SPECIAL ARTICLE

Analysis of legislation on the use of semiautomatic external defibrillators by bystanders and the training of non-health-care professionals in Spain

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DATE OF RECEIPT:
10-7-2008

DATE OF ACCEPTANCE:
11-12-2008

CONFLICT OF INTEREST:
None

Background and objective: Sufficient evidence supports the use of semiautomatic external defibrillators outside the hospital by bystanders who are not health-care professionals, in patients over 1 year of age who are in cardiac arrest secondary to ventricular fibrillation or pulseless ventricular tachycardia. Legislation pertinent to the use of these defibrillators by bystanders is highly varied, however. Our aim was to compare legislation related to the training of bystanders in the use of semiautomatic external defibrillators and their application in the different autonomous communities of Spain.
Methods: Structured analysis of relevant legislation in the Spanish autonomous communities.
Results: No legal limitations are placed on bystanders' use of semiautomatic external defibrillators in Spain. However, there is also no legislation explicitly authorizing it. Thirteen communities have written relevant laws. Three ways of providing training were identified. In 1 model, training is organized by public institutions, in another external trainers are authorized to organize courses, and in a third mixed alternative the 2 previous models are combined. All programs emphasize the need for training to take place under instructors recognized by the European Resuscitation Council or the American Heart Association.
Conclusions: Legislation on the use of automatic and semiautomatic defibrillators in the different Spanish autonomous communities is highly varied. Only 13 communities have passed regulations and the training models described are very different. [Emergencias 2009;21:53-61]

Key words: External defibrillation. Semiautomatic external defibrillator. Automatic external defibrillator. Legislation, semiautomatic external defibrillators. Training.

Introduction

Ventricular fibrillation is the most frequent cardiac rhythm present in adult sudden cardiac arrest (over 85%) and in 10-20% of paediatric heart arrest[1]. Effective treatment involves the early use of electric defibrillation as part of the actions required to increase survival rates. The probability of defibrillation success decreases by 7-10% for every minute of delay[2].

Technological advances have allowed the development of automated external defibrillators (AED) requiring minimal learning, even by non-medical people, which reduce the time to defibrillation and avoid breaks in the survival chain. These devices incorporate a system of heart rhythm analysis capable of identifying tributary arrhythmia of defibrillation and informing when it is necessary to administer an electric discharge to re-establish normal cardiac rhythm, all with high levels of safety and efficacy, which underlies their diffusion and implementation.

Spain is divided into 17 autonomous communities (AC), each with their own legislative capacity in public health matters. Currently, there is no common legislation, although the possibility of regulating training and the use of these defibrillators at a national level is being contemplated[3]. This means that, despite many legislative elements in common, there are differences

and different models have been followed in planning.

The objective of this article is to describe our study on published legislation differences (up to the date of publication) between the different ACs, thereby offering a panoramic view of legislation and training in AED use, as well as the different models followed in their development and an analysis of the situation.

Current situation

The recommendations of ILCOR *(International Liaison Committee on Resuscitation)* in 2000 include the use of AEDs in Basic Life Support (BLS) techniques[4]. To maximise survival probabilities of victims, three actions should be performed during the first moments of heart arrest: activation of the Medical Emergency System, administration of CPR, and utilization of an automated defibrillator[5]. Delays in any of these actions will result in reduced survival probabilities. Thus, both the European Council on Resuscitation (ECR) and the American Heart Association (AHA) recommend tuition in AED use in initial BLS procedure[6,7]. In Spain, as mentioned, there is no national legal limitation prohibiting AED use by non-medically trained people, but neither is there any positive legislation authorising such use[8]. However, 13 of the 17 ACs have elaborated regulations on this topic (Figure 1). The pioneer in this was Galicia in 2000[9], updated in 2005[10]; followed by Andalucía[11], and the last to publish their regulations have been Extremadura[12], Castilla y León[13] and La Rioja[14] in 2008. Currently, the use of an AED is not compulsory in any AC; most recommend their installation in busy areas in the preamble to the legislation. Recommendations made by scientific societies on the installation of public access defibrillation programs refer to those popular public spaces where the probability of there being a witness to a cardiac arrest event is greatest[15]. It would be desirable to include those places where the probability of a cardiac arrest event is at least one every two years[16]. The legislation from Aragón is most precise on this, recommending a defibrillator in "transport terminals with a transit of more than 1.000 personas, shopping centres over 1.000 m^2, stadiums, sports centres, show venues, conference halls, events or exhibitions, gymnasiums and educational centres with a transit of more than 500 people. Aeroplanes, trains or ships with a capacity of 100 passengers or more"[1].

