

Defibrillator, and other signs

A community review into the recognition of healthcare and other signage in the UK.



The Community Heartbeat Trust charity

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Summary

There are increasing numbers of defibrillators in the UK. These devices need to be used in a time dependent manner, so recognition of the defibrillator sites quickly is essential to help save that life. The use of a standard signage for defibrillators helps identify the right location, particularly from a distance, and in the dark. But the plethora of signage types is causing confusion. So, what is the right signage to be used, and why? In recent years, several studies have been undertaken showing conflicting outcomes. However, the position in the UK is a series of signage types for defibrillators, which unlike other countries in the EU, is causing confusion and potentially delays to a rescue. This study shows that the ILCOR signage is the most recognised (96% recognition) compared to the BHF/RCUK signage (20%), and like the rest of the EU, should be the standard signage for defibrillators in the UK, helping to avoid confusion and therefore save lives.

- Both ISO and ANSI, as standards organisations, require high levels of recognition (66.66% and 85% respectively)
- Recent research has developed a ‘traffic light system’ for the comprehensibility of signs (Ashe et al., 2018); red, vague: 0-29%, amber, mediocre: 30-59%; green, identifiable: 60-100%)
- Using the traffic light system, the ILCOR defibrillator sign scored high into the green zone (96%) and easily exceeded the standards required by ISO and ANSI
- Using the same criteria, the RCUK/BHF defibrillator sign scored in the red zone (20%) and failed to meet the standards required by both ISO and ANSI.
- This study provides strong evidence in favour using the internationally recognised ILCOR sign instead of the BHF signs currently in use. It also replicates the findings from an earlier CHT study carried out in 2017.

Background

Many studies have shown that good signage for defibrillators can save time in a rescue, one of the most recent being Deakin, et al (Deakin et al Resuscitation 128 (2018) 93-96). In 2006 the Resuscitation Council UK developed a defibrillator sign that was in common use in the UK for 10 years. In parallel, the International Liaison Committee on Resuscitation (ILCOR), an international governance body looking at cardiac arrest, and also the European Resuscitation Council, agreed a standard sign for use internationally for identifying the position of a defibrillator. The ILCOR signage has been adopted by almost all EU countries (Belgium excepted), and also many countries outside the EU. In some it is a legal requirement. An alternative sign was also designed by the American Heart Association, being similar, but red and black, and this is used outside of Europe, and countries with a high degree of US influence, such as in Asia. In the UK, 13 different signs are in active use, which is non-sensical.

In designing signage that allows for speedy recognition of the location and message, several points need to be recognised in the design. In their paper on Signs, Symbols and Icons, McDougall & Tyrer, University of Swansea (Journal of Experimental Psychology: Applied 2006, Vol. 12, No. 2, 118–128) it was found that “*Icons ... need to be designed to optimize search times, taking into account the factors likely to slow down visual search. Three factors likely to adversely affect visual search were examined: the time of day at which search was carried out, the visual complexity of the icons, and the extent to which information features in the icon were grouped together.*” In simple terms the simpler an icon is, the easier and faster to be recognised, and complex icons and signs delay response. Such is the importance of these findings, supported by other workers, that the way ‘head-up’ displays in aircraft, car dashboard layouts, road signs, instructions on electrical equipment and any task requiring fast and instant recognition all have extensively researched designs to maximise the impact. This also relates to the time of day with visual acuity and mental acceptability being lowest during the early hours and mid-afternoon period. These also happen to coincide with the high frequency times for OHSCA (Peckova , et al., Circulation. 1998;98:31-39) and others who suggest a diurnal pattern to OHSCA, although to be fair, others suggest no such rhythm. Either way, signage design is critical in saving lives, and simplicity is the key to saving lives.

In 2015, a study sponsored by the British Heart Foundation (BHF), suggested that there was too little recognition of the RCUK 2006 defibrillator signage (not ILCOR), and that *only* 48% of people interviewed by them recognised this as representing a defibrillator (Resuscitation, Volume 114, P100-105, May 01, 2017). They further went on to identify 3 other styles of signage, and part 2 of their study looked at which of the 3 alternatives were the most popular (highest 56% preference), along with a description of the defibrillator being a ‘Heart Restarter’. Even though this was technically incorrect, it was a phrase preferred by some of those interviewed. The study also showed that the *existing* signage did not deter anyone from using a defibrillator (81%), although the phrasing of the questions *suggested* that it may be difficult, even dangerous, to use a defibrillator. From this they concluded that the defibrillator signage should be *replaced* with their alternative sign, as opposed to an *educational programme* to help members of the public understand internationally recognised signs.

The questions posed were arguably leading. There was no apparent comparison to international standards, nor recognition of different population types, disability, ease of recognition, age/sex/ethnicity breakdown, nor any justification why the remaining 52% could not have been educated to recognise the existing signage. This study came in for criticism, as it represented no objective reason to change direction in signage, and yet has been touted as a ‘definitive’ study

in the media, presented by the BHF press office as “*This is the first time that public consultation has been used to design a public AED location sign*” something ILCOR may dispute, and whilst this may relate to an AED sign specifically, was certainly not the first time work on the area of emergency signage had been undertaken with the public.

Just prior to the publication of this survey, in January 2017, the Community Heartbeat Trust charity published their own survey on the recognition of defibrillator signage, consulting over 700 members of the public. This showed a 90% recognition of the ILCOR defibrillator signage as representing a defibrillator or heart attack, and subsequently CHT went on to question the BHF study and its objectives, when the ILCOR signage was internationally used and recognised. CHT posed the question that changing signage, as proposed by BHF/RCUK, would lead to poorer outcomes and lack of recognition for defibrillators, something that was diametrically opposite to the objective of having recognised signage.

