



Defibrillators

Do I need an AED? The first aid needs assessment

Introduction

All businesses and organisations will undertake a first aid needs assessment to determine the level of first aid provision within their workplace as a part of their responsibilities to protect the safety of their workforce and visitors. As an organisation or company it is a legal requirement to take precautions to reduce foreseeable risks, to document this and be able to present it to the HSE if requested. As part of this assessment it is quite appropriate to consider the risk of a cardiac arrest occurring in the workplace and investing in automated external defibrillators (AED).

Completing a first aid needs assessment entails making an estimate of the risk of a cardiac arrest occurring at a location and considering the potential consequences if it were to occur. The process is not as complicated as many people think. In its most basic form, it is a way of recording the steps taken to ensure the safety of people at a particular site. By putting this information in a standard format, it allows companies and organisations to ensure that everyone is following the same steps. Companies will often do their assessments in slightly different ways, although most share the same basic information. This is not intended to be a rigid, objective or scientific process but just a simple method to help managers to prioritise and take appropriate measures.

It is not a legal requirement to perform such an assessment, but it is considered standard practice. Assessing and recording risks in one place (e.g. a charity shop) might be a very different matter from recording risks in another (e.g. a coal mine). This is why there is no universally accepted format for conducting a risk assessment. Further information and worked examples are available from the Health and Safety Executive (HSE) on their website <http://www.hse.gov.uk>

How to assess the need for an AED

The method of conducting a first aid needs assessment advocated here employs the widely used methods used to assess the risk of any adverse event occurring. The key procedure is the calculation of a numerical score based on two variables:

1. The likelihood of an event occurring.
2. The consequences or severity if the event actually occurred.

Each of these variables is given a score from 1 - 5 and the product of the two scores provides a total score on which to base actions.

1. The likelihood of cardiac arrest occurring

The risk of an arrest occurring varies according to several factors, each of which should be considered when assigning the score.

- The number of people passing through the site/footfall. In most cases, the larger the number present, the greater the risk.
- The age of those present (as cardiac arrest is commoner with increasing age).
- The nature of the location. Some places are higher risk than others. Experience has shown that where large numbers of the public are present in busy places like transport hubs (e.g. airports and railway stations) cardiac arrests are more likely to occur. In others places, the nature of the work undertaken (e.g. the use of toxic chemicals) may be relevant to deciding on the need to invest in an AED.

To help attach a numerical value to the likelihood of cardiac arrest occurring, the descriptions in the following table can be used.

Table 1

Probability	Score	Probability of risk being realised	Description
Almost certain	5	76 - 100%	Risk has high likelihood of occurring despite precautions
Likely	4	51 - 75%	Risk has high likelihood of occurring
Moderate	3	26 - 50%	Risk has a moderate likelihood of occurring
Unlikely	2	11 - 25%	Risk is considered unlikely to occur
Rare	1	0 - 10%	Risk will occur in rare circumstances

In the case of cardiac arrest the likelihood of the event occurring in most public places and workplaces will be low with a score of 1 or 2. Examples might include a small shop, garage or workshop. Some higher risk sites like busy transport hubs and sports centres will justify a score of 3, possibly even 4. Higher scores are unlikely outside a specialist healthcare setting.

At present there is insufficient published evidence to give precise or dogmatic advice for an individual location and the rating score applied has to be a 'best-guess' or estimate. More accurate information will be available with increasing experience and we encourage research in this area.

2. The consequences (severity) of cardiac arrest occurring

In a typical risk assessment, a score of 1 - 5 will be allocated based on the consequences of the event occurring. Table 2 shows a convenient grid that might be used.

Table 2

Score	Consequences	Description
1	Negligible	Minimal or no effects if event occurs
2	Minor	Consequences very minor, no lasting effects
3	Moderate	Important consequences
4	Major	Significant impact / injury on anyone affected
5	Extreme	Death or serious injury

However, cardiac arrest is uniformly fatal (unless treated), so the score will always be 5. Even if resuscitation is successful, the impact on the individual will be significant, for example they will be in hospital for some time and probably require additional clinical interventions, so the score will remain the same at 5.

Risk rating score

Risk = Severity (5) x Likelihood

By multiplying the scores for the severity and likelihood, the risk is given a numerical value ranging from 1 (unlikely to happen and with minimal consequences even if it does occur) to 25 (highly likely to happen with disastrous consequences). Given the severe consequences of cardiac arrest in the present example the minimum score will be 5. Table 3 shows a convenient way to plan a response depending on the score calculated.

Table 3

Rating Score	Action
1 - 4*	Broadly acceptable - No action required
5-9	Moderate - reduce risks if reasonably practicable
10 - 15	High Risk - priority action to be undertaken
16-25	Unacceptable -action must be taken IMMEDIATELY

* This score will not be possible in the case of cardiac arrest because of the severe consequences necessitating a minimum score of 5.

Alternatively, the colour of the square on the grid in Figure 1 that contains the calculated risk score can be used to guide actions.

Figure 1. Risk Assessment grid

FREQUENCY	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		SEVERITY				

Low risk (green) – Quick, easy measures implemented immediately and further action planned for when resources permit.

Moderate risk (orange) – Actions implemented as soon as possible, but no later than the next financial year.

High risk (yellow) – Actions implemented as soon as possible and no later than six months.

Extreme risk (red) – Requires urgent action. Senior management to be made aware and immediate corrective action to be implemented.

The majority of locations with a low footfall will score below 10, but busy transport hubs would score at least 15, possibly 20.

Management of risk of cardiac arrest

The best chance of successful resuscitation will be when defibrillation and other first aid procedures are carried out with the minimum delay (ideally within in the first three minutes). The chances of resuscitation fall by at least 10% with every minute that defibrillation is delayed so there is a very real advantage in having an AED available on site. Figures of 75% survival have been reported when defibrillation is performed within three minutes of someone collapsing, a time frame rarely possible for the ambulance service who aim to reach the majority of urgent calls within eight minutes.

Using the close proximity of an ambulance station as a justification for not installing an AED, will introduce a flaw in your risk assessment. As this assumes that ambulances are always on standby in the ambulance station. What actually occurs is that the NHS Ambulance Trust will deploy the ambulance where it is most likely going to be needed and this may be a considerable distance from the station.

Using the risk assessment system described above, most sites will score either 5 or 10 which suggests that there is a reasonable possibility of a cardiac arrest occurring in most locations. Unfortunately, there is very little that can be done to reduce this risk. This means that the only practicable action possible is to ensure that in an emergency the location and accessibility of the AED is easy and well known to all staff (particularly those who are required to act as workplace first aiders). In these situations it is also important that staff receive regular training in resuscitation techniques and are familiar ideally through training in how to use an AED. Indeed HSE in their guidance strongly recommend that workplace first aiders receive annual refresher training in order to maintain their competency.

*BLS Subcommittee
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