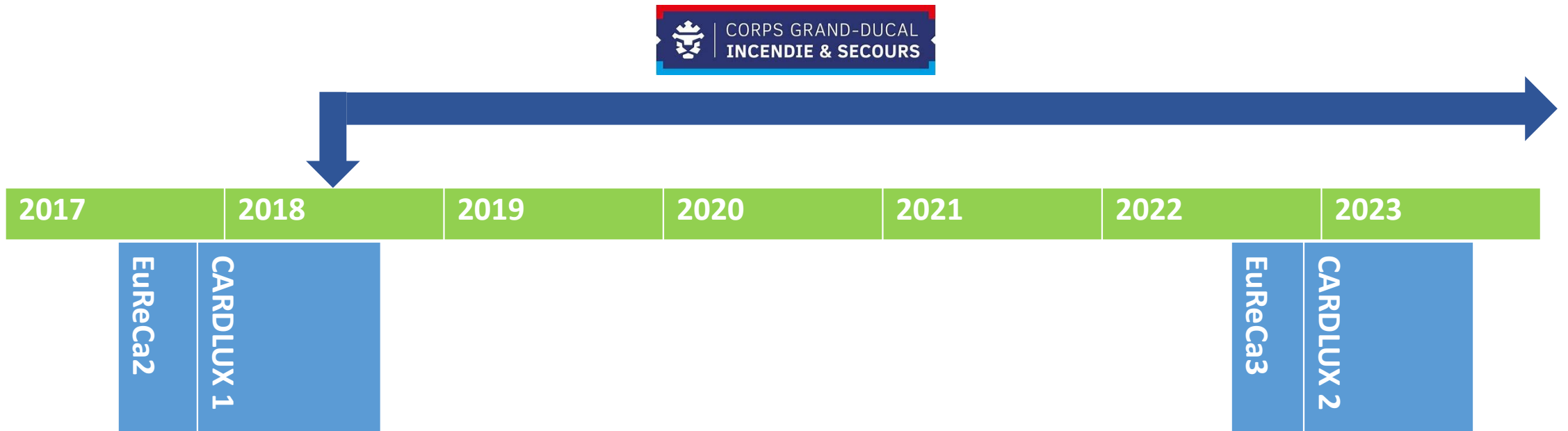


# The research question



# EuReCa-2/3- CARDLUX-1/2

- 3 months observational studies: **10-12/2017** and **09-11/2022**
- 9 months extension in Luxembourg: **CARDLUX- 1 et 2**
- Close collaboration with ASS/CGDIS
- Excellent before and after comparison of the creation of CGDIS



# The results



EuReCa3/Var

	CARDL-1	CARDL-2	
• Population Luxembourg	549 680	660 809	<b>+20%</b>
• Total calls for « OHCA » <b>+13%</b>	457	517	
• Confirmed OHCA « with CPR »	236	375	<b>+59%</b>
• Annual incidence (/100 000)	42,9	56,7	<b>55,6</b>
• Patient age (years)	68,9	68,8	<b>68,5</b>
• Males	65%	67%	<b>61,7</b>