Prior to these two studies, a paper by Aagaard, et al, Denmark (Aagaard R, et al. Heart 2016;1026) looked at the recognition of different types of safety signage by members of the public passing through airports. This study involved 493 international travellers, and asked their recognition of the ILCOR signage, and also a range of other popular signs for fire, emergency exit, no-smoking, electrical safety and explosives. The study also canvassed international resuscitation councils as to their adoption of ILCOR signage. In two EU countries at the time, use of the ILCOR signage was mandatory and contained in law. The study concluded that there was limited public recognition of the ILCOR sign (defibrillator) and that a public awareness programme be initiated to educate the public and ensure standardisation. This recommendation was supported by the EU under regulations standardising signage across all European countries, as well as compliance to BSI/ISO 7071.

No one disputes better use of signage can facilitate saving lives. The evidence is there. The question is why the UK should go a different route to the international view, and why creating confusion is better than good education.

In October 2020, the Community Heartbeat Trust initiated a repetition in part of the Aagaard work, using a mixture of signage in common use in the UK (ILCOR & BHF defibrillator signage, and others).

The plethora of defibrillator signs used in the UK is causing confusion



Several studies have looked at the use of icons and logos in their context of usability and acceptance. In icon search-and-localisation tasks, familiar icons are found faster than their unfamiliar counterparts (e.g. Isherwood, McDougall, & Curry, 2007); simple icons are found faster than complex ones (e.g. Byrne, 1993; McDougall et al., 2000; McDougall & Isherwood, 2009; McDougall, Tyrer & Folkard, 2006; Scott, 1993); and concrete icons are identified faster and more accurately than abstract icons (e.g. McDougall et al., 2000; Green & Barnard, 1990; Rogers & Osborne, 1987; Stotts, 1998). Thus the plethora of different icons for the message ‘Defibrillator here’ in current use in the UK is contributing to confusion, and the use of a single, well designed and tested icon, such as the ILCOR sign, is both beneficial to the recognition of a defibrillator site, as well as meeting psychological and practical tests.

In the UK, the NHS has guidelines regarding signage to make accessibility to emergency services clearer for all parts of the population. The NHS guidance on signage states “*Standard signs that are clear and easy to read, that have sufficient colour contrast and use an appropriate typeface and type size, can be used by many visually impaired people as well as non-impaired site users.*” The guidance looked at end-users and their ability to recognise and interpret signage quickly and easily, and referenced feedback such as

- “too much information on one board”
- “signage is too cluttered”
- “the signs lack impact. They tend to blend with the decor”

As a result, the NHS guidance on emergency signage advises that:

- People expect to be able to read signs quickly, glancing at all the information ... When they cannot find their information quickly they often look for an alternative source of information. If this happens, the signs have failed
- Long lists of information (more than four or five words) should be avoided on signs
- Avoid emphasising too much information on a single sign. This will cause confusion and reduce the prominence of the key information
- Do not use the colour red.
- Consideration should be given for non-English speakers, such as BAME groups, particularly in public areas.
- Font size and style is key to prevent discrimination, particularly to those with reduced sight or understanding

British Standard BS 8501: 2002 (related to International Standard ISO 7001:1990) states that public information symbols describe a standard format for symbols commonly used for public information. It includes pictures of the symbols described, but the standard applies only to the written description; the design of the symbol or pictogram itself can vary. However, where there is a standard symbol that people will recognise, such as those in the British Standard it should be used *in preference to developing a new symbol*. In addition, the Health and Safety (Safety Signs and Signals) Regulations 1996 - enact in UK law an EU Directive designed to harmonise signs across the EU so that signs across the member states will have the same meaning whichever country they are used in. The act states that you should “*Avoid using ... signs which may cause confusion*” - (BS ISO 7071).

The NHS guide continues, “*Unfamiliar (and inaccurate) medical terms should also be avoided, but if they have to be used, a symbol may help people understand the sign*”. The factors which influence the effectiveness of a symbol include:

- how familiar users are with the symbol
- the complexity of the meaning of the symbol
- the size of the symbol and the distance the symbol is to be viewed from

- the positioning of the symbol on the signs
- whether the symbol could be confused with other symbols.

Symbols can be used as an alternative to using multiple languages or dual terms on signs. However, to be effective, site users must understand the meaning of the symbol, or the system of symbols being used. The BSI guidance also states that:

- Avoid using symbols that are too small or too complicated to easily see and understand
- Avoid using symbols that are not easy to recognise
- Avoid using symbols that are badly drawn.

The BSI further advise that good practice includes using standard symbols and not using or developing non-standard symbols

- Use standard, universally recognised symbols wherever possible
- All symbols used on signs should be:
 - simple
 - solid areas of colour rather than made up of lines
 - legible from the intended viewing distance
 - of high contrast with the background colour of the sign
 - of a similar design style – consistent use of colour, line weight etc
- The meaning of the symbol must be clear – any non-standard symbols must be evaluated for understandability.

Thus, the development and usage of multiple signage for defibrillators in the UK, as opposed to the adoption and use of a standardised international system, is potentially both confusing and dangerous. The argument by the RCUK/BHF in the development of the new signage was, whilst on the surface, a useful exercise, has in fact re-enforced a confusing situation, and made matters arguably worse.

The claim that people did not understand the ILCOR signage was not in fact supported by alternative studies, and so this new study was designed to put clarity on this matter.

