REUE | Editorial

More fire extinguishers than defibrillators

Más extintores que desfibriladores

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In a world where every second counts and speed governs most of our daily activities, we wish to send a clear and resounding message: early defibrillation saves lives. This is affirmed by the main cardiopulmonary resuscitation (CPR) guidelines, from their inception to the most recent updates.[1,2] In particular, the International Liaison Committee on Resuscitation (ILCOR) published a new scientific statement in Circulation in 2022, noting that the mean emergency service response interval after a call for help is 6 minutes. Therefore, to save more lives, it is essential that more patients receive early defibrillation.[3]

Currently, in Spain, 52,300 people die each year from cardiac arrest, of whom 30,000 die in out-of-hospital settings.[4] It is precisely here where every second becomes even more vital. Indeed, each minute without action during cardiac arrest decreases survival by 10%. According to the Spanish Out-of-Hospital Cardiac Arrest Registry (OSHCAR), the overall survival rate after out-of-hospital cardiac arrest (OHCA) in Spain is 11.5%. This percentage is far below the survival rate achieved when bystanders perform proper CPR, which increases survival to 27.1%.[5] European data confirm these findings, reporting successful resuscitation rates of up to 58%.[6]

The severity of these statistics becomes even more evident considering that, according to the Spanish Society of Cardiology (SEC), these figures have remained virtually unchanged over the past 15 years. However, data on in-hospital cardiac arrest tell a different story, with survival approaching 50%. This disparity highlights two structural problems: people outside the health care field are not sufficiently trained to recognize and perform basic CPR, and there are not enough resources in the community to respond to cardiac arrest.

Regarding the first issue, the evidence is clear. The Cardioprotection in Spain 2016 study[7] found that only 30% of the Spanish population knows how to perform basic CPR. However, 84% of respondents reported knowing what an automated external defibrillator (AED) is and what it is used for, and 85% considered the presence of cardioprotection important or essential in crowded public spaces. For a location to be considered "cardioprotected," first responders must be trained in CPR, and both training and access to defibrillation must be available to the general public, as established by various regional consensus statements in Spain[8].

In line with discussions at the 2nd Conference on Updates and Emergency Management of Arrhythmias and ACS held in Alcázar de San Juan (Ciudad Real, Spain) in February 2024, Dr. Josep Brugada stated clearly: "The defibrillator should be part of the furniture, like a fire extinguisher" (Figure 1). And he was absolutely right. Without entering into demagoguery, the comparison should at least prompt thoughtful reflection.

In 2022, a total of 235 people died in Spain as a result of fires, according to the annual report from Fundación Mapfre[9]—a number that has fortunately decreased steadily since records began in 1980 (Figure 2).

Although there are no precise data on the total number of fire extinguishers in Spain, their presence is evident in virtually every establishment. There are likely hundreds of thousands across the country. The ratio between deaths caused by fires and the number of available extinguishers clearly indicates that prevention is well assured.

The example of fire extinguishers should not only serve to commend those individuals, associations, and organizations that made it possible but also as a clear path to follow. Unfortunately, in the case of AEDs, the figures are quite different.

For the 30,000 above-mentioned OHCA-related deaths, there is no comparable ratio of AEDs to population as there is with fire extinguishers.

In Spain, Royal Decree 365/2009 establishes the minimum safety and quality requirements for the use of AEDs outside health care settings but does not mandate a minimum number of devices per population group. Furthermore, responsibility for the coordination and implementation of these devices is delegated to each autonomous community, requiring regional-level analysis to evaluate AED coverage.[10]

