

Appendix 1: First Aid Needs Assessment for Automated External Defibrillators

[Adapted from the [Resuscitation Council UK](#) – *do I need and AED?*]

In terms of AEDs, the RC(UK) states that “completing a first aid needs assessment entails making an estimate of the risk of a cardiac arrest (CA) occurring at a location and considering the potential consequences if it were to occur”.

In doing so, the RC(UK) suggests that the likelihood of a sudden CA (SCA) occurring will be influenced by the:

- number of people using a facility (including the public if first-aid treatment is offered to them)
- risk of cardiac arrest occurring at the site due to the profile of users (e.g. predominantly middle-aged males or older persons)
- type of work activities or premises (e.g. physical exertion or stressful environments).

Generally, cardiac arrest is more common with increasing age and, clearly, the more persons present the more the likelihood of an arrest occurs. Therefore, the person completing the assessment will need to determine the number of persons for whom first aid will be provided (including the public, visitors, contractors, etc).

The RC(UK) then suggests applying a 1–5 scale with 1 being a rare occurrence of SCA and 5 being almost certain of occurring. Of note, the guidance to this states that “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”.

The 1–5 scale is also applied to consequence but RC(UK) highlights that “cardiac arrest is uniformly fatal (unless treated), so the score will always be 5” and that “even if resuscitation is successful, the impact on the individual will be significant, so the score will remain the same at 5”.

The scores are then combined in a 5x5 matrix to give a determination of need, details of which can be found on the RC(UK) website.

Of interest, international resuscitation guidelines advise that evidence supports the establishment of public access defibrillation programmes when the:

- frequency of cardiac arrest is such that there is a reasonable probability of the use of an AED at least once in two years
- time from call out of the conventional ambulance service to delivery of a shock cannot reliably be achieved within five minutes
- time from collapse of a victim until the on-site AED can be brought into use is less than five minutes.

This last factor, in particular, suggests that the needs assessment should be taking into consideration of the location and use of an AED.

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Worked examples – for illustrative purposes only:

To help attach a numerical value to **the likelihood of cardiac** arrest occurring, the descriptions in the following Table 1 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 GUILDHALL – has happened before |
| Likely | 4 | 51 - 75% | Risk has high likelihood of occurring BARBICAN CENTRE |
| Moderate | 3 | 26 - 50% | Risk has a moderate likelihood of occurring |
| Unlikely | 2 | 11 - 25% | Risk is considered unlikely to occur KEATS HOUSE |
| 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.

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.

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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.

Example scores:

Guildhall $5 * 5 = 25$ “Unacceptable” – has provision of 2 AEDs

Barbican $5 * 4 = 20$ “Unacceptable” - has provision of 2 AEDs

Keats House $5 * 2 = 10$ “High Risk” – has provision of 1 AED

NOTE: from RC (UK):

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.