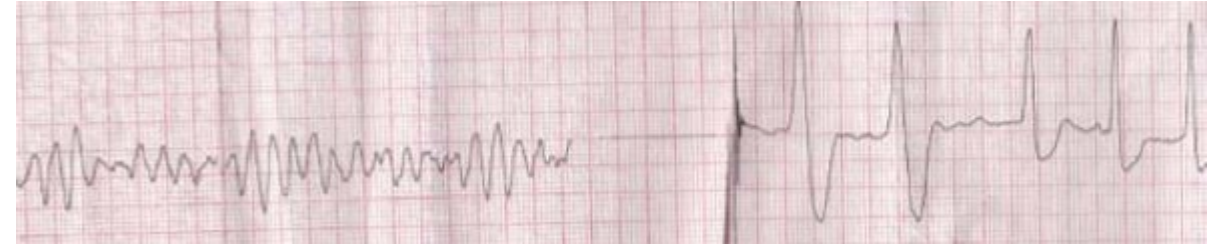
# Prehospital care



		<b>CARDL-1</b>	<b>CARDL-2</b>	EuReCa3/Var
• Bystander CPR		31%	49,6%	
	<b>52,5%</b>			
• Phone CPR		6,3%	30%	<b>X</b>
	<b>4,7</b>			
• AED use (before EMS arrival)		14%	17%	
• Shocks delivered before EMS arrival		8,9%	5,8%	
• Response time (min) (average)	16:19	11:03	<b>12:10</b>	
• Response time (min) (median)	14	10,5	<b>10</b>	



So...



**CARDL-1      CARDL-2**

EuReCa3/Var

- ROSC (any)    62 (26%)    123 (33%)    31,2%
  - DCD before or after hospital admission    74,2%    70,9%    65,5%
  - Admission ongoing CPR    6,8%    5,1%
  - With ROSC    19%    24%
- } 34,5%

In absolute numbers

- Admission with ROSC to hospital  
**>100%!**



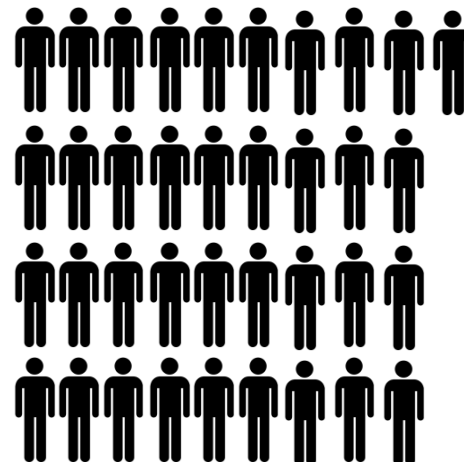
# 1 month survival

	CARDL-1	CARDL-2	EuReCa3/Var
• 1-month survival (hospital admissions) +28(23,6%)	9 (15%)	37 (29%)	
• Overall 1-month survival (confirmed CA)	3,8%	9,8%	<b>+6%</b> <b>(7,5%)</b>