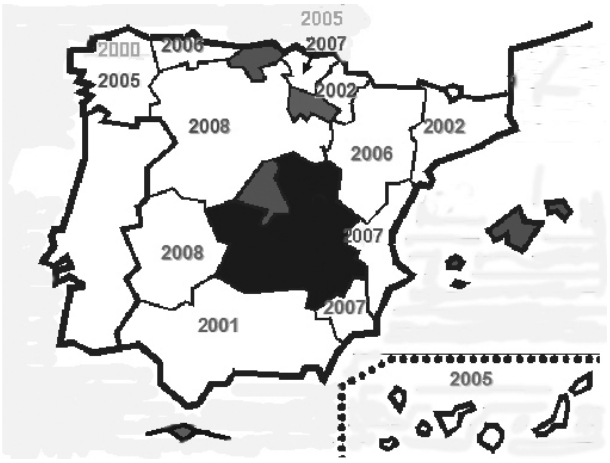

Figure 1. Year of legislation. Dark shaded areas represent autonomous communities that have not yet developed specific regulations on AED use and training.

The legislation from La Rioja is similarly worded, promoting AED installation with the creation of "healthy heart areas".

There is no uniformity regarding device nomenclature. If during the analysis of cardiac rhythm the defibrillator detects pulse-less ventricular fibrillation (VF) or ventricular tachycardia (VT), it charges the pre-selected electrical energy then delivers it after a safety alert without any action required of the rescuer, in which case the device is an AED. If the device indicates that it has the necessary energy and the witness has to press the discharge button, ensuring that nobody is touching the victim, then it is called a SAED[18]. A study using dummy models performed in a group of untrained nursing students found that fewer errors were committed when an AED was used. However, there are no similar studies using humans[19].

All the latest generation external defibrillators provide both visual and voice information. Certain ambiguity exists, partly due to the wide use of SAED devices and the term of Anglo-Saxon origin (AED, Automated External Defibrillator). This is reflected in the AC legislation where SAED is used in all the communities except País Vasco[20] and Cataluña[21] where AED is used; in both Aragón and Galicia both names are used: "automated and semi-automated external defibrillators"[8,14]. France is also affected, using the terms défibrillateur automatisé externe (DAE) and défibrillateur semi-automatique (DSA)[22]. From here on, we will use the term AED to refer generically to semi-automated and automated external defibrillators.

Six ACs, namely Galicia, Aragón, Asturias[23], Cataluña, Comunidad Valenciana[24] and La Rioja require that AEDs be used by adults, with certain educational qualifications. Asturias, in addition, requires justifying the candidates use of an AED with institutional affiliation.

Legislation is mostly directed at non-physician and non-medical people; only Aragón, Canarias, País Vasco, Castilla y León and La Rioja exclude the need for AED training with qualified nurses. País Vasco corrected its initial legislation[25] to include nurses as authorised by virtue of their professions to use AEDs, and even as instructors of training programs. In the other ACs, although legislation does not exclude this possibility, it must be deduced when they possess titles such as instructor or monitor of Life Support.

The lack of a common criterion regarding nurses as authorised to use AEDs is striking. Some authors consider this professional group as ideal for in-hospital AED use, since they also provide care and spend most time with patients[26]. However, in most ACs, nurses are required to complete courses in AED use.