Method

In October 2020 a survey of signage and recognition was sent to members of the public over the internet and also by face:face interviews. The target was to obtain 750 respondents over the course of a week to 2nd November (28/10 – 02/11). The data also collected the age and sex of the respondents, as well as if they had any association with medical/first aid/health so that a sub-analysis could be undertaken to see the difference between sub-groups. Respondents were also asked if they travelled abroad on a regular basis for work or leisure. A total of almost 10,000 people were canvassed to take part, comprising of data from CHT, Rotary GB&I, Community news groups, and others. In total 949 responses were received in the study period (9.94% response).

The signs used for this study were:

	Sign	Visual
1	First aid point	
2	ILCOR defibrillator (text removed)	
3	Emergency exit	
4	Electricity warning	
5	BHF defibrillator (text removed)	
6	Road warning/hazard	
7	Asclepius ambulance sign	
	NOT USED - Fire	
	NOT USED – No Smoking	

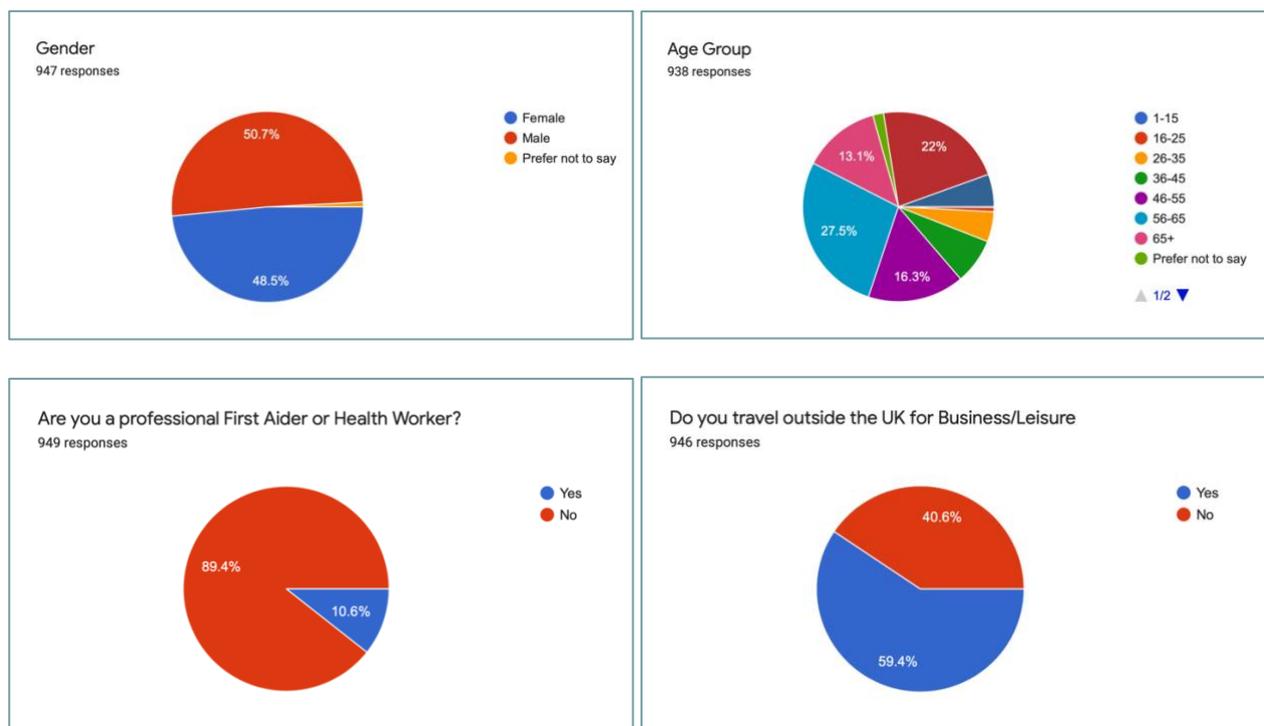
The decision to exclude the fire symbol, and non-smoking, which were used in the Aagaard study, was that this was considered to be too well known and visual, with the visual itself indicating too clearly the use. We would have expected 100% recognition of this, and so it served no practical use to the study. Questions required simple multiple-choice answers to questions, allowing a single answer per question. An ‘other’ option was allowed so respondents could identify other choices.

The actual meanings of the signs were not revealed to the respondents, and any descriptive text was removed. Results were transferred to a spreadsheet for cross analysis.

Results

949 responses were received between October 28th and November 2nd, 2020, through internet on-line questionnaire, and from face:face questioning. All responses were UK based except for 4 responses – 2 from Canada, 1 from Australia, and 1 from Greece. These were all UK nationals overseas at the time of the survey.

Demographics:



The study showed a broad range of demographic types, which were considered to be representative of the UK population.

Almost 60% of the respondents reported they travel outside the UK on holiday or business. This is significant as international signage is based upon the ILCOR style of sign and therefore not adhering to ILCOR represents a discrimination against travellers who may be required *in law* to respond to an event in some countries overseas, and not recognising the correct signage could represent a delay in saving a life. Similarly, travellers to the UK are being discriminated against by the use of non-standard signage in the UK. Again, particularly in holiday areas, and areas where there are significant numbers of international travellers (holiday parks, tourist attractions, conference centres, event venues) this could lead to a delay in treatment.

Professional healthcare workers, and those with medical training should be able to instantly recognise emergency medical signage, regardless of type and location. It was concerning that only 1/3 recognised the meaning of the RCUK/BHF signage (compared to 98% ILCOR).