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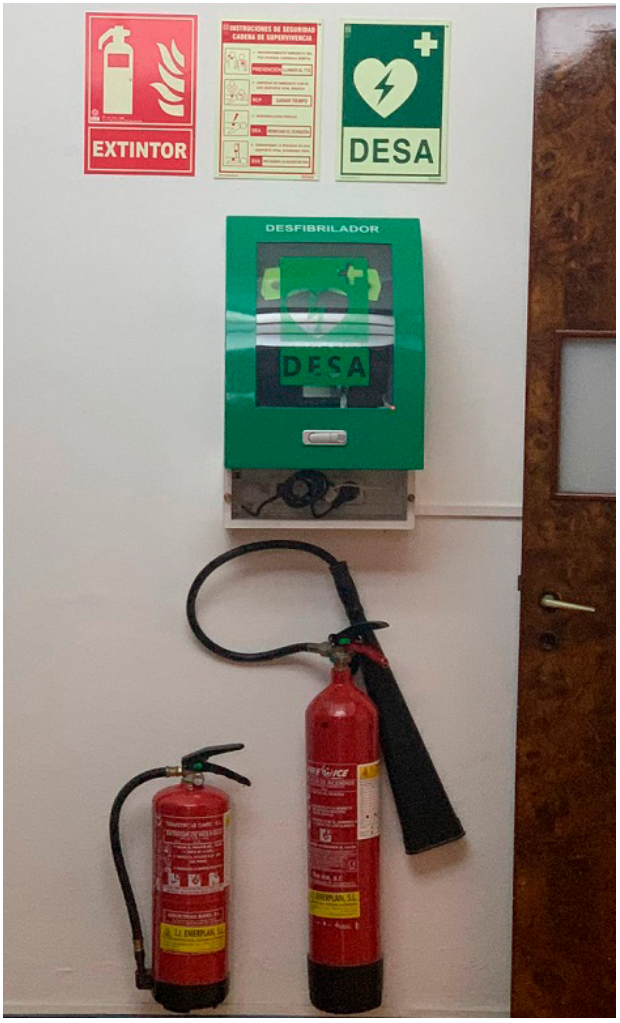

Figure 1. Dr. Josep Brugada during the 2nd Conference on Updates and Emergency Management of Arrhythmias and ACS, February 2024.

A study by the Biobizkaia Health Research Institute, published in Journal of Healthcare Quality Research in 2023,[12] illustrates this national variability. The overall rate of semiautomatic external defibrillators outside health care settings in Spain was 92.1 per 100,000 inhabitants, ranging from a minimum of 35 in Asturias to a maximum of 126 in Madrid. These figures contrast sharply with those of other countries—Sweden has 420 AEDs per 100,000 inhabitants; the Netherlands, 470; and the United States, 310.[12]

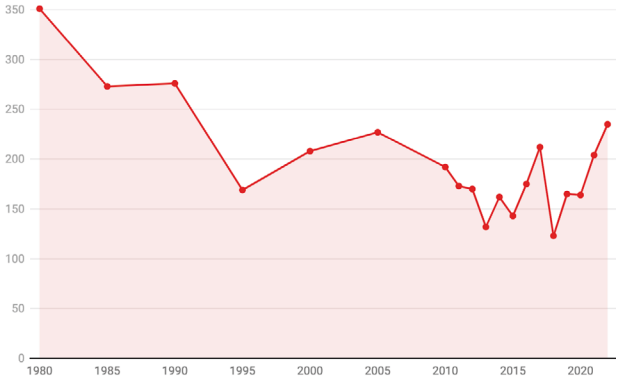

Figure 2. Number of fire-related deaths in Spain. Source: Fundación Mapfre, using data from Fire Services, Institutes of Legal Medicine and Forensic Sciences, and the Spanish National Institute of Statistics (INE).

To align with ILCOR's recommendations, strategies must be developed to improve recognition of cardiac arrest and to optimize AED availability, reliability, and ease of use. In the United States, it has been demonstrated that individuals who experience OHCA in the vicinity of an AED are 3 times more likely to survive than those without one.[3]

Training the public from childhood to recognize critical situations, perform basic CPR, and use a defibrillator is indispensable. Annual courses in schools, neighborhood demonstrations, and mandatory workplace drills—at the same frequency as fire drills—would be a promising start. Simultaneously, AED availability must be expanded. Some regions have already equipped local police cars or fire trucks with AEDs, but this practice should become widespread (Figure 3). Moreover, AEDs are increasingly found in airports, shopping centers, sports venues, universities, and other high-traffic areas, either by regional legislation or through local initiatives. The next step should be to generalize their presence in more public spaces and, importantly, in private environments such as offices, homes, and buildings.