Training

On analysis of training it can be seen that ACs have followed different models depending on the role of the public administration in the process of training non-health-care workers in AED use. We identified three models, which we have called institutional, external and mixed, as follows:

Institutional model: The responsibility for the training function and supervision of training is vested in public entities or companies. This is the case in Andalucía, where the "Empresa Pública de Emergencias Sanitarias (EPES)", by means of its Training Centre, is in charge of training, quality control and establishing the training format together with the National Plan of Resuscitation. This model is also used by "Comunidad Foral de Navarra", where the Health Department organizes courses and titles; in both these communities the model is open to other public or private entities performing these functions. Galicia, in its first formulation of legislation, also opted for this model via its "Fundación Pública de Urxencias Sanitarias de Galicia 061 (FP-USG 061)", but in the latest legislation Galicia has opted for the mixed model, where the FP-USG maintains training functions and assumes an advisory role for other authorised entities in planning and supervision of training.

External model: Training of authorised personnel is delegated by the administration either directly (Asturias, Castilla and León, Murcia, País Vasco) or via schools (Canarias), public institutes (Cataluña) or Health Service (Aragón) to other public or private entities. In the case of Asturias, Castilla y León, Aragón and País Vasco, accreditation is also delegated, only requiring notification of the trained personnel identity for inclusion in a registry. Galicia has externalized continuous training, supervised by a physician of the centre, service or establishment where the AED is situated, or by instructors of accredited centres. Generally, authorization is at an autonomic level, except in Aragón where provincial departments are in charge of accreditation.

Mixed model: The administration assumes training and accreditation functions via public or private entities during a period that ranges from 2 to 5 years. Generally this is done through public institutes or schools that depend on the corresponding health board, but it also reserves the possibility of organizing training of pupils directly. This is the case mentioned before of Galicia via FP-USG 061, and Comunidad Valenciana (Escuela Valenciana de Estudios para la Salud), Extremadura (Escuela de Estudios en Ciencias de la Salud de Extremadura) and La Rioja (Consejería de Salud). In all cases the administration reserves the functions of inspection and control.

Training programs

All ACs differentiate between initial or access to training from continuous training or refresher courses.

Initial Training Courses: these oscillate between 7.5 hours in Galicia and Andalucía to 12.5 hours in Navarra (Table 1). The theory/practice ratio varies, but generally is 1:3, in other words 1/3 of the training is theoretical and the rest is practical. An exception is Andalucía, where theoretical training hours outweigh the time spent in practice. This raises a secondary problem, that of qualification equivalence, between the different ACs, which will be dealt with further on. To pass, the student must pass the written or practical examination. In Galicia however, the already trained student must pass a theory exam and a practical exam consisted of a clinical case determined by the Health Board.

Continuous training courses: these vary between 2.5 and 4 hours. There are certain differences between the different ACs. Comunidad Valen-

ciana and La Rioja, in addition to the course, require a certificate from the physician responsible for the AED or centre where it is situated, indicated the aptitude and competence of the student in defibrillator use.

Cataluña requires a similar certificate and a practical exam (without a course). Galicia specifies an annual refresher course, supervised as indicated above.

Training Program: All the ACs publish their training programs, and all devote considerable time to CPR and AED use, emphasising practice; no great differences exist except for those deriving from the hourly component.

Pedagogic material: nearly all the ACs regulate by decree the minimum pedagogic material necessary for training entities to be able to offer quality training. The most precise and complete are Aragón, Galicia and Asturias (Table 2), while the least is Navarra, Practically all include a dummy model allowing performance of chest compression, clearance of airway obstruction and use with an AED and ventilation mask. The ratio of minimum material for students is 1 dummy and AED for 8 students (Canarias, Murcia, Comunidad Valenciana y Castilla and León), although Extremadura establishes a maximum of 6 students per dummy. Canarias, Comunidad Valenciana and Castilla y León require that manuals be elaborated according to AHA or ERC recommendations. Andalucía only refers to ERC in its decree.