## CARDLUX 1




## CARDLUX 2

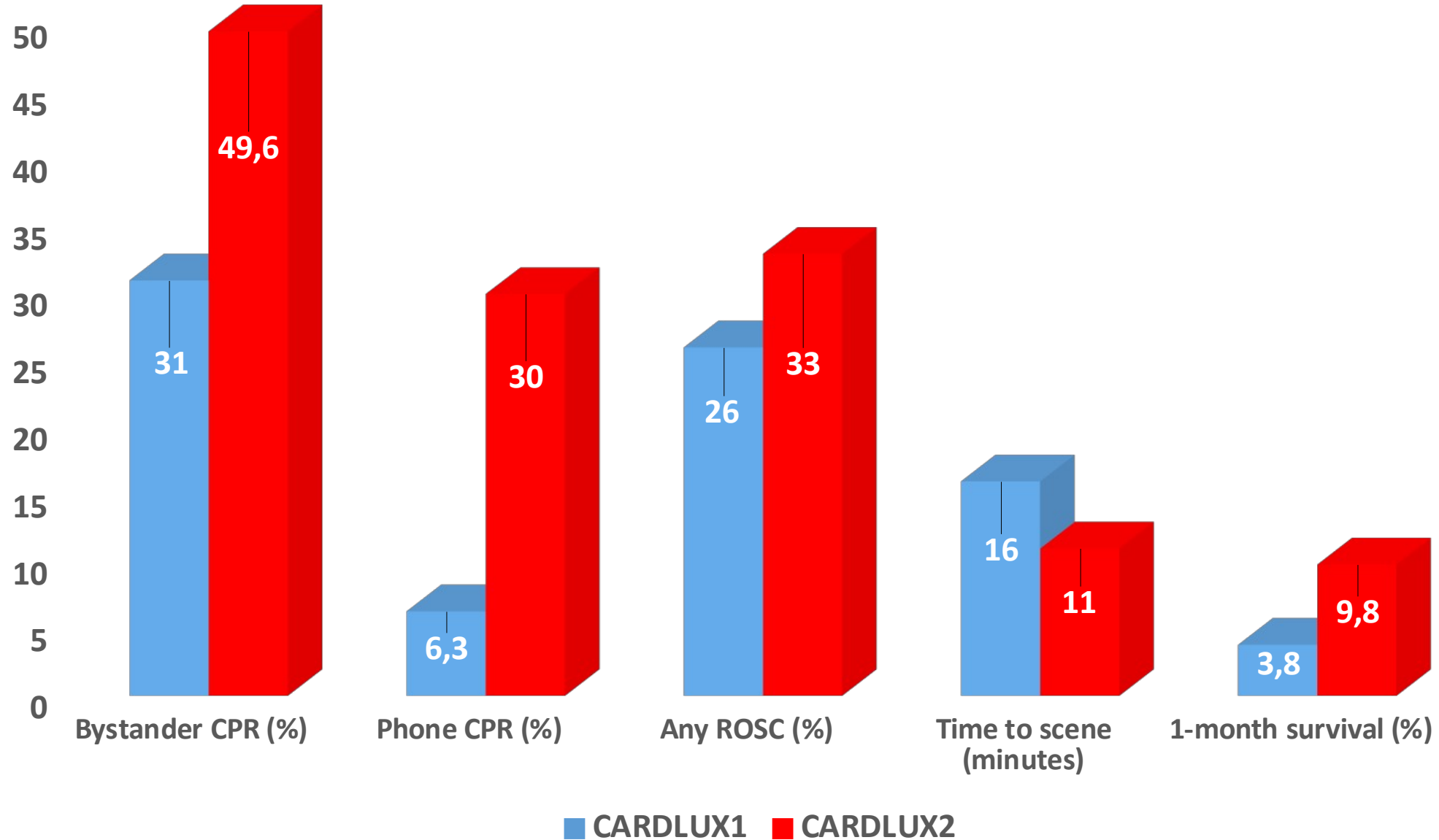


# Multivariable analysis

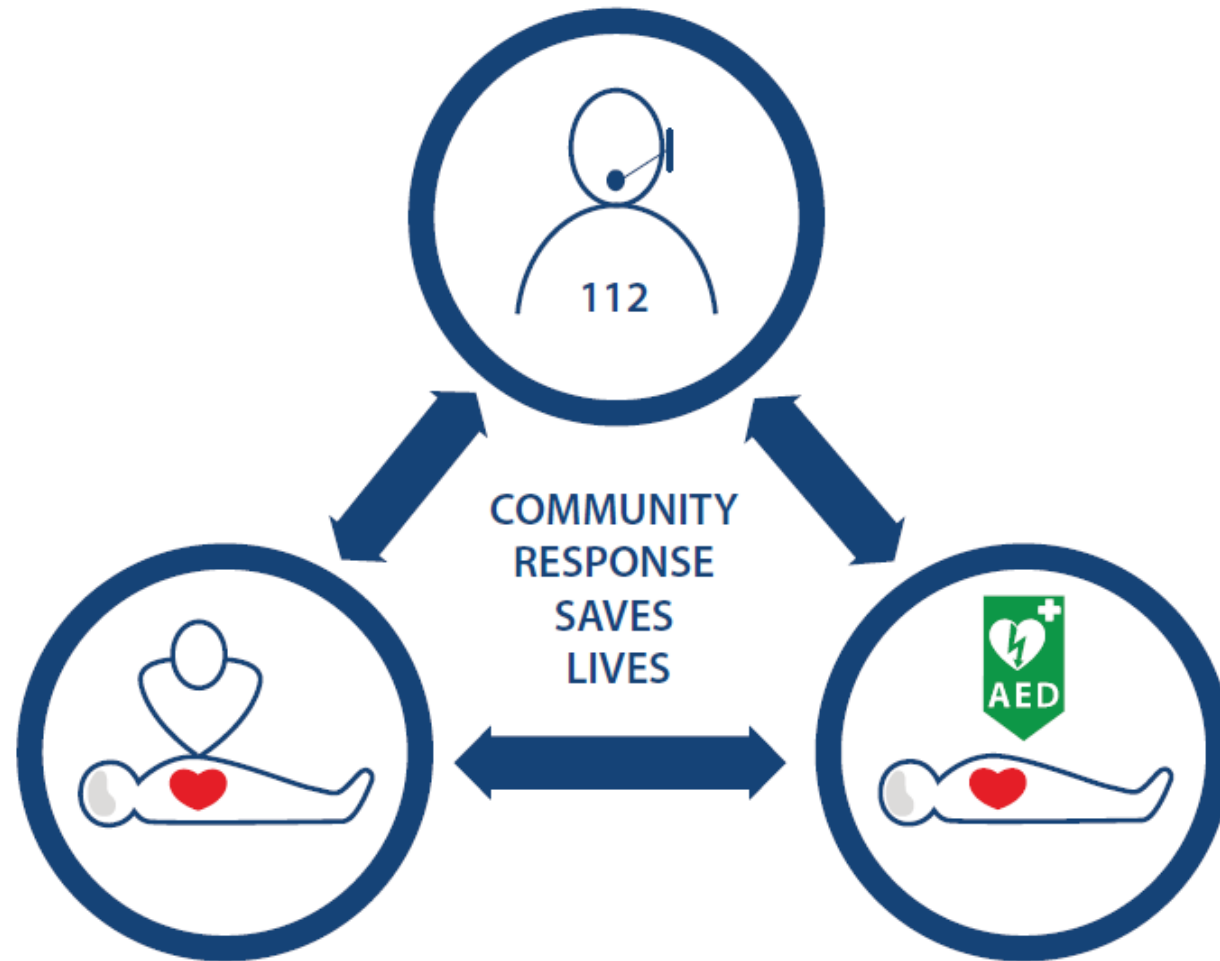


	<b>OR</b>	<b>95 % CI</b>	<b>p value</b>
<b>CARDLUX 1</b>	<b>0.95</b>	<b>0.37–2.44</b>	<b>0.91</b>
<b>Phone CPR</b>	<b>1.45</b>	<b>0.96–2.20</b>	<b>0.08</b>
<b>Bystander CPR</b>	<b>1.03</b>	<b>0.95–1.11</b>	<b>0.51</b>
<b>First shock AED</b>	<b>1.75</b>	<b>0.98–3.11</b>	<b>0.06</b>
 <b>Time to scene</b>	<b>0.83</b>	<b>0.73–0.95</b>	<b>0.006</b>

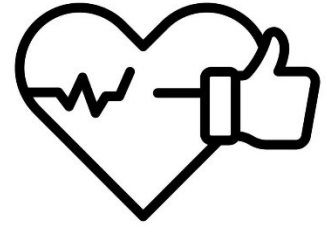
# Summary of the results



# Ten years later ...



# Some conclusions...



- Over 4 years, **25 additional lives saved per year!**
- Key fact: substancial reduction of the EMS response times
- Impact of CGDIS
  - Early detection of OHCA by dispatcher
  - Dispatcher assisted CPR (phone CPR)
  - Early by-stander / first responder CPR
  - **Short EMS response times**
- Limitations:
  - Impact of the « réagis! » campaign not measurable
  - Small sample size
  - 1-month survival (no neurological outcome assessment)
- The perspectives : **CARDLUX-R**(egistry): started 12/23 for 5 years



MERCI au « core team » CARDLUX



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Centre Hospitalier  
de Luxembourg



# Qui est actif au CGDIS?



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### Original Article

## How a system saves lives: Results of Luxembourg's nationwide cardiac arrest project

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