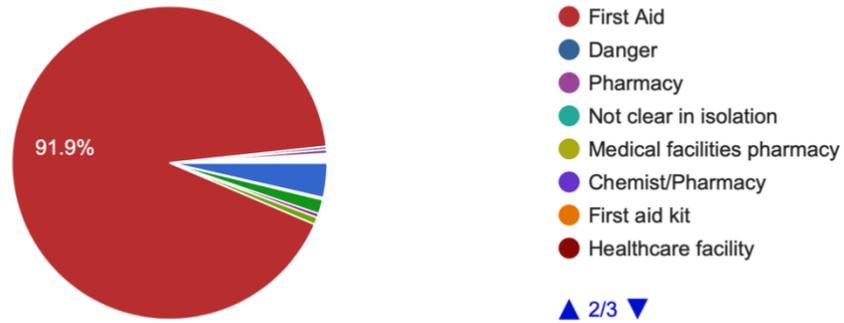
Given only 29% recognised the sign for an ambulance, using the same logic as the 2017 study, these signs should be changed as well!

P values for the data is <0.001 for the defibrillator elements. Sub analysis groups P <0.01.

Study results – direct answers:

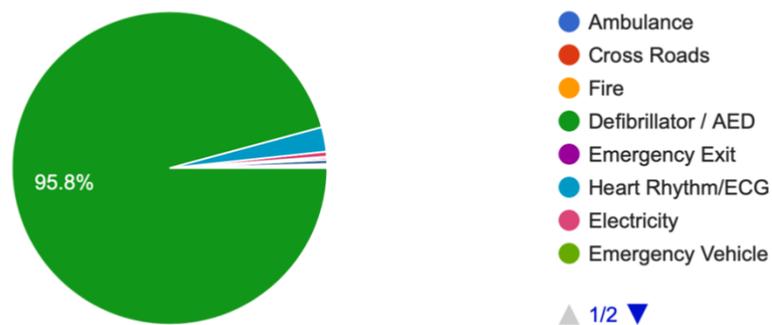
Sign 1 – First Aid point – 91.9% correct recognition

949 responses



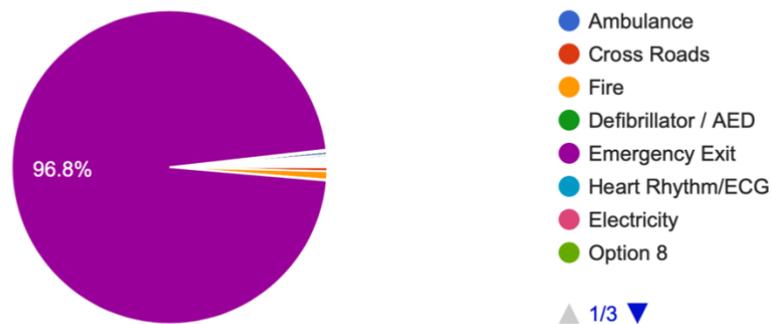
Sign 2 – ILCOR defibrillator sign (words removed) – 95.8% correct recognition

949 responses



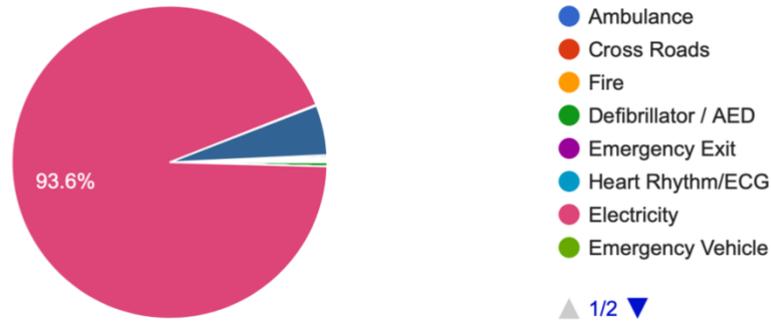
Sign 3 – Emergency exit – 96.8% correct recognition

949 responses



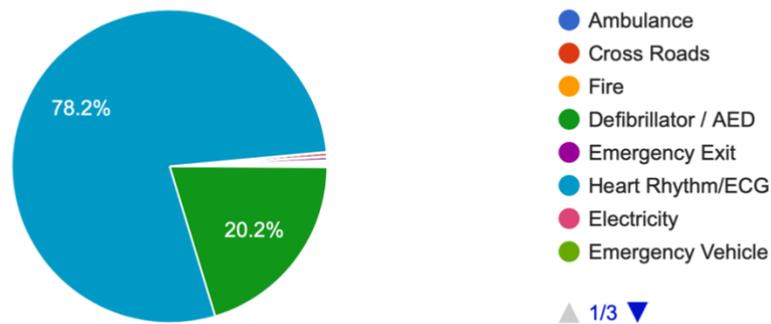
Sign 4 – Electrical warning – 93.6% correct recognition

949 responses



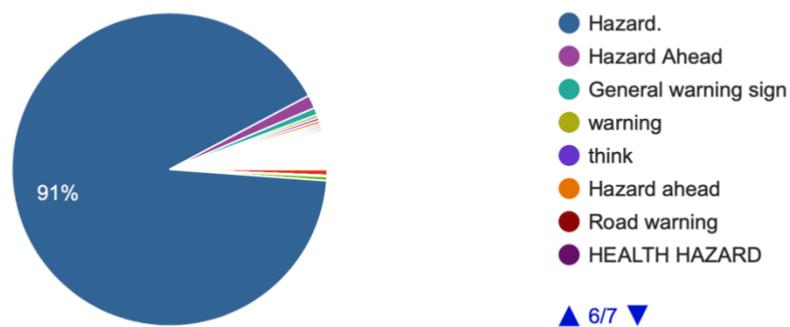
Sign 5 – BHF/RCUK Defibrillator signage (words removed) – 20.2% correct recognition