Instructors and trainers

If there were heterogeneity in training programs, this is no less so regarding accredited instructors and trainers for these programs (Table 3). There is a tendency on the part of ACs to recognise as authorised instructors those who are already so recognised by renowned prestigious entities, such as AHA or ERC, but some leave open the door to people with titles awarded by other relevant societies or entities (Canarias, Murcia), own titles such as in Cataluña and Extremadura, or simply require academic qualifications, such as País Vasco (physicians and nurses), Murcia (physicians) or Navarra (physicians from the Sistema Navarro de Salud). In most ACs, the requisite for being a trainer is to be an "CPR instructor" or "CPR monitor", without ever establishing a clear definition of what that is.

National Plan for Cardiopulmonary Resuscitation: This Plan (NP-CPR) has a strikingly important and influential role in the legislation of some ACs; in Navarra, where the AED course must be co-ordinated by an ALS instructor of the NP-CPR and given by physicians belonging to the health service "Servicio Navarro de Salud". Something similar occurs in Andalucía, where at least one person must be designated by the Training Centre or the PN-RCP. Aragón recognises as AED instructors their own PN-RCP instructors trained in accordance with ERC recommendations.

Registries

Most of the decrees published are ambiguously worded, although in all cases AED avai-

Table 1. Characteristics of the training programs in different autonomous communities

A.C.	Initial Training			Continuous Training			Renewal
	H. theory	H. practice	Total H.	H. theory	H. practice	Total H.	
Galicia	2.5	5.5	8		Annual supervised Refresher course*		Annual**
Navarra	–	–	12.5	–	–	4	1 year
Aragón	–	–	–	–	–	–***	1 year
Canarias	3.5	8.5	12	0.5	3.5	4	2 years
Andalucía	5 h 15′	2 h 15′	7.5	1	1.5	2.5	1 year
País Vasco	–	–	8	1.5	2.5	4	3 years
Asturias	3.5	4.5	8	–	–	3	2 years
Cataluña	2	6	8		Practice + physician report*		1 year
Murcia	3.5	8.5	12	–	–	4	1 year
C. Valenciana	4	8	12		6 h + physician report*		1 year
Extremadura	2	6	8 (minimum)	1	3	4	2 years
Castilla y León	1.5	6.5	8	1	3	4	2 years
La Rioja	2.5	5.5	8	1	3 + physician report (or company/establishement)	4	1 year

**Physician of the Centre, establishment or service where the defibrillator is situated, or the instructors of accredited centres. **Annual update. No reference to accreditation expiry. ***Legislative regulation pending. H: Hours. A.C.: Autonomous Community.

Table 2. Paedagogic material

Audiovisual material:
– Projector or light cannon.
– Projector screen.
Dummy model for BLS (allowing airway obstruction clearance, Chest compression) and use of AED.
AED (functioning, with all necessary material).
Training AED.
Resuscitation kit with reservoir.
Bag valve mask for ventilation.
Guedel tubes (different sizes).
Portable O_2 canister.
Gloves.

BLS: Basic Life Support; AED: Automated External Defibrillator.

lability must be reported to the administration. Only in some cases is the creation of a corresponding registry specified, with a registry being understood to be a data base or automated file (Table 4). Most of these registries are the responsibility of the (health service) General Management (Extremadura, Castilla y León), Sub-management (Galicia), autonomic health service (Canarias), or autonomic institutes (Cataluña, Comunidad Valenciana). In this respect, legislation in Aragón establishes a provincial registry (Servicio Provincial competente en materia de Salud). Canarias leaves regulation open to the creation of the necessary files for this purpose. Except in Aragón and País Vasco, where the registry refers to the precise place of each defibrillator and the entity responsible, the rest only refer to the entity. In general, information for the registry must include the name of the person responsible for the AED and of those authorised to use it. The entities must provide information on AED situation on their premises, but this may be imprecise for the Emergency System, especially when dealing with large companies or shopping centres, where precise situation information on the data base may be extremely useful.

Regarding persons authorised to use AED devices, only Asturias fails to regulate a file on this, since this function is performed by the companies installing the device, and they are responsible for training, refresher courses and for communicating all relevant information to the Administration.

