Significant revisions have been made to the 2006-2008 edition of the clinical practice guidelines. Some sections have been removed as these are now adequately covered in training manuals, and other important areas of clinical practice have been included. Importantly, the paediatric section has been expanded recognising that the management of children is frequently different from that of adults. The Resuscitation Council's (UK) latest guidance for cardiopulmonary resuscitation (CPR) is incorporated, including a new guideline for the management of patients fitted with an implantable cardioverter defibrillator. All drug protocols now have administration tables including: age, dose, concentration, and volume. Drug dosages are no longer detailed within the guidelines and clinicians are referred to the specific drug protocol(s). In addition, standardised terminology relating to the administration of oxygen and fluid has been included. Each guideline also includes a list of the key points.

This report indicates where key changes have been made, and is a signpost to changes within the guidelines but is not a substitute for reading and assimilating the new guidance.

Ethical Issues	
Consent	The following aspects have been added to the existing guideline, each of which has become more prominent since the initial guideline was written: • An update on recent (2004, 2005) case law and good practice criteria. • Further analysis of existing references, in particular, 'Reference Guide to Consent for Examination' and 'Good Practice in Consent Implementation (DH)'. • The inclusion of a 'definitions' section, covering the major terms/phrases used in the guideline (valid consent, informed consent, duration of consent). • The inclusion of a paragraph outlining the 'three tests' for consent. • The inclusion of a paragraph explaining how to seek consent. • A complete rewrite of consent for young people. • The inclusion of a paragraph concerning consent versus duty of care versus human rights. • Inclusion of a paragraph concerning consent and research. • All other paragraphs underwent major rewriting.
Patient confidentiality	The following aspects have been added to the existing guideline, each of which has become more prominent since the initial guideline was written: • Definition of 'identifiable information'. • The relevance of the Data Protection Act (1998) to patient confidentiality. • The NHS Code of Practice on patient confidentiality. • Patient's rights of access to their health records. • Disclosure to non-NHS partners. • Involvement of research.

Pain Management Guidelines	
Pain management in adults	A new guideline for the assessment and management of pain in adults. • Sections covering pharmacological and non-pharmacological methods of pain relief. • Methods of pain scoring.
Pain management in children	A new guideline for the assessment and management of pain in children. • Sections covering pharmacological and non-pharmacological methods of pain relief. • Methods of pain scoring.

Drugs

This edition sees the introduction of four new drug protocols: amiodarone, tetracaine, oral morphine sulphate solution and ibuprofen and the withdrawal of the nalbuphine hydrochloride protocol. The introduction of oral morphine sulphate solution further enhances pain management for patients and integrates care pathways between the ambulance service and other healthcare providers.

The dosages and administration section has been standardised across all drug protocols, with the inclusion of administration tables. Calculations have been based on either average weight or age range, with the volume rounded (volumes <1ml rounded to two decimal places and volumes >1ml rounded to 1 decimal place) and the dose calculated.

A caution has been added to relevant drug protocols warning that for patients likely to require thrombolysis intramuscular administration of any drug should be avoided.

A list of drug codes has been provided for **INFORMATION ONLY** and represents drugs that may be commonly encountered in the emergency/urgent care environment.

Drug introduction	• Drug route section now merged into the drug introduction section. • Guidance on the use of abbreviations has been included.
Adrenaline	• The dose for endotracheal administration has changed from 2 milligrams to 3 milligrams. The volume increased to 30 millilitres. • Caution added – severe hypertension may occur in patients on beta-blockers and half doses of adrenaline should be administered, unless there is profound hypotension. • Caution added – half doses of adrenaline should be administered for anaphylaxis for patients taking tricyclic anti-depressants.
Amiodarone	• A new protocol for use in refractory ventricular fibrillation or pulseless ventricular tachycardia. • Amiodarone has Prescription Only Medicine exemption for use in cardiac arrest, thus, a Patient Group Directive is not required and any suitably trained paramedic can give it. • A warning is included that amiodarone must be administered into a large vein as extravisation can cause burns. • A warning is included that amiodarone must never be administered via the endotracheal route.
Aspirin	• Anticoagulants now listed as a caution rather than a contra-indication. • Clinical or ECG evidence of myocardial infarction (MI) or ischaemia has been added as an indication so patients with 'silent MI' receive aspirin.