949 responses



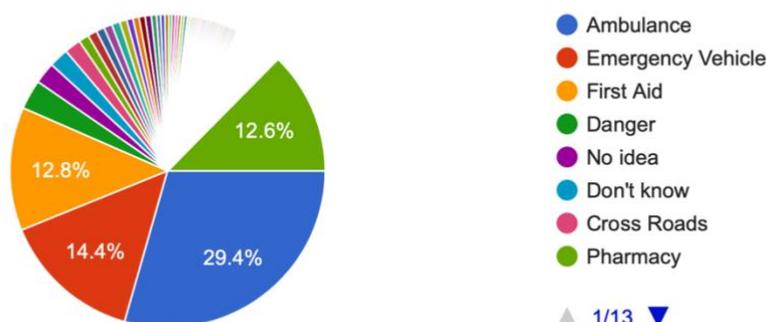
Sign 6 – Danger road sign – 91% recognition (with additional recognition for alternate wording)

949 responses



Sign 7 – UK & International ambulance signage – 29.4% correct recognition (but when allowances for additional wording such as ‘emergency vehicle, doctor, Medic on call’ included this was increased significantly)

949 responses



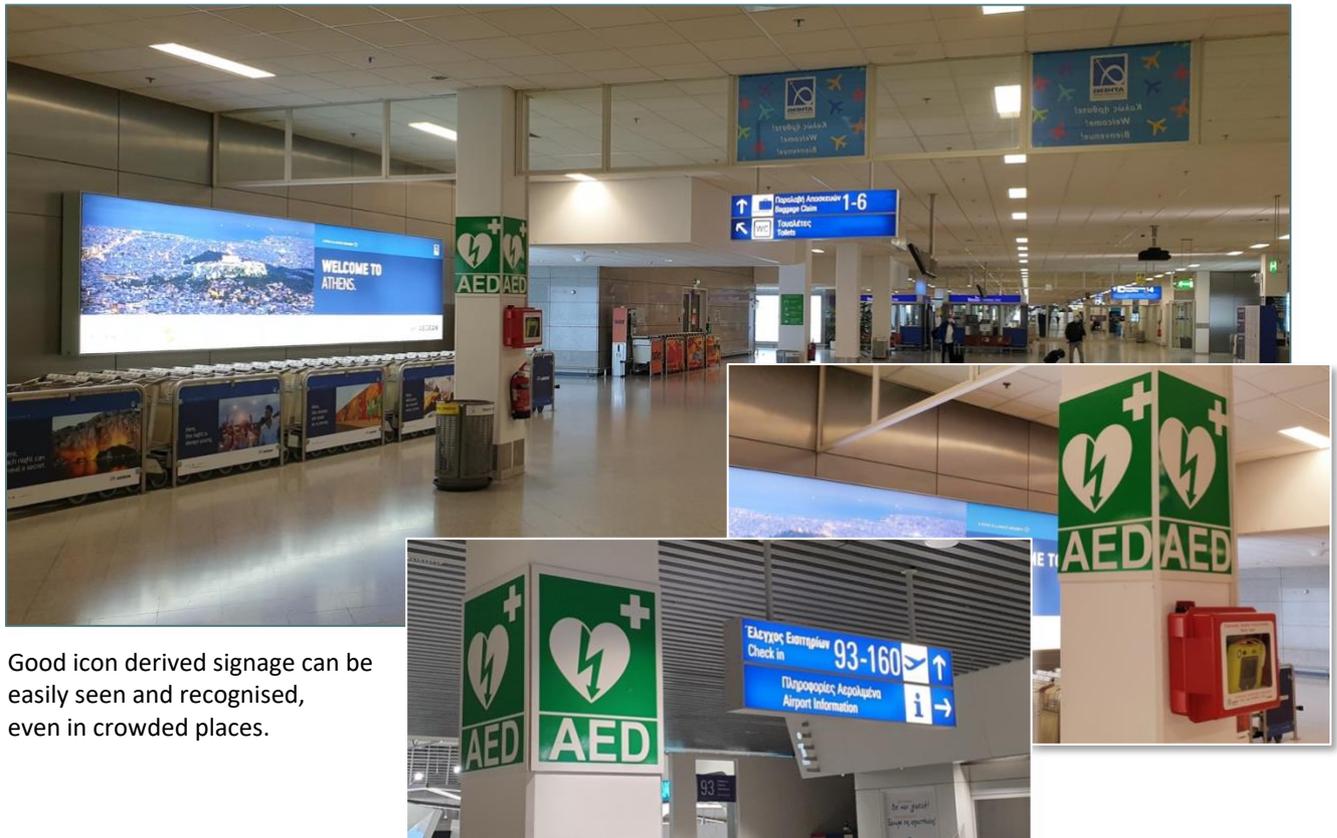
Further cross analysis shows that there is clearly a lack of understanding of the BHF/RCUK signage, even amongst trained users. The ILCOR signage is recognised on average 4.5x more than BHF, 3x more in medically trained and 5x more in non-medically trained respondents.