Regarding authorised training centres, in those ACs where AED use training is performed mainly by the public administration through different models, there is no registry of authorised centres, whether or not this possibility exists. This is the case in Navarra where AED training is basically undertaken by the Health Department; or EPES in the case of Andalucía.

Regarding trainers, in all ACs the trainers must fulfil certain specific requirements, but only 3 (País Vasco, Cataluña and Extremadura) establish a registry of these trainers.

Finally, each event of AED use in most ACs is recorded on a data base maintained by co-ordinating centres. Only Comunidad Valenciana has legislation regulating events of AED use, although the person responsible for this is unclear. A general norm is to provide a report on AED use accompanied by informatic recordings on defibrillator events, which must be sent to emergency co-ordinating centres. Some communities, such as Navarra, only require annual reports of AED activity. Registries or data bases on specific AED acti-

Table 3. Trainers

	Societies/Entities		
A.C.	**ERC**	**AHA**	**Others**
Galicia	Yes	Yes	–
Navarra	Yes (PN-RCP)	–	Physicians belonging to the Servicio Navarro de Salud
Aragón	Yes (PN-RCP)	Yes	PN-RCP
Canarias	Sí*	Yes*	Yes*
Andalucía	Yes (PN-RCP)	Yes (CE-RCP)**	LS Accreditation by the CE-RCP
País Vasco	Yes*	Yes*	Yes***
Asturias	Yes	Yes	–
Cataluña	–	–	Instituto de Ciencias de la Salud
Murcia	Yes*	Yes*	Yes* , and physicians
C.Valenciana	Yes	Yes	–
Extremadura	Yes*	Yes*	Yes* (Registry of Trainers in LS, Consejería de Sanidad de Extremadura)
Castilla y León	Yes*	Yes*	Accreditation as Instructor BLS or ALS, with relevant experience
La Rioja	Yes	Yes	Accreditation in ALS by CE-RCP (for courses organized by the Consejería de Salud)

*Entities and societies responsible for the matter. **Since 2008, SEMES-AHA has been integrated in CE-RCP. ***No specific requisites, except physician or qualified nurse accredited by the Servicio de Salud. LS: Life Support; BLS: Basic Life Support; ALS: Advanced Life Support; ERC: *European Resuscitation Council;* AHA: American Heart Association; PN-RCP: Plan Nacional de Reanimación Cardiopulmonar; CE-RCP: Consejo Español de Reanimación Cardiopulmonar. A.C: Autonomous Community.

Table 4. Type of Registry

	Installation of defibrillators	Persons authorized for AED use	Accredited centres for training	Trainers (persons)	Use
Galicia	Yes	Yes	Yes	No	No*
Navarra	No	Yes	No	No	No annual report
Aragón	Yes	Yes	Yes	No	No*
Canarias	Yes	Yes	Yes	No	No*
Andalucía	No	Yes	No	No	No
País Vasco	Yes	Yes	Yes**	Yes**	No*
Asturias	Yes	No	Yes	No	No
Cataluña	Yes	Yes	Yes	Yes	No
Murcia	Yes	Yes	Yes	No	No*
C.Valenciana	Yes	Yes	Yes	No	Yes
Extremadura	Yes	Yes	Yes	Yes	No*
Castilla y León	Yes	Yes	Yes	No	No*
La Rioja					

*A report and documentary registry of the defibrillator is required. **The regulating decree in País Vasco refers in all cases to authorised persons in the sense of physical persons, legal, public or private. C: community.

vity are especially important to obtain data necessary for comparative studies on efficacy of these devices.

Community training programs on the use of AED devices

Both the ERC and AHA recommend the following elements as basic pillars of any community AED training program of public access for lay people: training in Cardiopulmonary Resuscitation techniques and AED use for advanced re-animators, a planned and practised response, which generally requires supervision by a health-care worker, contact with the local medical emergency services (MES), and a process of continuous improvement of quality[4]. So far, we have focused on the first pillar only.