Technological innovation also plays a role in addressing this issue. A clear example in Spain is the Ariadna Project[14] launched by the SEC and the Spanish Red Cross. It is a collaborative map of defibrillators across Spain that helps citizens locate nearby devices and trained CPR volunteers (Figure 4).

Drones may also play a key role. A study published in The Lancet Digital Health in late 2023 by researchers at the Karolinska Institute in Sweden[15] demonstrated that drones delivered AEDs to 55 potential cardiac arrest incidents, arriving sooner than ambulances did in 37 cases. Among the 18 confirmed cardiac arrests, the AED was used by the bystander in 6 cases. The device recommended shocks twice, and 1 life was saved. Although preliminary, these findings suggest a future closely tied to techno-

Figure 3. Local police car in Girona equipped with a defibrillator.[13]

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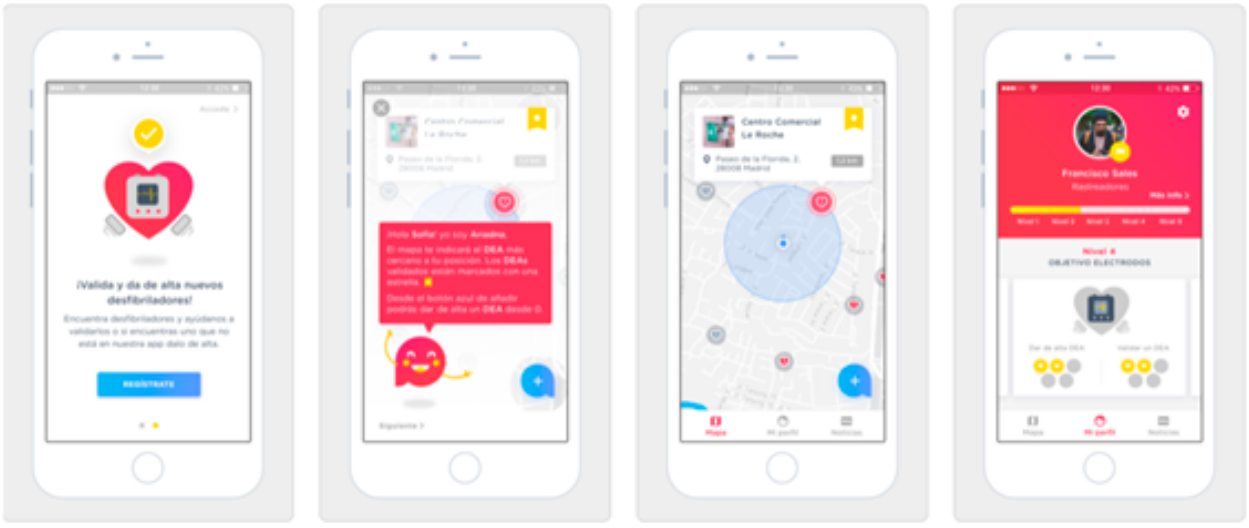

Figure 4. Screenshots of the Ariadna app, promoted by the SEC and the Spanish Red Cross.

logical advances. Activities with growing participation, such as mountain races or ultratrails, could particularly benefit from such innovations.

Comparing AEDs and fire extinguishers requires context, but it is evident that fire prevention efforts are far more advanced and that public awareness is much greater. This serves as a clear example that, when appropriate measures are implemented, success is possible. And what could be more successful than saving a life? Therefore, from this editorial, we call for parity between these 2 life-saving devices that already carry countless lives saved on their record.

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