Feature	Recognise ILCOR sign	Recognise BHF/RCUK sign	comments
Professional first aiders/medical knowledge	98/101 – 97%	33/101 – 33%	Given the publicity and efforts to advise on the new BHF/RCUK signage, the low numbers of trained users failing to recognise the signage is worrying
Non-Medical	812/848 - 95.7%	159/848 – 18.7%	
Male	96%	19.7%	
Female	95.7%	21.1%	
Over 65	93.1%	21.7%	
35-65	97.4%	21.7%	
Under 35	94.9%	12.8%	
Travellers	98%	21.2%	

Travellers who recognised ILCOR but did not recognise BHF	77%	<1%	Travellers who recognised BHF but did not recognise ILCOR
Non-travellers who recognised ILCOR but did not recognise BHF	74%	2.1%	Non-travellers who recognised BHF but did not recognise ILCOR
Travellers that recognised neither ILCOR nor BHF	5.2%	29.9%	Travellers that recognised both ILCOR and BHF, but not necessarily as a defibrillator

Further cross-analysis is available.

Discussion



Good icon derived signage can be easily seen and recognised, even in crowded places.

This study started on the suggestion that the existing and internationally used and tested defibrillator icon for a defibrillator by ILCOR should be the standard to be used in the UK. The evidence for this is overwhelming, but is backed up by strong science dating as far back as the 1960's. In 1968, it was internationally agreed that all road signage should be standardised. In 2003 this was enhanced and the TERN working group stated that *“there is an undeniable need for improved and harmonized signalisation of traffic related messages in general, and danger warning information in particular”*. This was to prevent accidents and harmonised messages independent of language, culture and avoid confusion in stressful situations.

“The process of developing and choosing icons is very subjective. Icons are frequently incorporated into system designs on the basis of consensus, opinions, and aesthetic preferences of the system development team. While such a process can result in an effective icon, it also runs the risk of producing unclear and ineffective icons” (U.S. Department of Transportation, Publication number FHWA-RD-98-164, 1998)

“Under the current Health and Safety guidance for first aid signage, this has now been extended to include signage to direct people to the nearest defibrillator, as well as signage at the defibrillator site itself. Again, this signage should be universal and in accordance with the ILCOR recommendations”. “The Regulations enact in UK law an EU Directive designed to harmonise signs across the EU so that signs across the member states will have the same meaning whichever country they are used in.” (Health and Safety (Safety Signs and Signals) Regulations 1996).

A typical scenario: What happens when someone collapses and may have stopped breathing?

Members of the public will ring 999 at the patient (although it cannot be assumed that everyone knows how to ring 999, and anecdotal evidence suggest that less than 5% of the population have ever dialed for an ambulance in the UK). Once connecting to the ambulance control room, they will be asked two questions: “*is the patient breathing; is the patient conscious*”. If the answer is negative to either question, they caller will be instructed to commence CPR. The UK target for commencement of CPR is 60s from the receipt of the call. They will then be asked if they are alone, or if someone is there with them. If there are two rescuers, then they be advised, if appropriate, where the nearest *available* and *operational* defibrillator is; and told to go and collect this, being advise of any access code. Deakin et al, 2020, suggested that unless there is good easily recognisable signage available to help recognise the location, then this will cause delays to the rescue, and a less positive outcome. Recognition of the location will depend upon good and easily recognisable signage. If the rescuer is alone with the patient (‘lone rescuer’) or if the defibrillator is outside the recognised ‘Activation radius’ of the ambulance service in question, then they will not be asked to collect the defibrillator. Ambulance activation radius’ in the UK vary from 150m to 1600m. There is no national agreement on this ‘activation radius’.

Members of the public will then be searching for a defibrillator sign, to help aid in the identification of the defibrillator location. It cannot be assumed that the person collecting the defibrillator is *au fait* with the local geography, and so this supports the work being undertaken by University of Edinburgh, and University of Warwick into locational ideas in defibrillator placement, and also the work by Deakin et al 2020. Visual search is aided by simplicity and visual distinctiveness. Fast and accurate recognition/comprehension, as a concomitant of the visual search process, is very important. While familiarity aids recognition in an emergency situation, it is best to assume that familiarity with the symbol should not be an issue – what is critical is ease of visual search and fast and accurate recognition irrespective of the ability to read or to read in a particular language. Simplicity is key.

Our study looked at several types of signage, all in common use, but specifically looked at the recognition of the ILCOR signage and the RCUK/BHF signage for defibrillators. Particular attention is paid the participants’ recognition for the current signage recommended by the BHF relative to the internationally recognised ILCOR standard, as recommended by the ERC.

In developing signage there are international standards for the design process. It is unclear as to whether the RCUK/BHF signage was ever checked against these standards, before introduction. It is not uncommon for signs currently in use to fall below the standards required, but it is important that changes should be made when issues become known especially with signs likely to be used in emergencies which have proven better alternatives.

In OHSCA, clearly, instant and easy recognition of emergency signage can help in a rescue. Time is critical with the delay in responding resulting in a 23% degradation of the heart per minute in humans (DeMaio et al. (OPALS) *Ann Emerg Med* 2003; 42: 242). Internationally, the ILCOR signage is used in most EU countries and has been established as a standard form of signage to represent a defibrillator. The European Resuscitation Council in November 2019 reminded all countries of the need for standardisation of signage to save lives, and recommended the ILCOR signage as the preferred and tested design. The ILCOR signage is also used by most defibrillator manufacturers internationally, and to deviate away from this

would require re-registration of the equipment with the regulatory authorities. Hence any new design proposals should be both tested internationally, against ANSI and ISO, as well as with the agreement of the medical equipment providers. No evidence presented that this has been undertaken with the BHF/RCUK signage, and it is reasonable to assume that implementation has been undertaken without due regard for the practicalities or impact.