Activation of the emergency system: this activation is included in all the guidelines on action in CPR. Most ACs, except Andalucía and Navarra, stress this step in their legislation and make it compulsory in the process of AED use, which reinforces the first link in the survival chain.

Supervision and utilization of the AED: supervision in practically all ACs is carried out by emergency co-ordination centres, who try to ensure the survival chain by providing an ALS unit as early as possible. This supervision may be:

– Direct: supervision by a physician present or via the co-ordination centre, as in Galicia, activating the so-called code 3 for any AED use in the community, and subsequent analysis of the case.

– Deferred: Once activated, MES try to guarantee the survival chain, but the supervision, control or follow up of AED use is deferred. Most ACs opt for this system; the incidence of defibrillation must be reported, generally to the emergency co-ordinating centre, within a variable period but usually within 24 hours (Comunidad Valenciana, Canarias, Extremadura, La Rioja), 1 week (Castilla y León) or not specified ("after each case of defibrillation"), as in Aragón, País Vasco, Murcia and Asturias. Andalucía performs a global follow up by a special commission, and Navarra by an annual report on AED use. Cataluña makes no reference to this aspect.

Process of continuous improvement of quality: only 3 ACs establish a working commission to follow up AED use: Canarias, Andalucía and Comunidad Valenciana, apart from individual follow up of each case. We consider most positive the provisions of the legislation in Aragón and Asturias, regarding minimum material for each centre for AED use, which undoubtedly facilitates the quality of CPR (Table 5).

To be able to compare the different systems or programs of early defibrillation, it is fundamental that the data are reported in a regular uniform manner; this is what the Utstein style establishes. Most ACs refer to this when dealing with data collection. Some do so in the legislation itself, such as Asturias, but most refer to this in their training program, devoting a part of the time to instruct students in data collection according to this method (Galicia, Navarra, Canarias, Andalucía, País Vasco, Cataluña, Murcia). Other ACs, without specific reference, follow this model in their data collection sheets (Comunidad Valenciana).

Some ACs, generally those with the most re-

cent legislation, provide for a period of transition for the entities and companies responsible for external defibrillators, of 3 months in most cases: Galicia, Aragón, Extremadura and Castilla y León; in Murcia it is 6 months and in Comunidad Valenciana it is 9 months. Extremadura includes a 6-month period of adaptation for entities and individuals responsible for training programs, and Castilla y León allow those trained in defibrillation in the previous two years to be included in the registry.

Not all ACs establish the possibility of training program equivalence between the different communities (Galicia, Navarra, Andalucía), and those that do require demonstrable training equivalence in duration and content. This is the case for Aragón, Canarias, País Vasco, Asturias, Murcia, Comunidad Valenciana and Extremadura. Some, like Extremadura and Canarias, further require that the training was performed in the previous two years. Problems may arise from this since the duration of some initial training programs is only 8 hours while in others this is 12 hours (Table 4), prejudicing students trained with shorter times.

This situation does not arise in Cataluña or Castilla y León; Cataluña establishes a system of equivalence between programs and curricula of the interested parties with a view to establishing equivalence; Castilla y León and La Rioja opt for what we consider to be a more amenable system, in which AED use is authorised for health-care workers authorised in other autonomous communities, but requiring them to be included in the corresponding registry. Only Murcia establishes the possibility of validating AED courses passed before the current decree came into force.

Situation in Autonomous Communities without AED legislation

The absence of this legislation regulating AED use and training in the remaining seven ACs (Madrid, Islas Baleares, Castilla La Mancha, Cantabria, Ceuta and Melilla) together with increasing implementation of AED devices (e.g. BLS ambulances) raises questions and debate on how to proceed in these communities. Can anybody with user knowledge use the device, as opposed to the situation in other regulated ACs? The answer is neither easy nor simple. Given that non-use of all the available resources may constitute a crime (omission of duty to aid a person in distress[28]), as in other European countries[29], it is also true that action (and basic training) is not regulated, especially in a professional setting, with civil responsibility implications. Thus, with the safety of AEDs established beyond doubt and the recommendation by scientific societies to use them, we understand that the doctrine of the Good Samaritan should be given priority, as in many states of USA (Good Samaritan laws), in order to protect and encourage trained resuscitators to use – when appropriate – AED devices, although this question should be subject to a more detailed medical-legal approach.

