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Perform manual external defibrillation on a child or young person



Overview

This standard covers preparing for and performing external defibrillation on a child or young person in order to establish an effective cardiac rhythm.

Users of this standard will need to ensure that practice reflects up to date information and policies.

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Performance criteria

You must be able to:

- P1 establish the appropriateness of parental or carer presence during the process and ensure that provisions are made to accommodate this or make alternative arrangements
- P2 establish an open airway and adequate oxygenation of the child or young person
- P3 accurately establish the type of rhythm/arrhythmia at the earliest opportunity
- P4 initiate other means of establishing cardiac output prior to attempting defibrillation unless the child or young person develops a shockable rhythm while being monitored
- P5 evaluate for and eliminate or correct any specific potential causes or aggravating factors:
 - P5.1 for which additional treatments would be needed
 - P5.2 which would contraindicate the application of defibrillation
- P6 determine the interventions needed to deliver the optimum outcome for the child or young person depending on:
 - P6.1 the outcomes of your assessment of their condition
 - P6.2 the risks that need to be managed
 - P6.3 agreed goals
 - P6.4 the environment (hypothermia and immersion casualties)
- P7 prepare the child or young person, equipment and others appropriately for the interventions to be carried out, maintaining their privacy and dignity as far as possible within the context
- P8 apply electrodes, pads and paddles for optimum effectiveness
- P9 apply the appropriate type and energy level of defibrillation for the child or young person within the optimum time frame in line with:
 - P9.1 evidence based practice
 - P9.2 your own scope of practice
 - P9.3 legislation
- P10 evaluate the effectiveness of the defibrillation attempts, taking due account of the potential for myocardial stunning
- P11 apply basic life support appropriate to the child's or young person's needs in the intervals between defibrillation attempts
- P12 reinstate equipment and materials to working status after use
- P13 ensure your safety and that of practitioners or others such as family members or carers as appropriate to the situation
- P14 secure the child's or young person's airway
- P15 ventilate the child's or young person's lungs with the highest possible concentration of oxygen given:
 - P15.1 the skills and equipment available at the time
 - P15.2 the developmental stage of the child or young person

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- P16 provide life support in a manner that is consistent with:
 - P16.1 evidence based practice
 - P16.2 your own scope of practice
 - P16.3 legislation and national guidelines
- P17 where necessary to achieve an optimum outcome for the child or young person, establish and deliver an appropriate dose of a relevant drug
- P18 administer drugs through the most appropriate access route taking account of:
 - P18.1 evidence based practice
 - P18.2 the skills available
 - P18.3 the equipment available
 - P18.4 the child's or young person's condition
- P19 continue life support uninterrupted except during defibrillation attempts or pulse checks
- P20 monitor and evaluate the effectiveness of the interventions
- P21 continue, repeat or modify the interventions undertaken as appropriate to achieve the optimum outcome for the child or young person in line with:
 - P21.1 evidence based practice
 - P21.2 your own competence and authority
 - P21.3 the child's or young person's condition
 - P21.4 legislation
- P22 record the details of the interventions given accurately, clearly and in line with organisational protocols
- P23 reinstate equipment and materials to working status after use

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Knowledge and understanding

You need to know and understand:

- K1 the anatomy and physiology of the respiratory and circulatory systems in a child or young person, including the electrical conduction pathway of the heart
- K2 the impact that the age and development stage of the child or young person will have on their condition and your response to it
- K3 the clinical signs of causes and aggravating factors necessitating additional interventions alongside advanced life support
- K4 the priorities in life support (ABC)
- K5 the other means of resuscitation which may be applied while preparation is underway to use a defibrillator
- K6 the content of the Paediatric Advanced Life Support (PALS) Guidelines as issued by the UK Resuscitation Council
- K7 the time frame within which assessment of the needs of the child or young person should be carried out and the resuscitation response initiated
- K8 the universal algorithm for the management of cardiac arrest
- K9 what is happening when a child or young person is in each of the following:
 - K9.1 ventricular fibrillation (VF)
 - K9.2 ventricular tachycardia (VT)
 - K9.3 peri-arrest arrhythmia
 - K9.4 asystole
 - K9.5 pulseless electrical activity (PEA)
- K10 the normal wave-form pattern of a healthy heart
- K11 the anatomy and physiology relevant to different external chest compression techniques
- K12 the measures to be taken to ensure health and safety, infection control and the prevention of contamination
- K13 the need to adapt pressure and oxygen concentration in relation to lung size in order to avoid organ or tissue damage
- K14 the procedures needed for applying the electrodes and paddles of manual and automated defibrillators and for attaching cardiac monitors
- K15 the implications of pacemakers for defibrillation and ALS
- K16 the energy levels (Joules) at which defibrillation shocks should be administered for
 - K16.1 child or young person and the rationale underlying these levels
- K17 why it is important not to make a diagnosis of PEA immediately after defibrillation but to wait for a display of diagnostic quality to be established
- K18 how to calculate appropriate doses of drugs for a child or young person
- K19 why epinephrine should not be administered if a perfusing rhythm has

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- been established
- K20 the techniques available to maintain a child's or young person's airway, including the range of techniques and the differences between them.
Techniques could include:
 - K20.1 endotracheal intubation
 - K20.2 insertion of a laryngeal mask airway
 - K20.3 use of a Combitube
 - K21 the differences in techniques needed for conducting cardio-pulmonary resuscitation on a child or young person
 - K22 why different resuscitation techniques are needed depending on the child's or young person's condition and other complicating factors such as hypothermia
 - K23 the factors to be taken into account in determining the technique that will lead to the best possible outcome for the child or young person
 - K24 when and why adjustments to the techniques used in defibrillation and advanced life support may be needed to achieve the best outcome for the child or young person
 - K25 the different ventilation : compression ratios and rates that might be needed for a child or young person
 - K26 the importance to outcome of the positioning of the child or young person and the practitioner applying advanced life support
 - K27 the observations to be carried out to identify adequate oxygenation
 - K28 the different pulse sites and rate norms for a child or young person
 - K29 the procedure to establish the correct hand/finger placement for applying external chest compression
 - K30 the potential for myocardial stunning
 - K31 the procedures and equipment used for monitoring a child's or young person's clinical signs during and post resuscitation
 - K32 the upper and lower readings on equipment used in monitoring clinical signs
 - K33 the importance of establishing how appropriate parental or carer presence is, and whether this presence should be accommodated
 - K34 the policy and procedures for summoning assistance for prolonged/extended resuscitation
 - K35 the policy and procedures for recording information on the provision of advanced life support and the details which should be recorded
 - K36 the need to engage and include the family when possible throughout
 - K37 the need or recognise the significance of the apparent dynamics between the child or young person and carer when trying to determine the well being of the child or young person
 - K38 the potential significance of the length of time passed between the occurrence of an incident and the presentation of a child or young person by the carer with regard to child protection issues
 - K39 the responsibilities and limitations for identifying and referring possible abuse or neglect pertinent to your role

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- K40 the legislation which relates to working with a child or young person, including aspects relating to confidentiality and information sharing, the provision of services, rights of the child, child protection, anti-discriminatory practice, informed consent, relevant mental health legislation and care programme approach
- K41 how to interpret and apply legislation to the work being undertaken
- K42 the main issues and debates relating to the health and well-being of a child or young person
- K43 the ethics concerning consent and confidentiality, and the tensions which may exist between a child's or young person's rights and the organisation's responsibility to that child or young person
- K44 the legal framework for consent in childhood, including when a child or young person is entitled to give consent for themselves, and the role and responsibility of those with parental responsibility for the child or young person in giving consent
- K45 the importance of gaining assent from a child or young person who lacks capacity to consent

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Additional Information

External Links

This standard links with the following dimension within the NHS Knowledge and Skills Framework (October 2004):

Dimension: HWB7 Interventions and treatments

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