To add further support to this matter, Sidebottom et al., (Resuscitation 128 (2018) 93–96) concluded that the “*easy identification or public knowledge of PAD location*” was a major contributory factor in saving lives, and further concluded that “*The inadequacy of signage for PADs, more than two thirds of community PADs in our survey were lacking any signage whatsoever. In the 7.5% where signs were present at variable distances from the AED, it was usually no more than 5m from the AED itself. The overall lack of clear signage is likely to delay or limit the availability of public access defibrillators, even if there are sufficient numbers for geographic coverage and a bystander is willing to retrieve and use an AED. Previous research has shown that AEDs are often challenging to locate and access ... The lack of signage also misses the opportunity to raise awareness in the local community of the need for an AED when someone collapses. With the time critical nature of defibrillation, even relatively small delays in retrieving an AED may adversely affect outcome.*”

The study by Aagaard, et al, (Aagaard R, et al. Heart 2016;1026) suggested that even though the ILCOR signage was in a wide use throughout the EU, there was indeed some lack of understanding in the test group as to the meaning of the signage. Aagaard went on to say *education* was important in making sure that signage is understood. In a separate study looking at emergency signage in the medical environment, Rodrigues, et al (HERD, July 2019) identified that there is a huge need to create *universal and standard guidelines* for designing and implementing signage systems in healthcare. Leonard et al. (2014), found that, to be effective, signage needs to be consistent and under a *standardised* design.

The NHS signs regulations states that “*Signage should be as clear and simple as possible, consider the needs of people who have a disability, impairment or sensory loss when producing signage to ensure it is accessible e.g. text size, colour contrast, inclusion of braille, use of symbols and pictures.*” and the Accessible Information standards (NHS England) states that “*The Standard sets out a specific, consistent approach to identifying, recording, flagging, sharing and meeting the information and communication support needs of patients, service users, carers and parents with a disability, impairment or sensory loss.*” By law (section 250 of the Health and Social Care Act 2012), from 1st August 2016 onwards, all organisations that provide NHS care and /or publicly-funded adult social care must follow the standard in full. This includes all NHS ambulance services, and any organisation offering or placing primary care services activated via NHS organisations, which arguably includes the placement of community defibrillators, into the public domain, particularly where activated by ambulance services. The UK Department of Health in 2012 made clear that communication of messages should be clear and that “*this includes thinking about language and interpretation support and ensuring that all communications are in formats that each of us – as the individual recipient of the care – can understand.*”

The Equalities Act 2010 states that there should be no discrimination of any sorts on communicating messages, and any communication should be “*clear and unambiguous*”.

Collectively the above areas suggest that the icons used to convey a message should enable clarity and understanding, and should not be designed in any way that could cause confusion in an emergency. The study by Smith, et al (Resuscitation, Volume 114, P100-105, May 01, 2017)

whilst useful in the sense that it was probably one of the first to look at defibrillator signage in the UK, was lacking in that it made the assumption that there was a major deficit of understanding of the current defibrillator signage, and that as (in their study) as only 48% of those asked recognised the iconography, this merited investigation and ultimately recommendation of internationally recognised signage to be replaced. This study did not appear to test the results against disability or iconography standards. According to correspondence received by CHT from HSE, this signage design was not ‘approved’ by HSE, only that HSE commented that they had no objection to its use, in line with other similar signage (letter on file). The study also asks participants for the most “user-friendly term” and ‘preferences’, ie very subjective matters.

The work by the Community Heartbeat Trust charity in 2017 gave a significantly different picture, in that this showed the ILCOR signage was recognised by the majority of the public canvassed (90.6%) as representing a defibrillator or a heart attack, and that the proposed signage by the RCUK/BHF lacked clarity, understanding, and recognition. The CHT 2020 study gave the ILCOR signage a 95.8% recognition. The 2020 study showed that those with a first aid, or medical, background where one would expect reasonably that they would have been very familiar with defibrillator signage, achieved a 97% recognition compared to BHF/RCUK of only 33%. The situation was further exacerbated by the greater recognition of the ILCOR signage by those that travel on holiday or business, and the almost zero recognition of the RCUK/BHF signage amongst this group. This is a serious issue in that the new proposed signage is therefore discriminating against visitors to the UK, and vice versa, those travelling overseas, in their ability to recognise a defibrillator placement quickly and easily, and as Deakin et al. state, this can cause delays in rescues and potentially adverse outcomes. A position CHT has been highlighting since the RCUK/BHF signage was introduced in 2017.

This study shows that the RCUK/BHF signage is viewed as a heart rhythm trace (78% of respondents) and not a defibrillator. Anecdotal evidence also reported back to RCUK in 2017 and 2018 (letters on file) had also suggested this may be the case, citing examples where two community public access defibrillators (cPAD) in a Welsh village had ILCOR and BHF signage respectively. Questions to the public showed that the ILCOR site was recognised as a defibrillator whereas the BHF signed site was referred to as the “ECG machine”. It had already been pointed out to RCUK that this new signage was causing confusion as to what a defibrillator did and how it worked, not helped by the simplistic reference to a defibrillator being a ‘heart restarter’ when this is not the case. The use of this term may be justified on the basis of simplifying the understanding by the public, but surely better to inform and educate people as to the correct terminology and function? We believe that the use of incorrect terminology will only cause added issues later, and contradict established training in OHSCA and CPR.

The increasing use of confusing signage, when the issue has already been identified, also lays open front line organisations offering this to allegations of negligence and lack of duty of care, in that they are knowingly offering confusing information in life saving situations.