Table 5. Recommended minimum equipment for Automated External Defibrillator (AED) use

- External defibrillator with at least 2 defibrillation pads and computerised system for recording events.
- Resuscitation kit.
- Orophangeal tubes (at least sizes 3, 4 and 5).
- Self-inflatable bag.
- Face mask.
- Source and reservoir of oxygen.
- Electric shaver and gauze.
- Adaptor or paediatric pads (for dosis reduction).

Conclusions

The transfer of health matters to ACs may well be positive for citizens but raises problems when trying to establish legislative homogeneity regarding what and how services are provided. Legislation on the use of Automated and Semi-automated External Defibrillators is not exempt from this. Although we observe that all ACs attempt to respond to the same needs, they do so differently depending on political, social, economic and organizational aspects. Most ACs have authorised non-physician defibrillator use, but this still obliges nursing staff to do the corresponding training courses without considering that some of this group may have superior training than physicians in resuscitation techniques or they work in resuscitation units, intensive care units, hospital emergency departments or other emergency services.

The lack of common legislation, and the differences in training, especially the course hours, makes it difficult for training equivalence and validation; this is especially relevant in the case of professionals whose work involves AED use, such as ambulance staff, and possibly the police force or other professions, and even more so when considering a common European space for workers.

Despite legislative diversity between ACs, there are certain common and positive elements, such as: legislative intention to implement public access systems of defibrillation, initially a recommendation, which we consider the first step towards being mandatory in certain situations; requirement that AED devices are tested and maintained according to manufacturer norms; requirement for a certain level of theoretical and practical training for potential AED users; compulsory requirement for Activation of the Emergency System, and the creation of registries detailing the exact location of AEDs and notification of emergencies to a local medical authority.

However, we consider that unifying legislation at the national level is urgently required, at least to establish certain minimums for AED training, staff, instructors etc., regardless of the organizational model, as well as data bases and registries, especially of AED use, which will allow evaluation of affectivity and efficacy and comparison with data and results from other systems. Lastly, such legislation is needed to mandate AED installation in all busy public places where cardiopulmonary arrest is most likely to occur and be witnessed.

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Normativa sobre formación y utilización de desfibriladores semiautomáticos por personal no sanitario en España

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Objetivos: Existe información suficiente que avala la utilización de la desfibrilación externa semiautomática por personal no sanitario entrenado en pacientes mayores de un año de edad con parada cardiorrespiratoria extrahospitalaria secundaria a fibrilación ventricular o taquicardia ventricular sin pulso. Sin embargo, la regulación legislativa de su aplicación es muy variable. Se compara las normas legislativas de formación y aplicación de la DESA en las diferentes CCAA españolas.
Método: Análisis estructurado de las legislaciones de las CCAA españolas.
Resultados: En España no existe ninguna limitación legal de ámbito estatal para el uso de DESA por personal no sanitario, pero tampoco existe una legislación positiva que lo autorice. Trece comunidades han elaborado normas reguladoras sobre esta materia. Existen tres diferentes modelos de formación en desfibrilación automática (DEA), el público, el externo y el mixto. Todos los programas destacan la necesidad de exigir que la formación sea realizada por instructores y/o monitores reconocidos por el Consejo Europeo de Resucitación o la Asociación Americana del Corazón.
Conclusiones: El desarrollo legislativo de la DEA en las diferentes comunidades autónomas es muy variable: existen normas sólo en 13 de ellas y los modelos son muy diversos. [Emergencias 2009;21:53-61]

Palabras clave: Desfibrilación externa. Desfibrilación semiautomática. Desfibrilador externo automático. DEA. Desfibrilador externo semiautomático. DESA legislación. Formación.