Atropine	• In children, administration of atropine is restricted to persistent bradycardia caused by vagal stimulation from suction or intubation or for organophosphate poisoning.
Benzylpenicillin (penicillin g)	Change in the indications for administration to: • *'indicated by the presence of a non-blanching rash and signs/symptoms suggestive of meningococcal septicaemia.* ***Some signs/symptoms may be absent and the order in which they appear may vary'***.
Diazepam (Diazemuls and Stesolid)	• Administration for eclampsia has been expanded to – *'initiate treatment if fit lasts >2-3 minutes or if it is recurrent'* • A note has been added – *'the earlier the drug is given the more likely the patient is to respond'.*
Entonox	• Labour pains have been added to the list of indications because entonox is the appropriate analgesia for administration during transfer to further care.
Glucagon (GlucaGen)	• The blood glucose level at which intervention is indicated has been increased to 4mmol/l. • Caution added – 'in a patient likely to require thrombolysis, intramuscular administration of any drug should be avoided'.
Glucose 10%	• The blood glucose level at which intervention is indicated has been increased to 4mmol/l.
Glucose Gel	• Name changed from hypostop to glucose gel. • Guidance provided on the dose required.
Glyceryl Trinitrate (GTN and Suscard)	• A note has been added to indicate that a tablet could be removed if side effects such as hypotension occurred. • Contra-indication added – unconscious patients.
Hydrocortisone	• Change in the indications for administration to include Addisonian Crisis. • Guidance has been included on dosage and information for patients with Addisonian Crisis. • **Adults** – hydrocortisone *'100mg intravenous (IV) (OR IM when IV access is impossible)-given by SLOW IV administration'*. • **Children** – 1 month to 11 years, administer the dosages as per anaphylaxis and asthma table. • A note has been added to indicate that it is better to administer hydrocortisone if there is any doubt about previous steroid status. • Caution added – 'in a patient likely to require thrombolysis, intramuscular administration of any drug should be avoided'. • The side effect of a burning and itching sensation in the groin is only when ***hydrocortisone sodium phosphate*** is administered too quickly. • Addition of Solucortef to the presentation section.
Ibuprofen	• New protocol for the relief of mild to moderate pain and/or high temperature and pain and inflammation of soft tissue injuries.

Lidocaine (lignocaine)	• Contra-indication added 'where amiodarone has already been administered'. • Removal of the ET route of administration for children. • Lidocaine as a local anaesthetic was removed as an action and information about its administration was added to the 'additional information section'.
Metoclopramide (Maxolon)	• Routine prophylactic administration prior to opiate analgesia no longer required. • Caution added – in a patient likely to require thrombolysis, intramuscular administration of any drug should be avoided. • Caution added – avoid in cases of drug overdose.
Morphine sulphate	• The caution section emphasises that morphine should not to be used 'routinely' for labour pains. • Paediatric dose of 0.1mg/kg can be repeated at 5-10 minute intervals titrated against pain relief to a maximum of 0.2mg/kg. Note added regarding the peak effect of each dose which may not occur until 10-20 minutes after administration. • It is also stressed that the appropriate dose of naloxone must be known before morphine has been administered so that it could be given if required. • Monoamine oxidase inhibitors and acute alcohol intoxication is now included as a caution and not a contra-indication, stressing that morphine should not be administered until the patient's drug information card has been checked.
Morphine sulphate oral solution	• A new protocol for administration of morphine in cases of severe pain.
Nalbuphine hydrochloride (Nubain)	• This protocol has been removed from the 2006-2008 edition because the manufacturers withdrew this product for commercial reasons. Morphine is the recommended alternative.
Naloxone hydrochloride (Narcan)	• This protocol now extends to ambulance technicians, with the appropriate education/training. Administration will be by the **IM** route to a patient in an emergency situation.
Sodium chloride 0.9%	• Caution is advised for the administration of fluids in the prehospital environment. • New table relating to the administration of fluid volumes for medical (20ml/kg) and trauma (5ml/kg) emergencies in children.
Sodium lactate, compound (Ringers lactate/Hartmann's solution)	• Caution is advised for the administration of fluids in the prehospital environment. • New table relating to the administration of fluid volumes for medical (20ml/kg) and trauma (5ml/kg) emergencies in children.
Tetracaine (AMETOP)	• A new protocol for the application of tetracaine, where venepuncture may be required, in the non-urgent situation or anticipated venepuncture for children and needle phobic patients.