The design of the ILCOR signage had been undertaken with respect to both icon design and recognition factors. It is unclear if the proposed RCUK/BHF signage had the same level of study. However, looking at the design in comparison to the NHS guidance and that of the BSI and icon studies, would suggest that the design had been formulated to convey as much information as possible via text.

There seems to be some confusion with the thought process behind the development of the RCUK/BHF signage in that the role of a sign is to attract attention quickly and without confusion, in a format that is adherent to good design and communication processes. The RCUK/BHF design seems to mix up the *recognition needs* with the *information needs*, and straddle a half way point between the two. We have therefore suggested (elsewhere) an amended design, to incorporate some of the RCUK communication objectives yet retain the standardisation of ILCOR. We have attached the information poster already being used by CHT. The ILCOR defibrillator signage being used is at the front of this report.

Defibrillator

Anyone can save a life, even without being trained!
It's as easy as 1 - 2 - 3

International defibrillator symbol – you can see this all over the world!
AEDs save lives by STOPPING the heart, allowing it to restart on its own

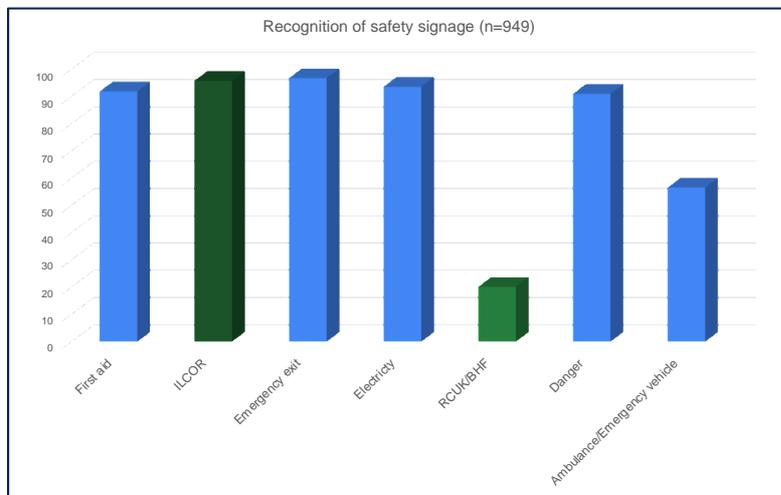
1 CALL FOR HELP 2 START CPR 3 USE AED

If you find someone unconscious, not breathing or gurgling, and gone a funny colour

1. Call 999
2. Start chest compressions (CPR)
3. Apply the defibrillator (AED) when it arrives

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The Community Heartbeat Trust

One area of the study was to look at recognition of the signage by age. The results showed greater recognition towards the more elderly end of the age spectrum, and it could be critiqued that more people of the under 35 age group should have been canvassed. However, this also reflects those involved with community defibrillation where overwhelmingly the ages of those checking defibrillators; using defibrillators; and those managing community defibrillator projects are of the over 50 age group. Numerous studies have shown that sign recognition is generally poorer in older adults. This is not the case here where recognition of the ILCOR sign was comparable in younger adults while recognition of the BHF was slightly poorer.



It would be very easy to dismiss this study, as it was not done via a standard academic organisation. However, this does not alter the observations and outcomes, or relevance of the information. This study shows almost conclusively that the RCUK/BHF signage for defibrillators is not being recognised, and does not confirm to international studies. Worse, it is being viewed as a sign for heart rhythms and not

defibrillators, even amongst trained users. As such the RCUK/BHF signage should be withdrawn and a guidance made to UK sites to standardise on internationally recognised ILCOR signage. RCUK have a possibility to take a positive position here and offer constructive leadership in this matter, and we would encourage them to do so.

Year of study	2015	2016	2017	2020
Public recognition of ILCOR signage	39%	48%	91%	95.8%

With some 13 different signage types being used in the UK, this non-standardisation is causing confusion, and will eventually cause a delay in a rescue with a negative outcome as a result. This cannot continue. We ask RCUK to urgently address the failings of the current recommendation, and whilst noting that the current RCUK position is a *recommendation only*, as no other options are being presented by RCUK it is a *recommendation of a single design* only. In simple terms, it is not a *recommendation*, but an *instruction*. CHT have also attended presentations by BHF staff and also by some Ambulance staff who have stated very clearly that the RCUK/BHF signage is a “legal requirement” to use, which is it is clearly not, and this misinformation is again causing confusion, as well as bringing these organisations into claims of potential disrepute. That would not be a healthy situation. We are all here to save lives.

In conclusion,

There is now no justifiable reason to continue with the confusing array of signage types and we encourage all organisations to standardise on the ILCOR signage without delay.

CHT also supports the recommendations for more signage and endorses many of the comments by Deakin et al (Resuscitation 128 (2018) 93-96) as below. CHT would endorse that:

- All public access defibrillators should have signage to enable rapid location of the nearest AED. This signage should be visible both where the AED is stored (preferably in an external cabinet) and additionally, anywhere within the operational radius of the AED, generally a minimum of 200 m.
- The AED sign should be ILCOR
- In addition to the AED symbol, signage should indicate the direction and distance to the AED.
- Signage should be of sufficient size to be identifiable from a distance of 50 m (Requiring lettering of approximately 12 cm in height).
- The AED cabinet should be illuminated at night and where possible, exterior signs should also have supplementary lighting, or at least be made of photoluminescent or retro-reflective material.
- All cPAD signs must be properly maintained; we recommend that all signs associated with the cPAD are inspected at the same time that the AED undergoes its routine checks (at least annually).

Save lives - don't confuse people- keep it simple

The Community Heartbeat Trust charity, November 2020

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