Thrombolytics (reteplase, tenecteplase)	• Removal of Streptokinase. • Details referring to permissions for the administration of heparin, the mechanism of action and the legal aspects and response from JRCALC have been removed from this guideline. • The initial dose of heparin has been increased to 5,000U (except for patients <67kg receiving tenecteplase), this should be administered before thrombolysis. • If a heparin infusion has not been commenced within 45 minutes a second dose of heparin 1,000U is recommended. • Reteplase – a reminder that heparin and reteplase are incompatible and therefore either a separate cannula should be used or the cannula must be flushed well prior to administering reteplase. • Statement regarding heparin can be found.
Page for age charts (resuscitation and other emergencies in children)	• Redesigned with one page dedicated to each age range. • Each page lists the drugs for resuscitation and other emergencies in children. • Information indicating relevant airway sizes, joules for defibrillation and fluids are also included.
Drug codes	• A list of drug codes, that may be commonly encountered in the emergency/urgent care environment, has been provided. However, it should be noted that **ONLY** the drugs listed in the drug protocol section are for administration by registered paramedics; the remaining drugs are for administration by physicians or under patient group directions by paramedics who have undertaken extended training.

Cardiac Arrest and Arrhythmias

The cardiac arrest and arrhythmias guidelines are based on the Resuscitation Council's 'resuscitation guidelines 2005' and are derived by international consensus. There is a new guideline detailing the management of patients fitted with implantable cardioverter defibrillators.

Adult Basic Life Support (BLS)	Updated in line with 2005 UK Resuscitation Guidelines: • Circulation check removed. • Abnormal breathing is the indicator to initiate external chest compressions. • Compression:ventilation ratio now 30:2 with an emphasis on effective chest compressions minimising the time 'off the chest'. • Try to change person performing chest compressions every 2 minutes. • Inclusion of information explaining use of automatic external defibrillator.
Adult Advanced Life Support (ALS)	Updated in line with 2005 UK Resuscitation Guidelines: • All unwitnessed arrests to have 2 minutes CPR before attempting defibrillation. • Airway managed by any effective means. • Single shock sequence – 150-200J biphasic or 360J monophasic. • Recommence CPR immediately after defibrillating, do not wait to assess: CPR – analyse-drug-shock sequence. • ET drug route ineffective – IV and intraosseous (IO) superior.

Adult foreign body airway obstruction	Updated in line with 2005 UK Resuscitation Guidelines: • Renamed from Choking Guideline (Adult), updated in line with 2005 UK Resuscitation Guidelines. • Obstruction categorised as 'mild' or 'severe'. • Introduction of a flow chart.
Cardiac rhythm disturbance	Updated in line with 2005 UK Resuscitation Guidelines: **Broad complex tachycardia** Previously, IV lidocaine was advised in this situation, and a major difference from previous guidance is the drug is no longer recommended for the treatment of ventricular tachycardia outside hospital. The reasons are: • Evidence for its effectiveness in this situation is limited. • The negative inotropic effects of the drug, particularly in higher doses may seriously compromise cardiac output, particularly if the rhythm does not convert. Dramatic deterioration in the patient's condition may follow and lead to cardiac arrest. • Administration of the drug at an early stage may limit the choice of more effective treatment later in hospital. • Broad complex tachycardia may be caused by other arrhythmias that will not respond to lidocaine. Accurate diagnosis, particularly outside hospital is often very difficult and the patient's condition may suffer if treated inappropriately.
Implantable Cardioverter Defibrillators (ICD)	A new guideline for the assessment and management of patients fitted with an Implantable Cardioverter Defibrillator (ICD). • ICDs deliver tiered therapy with bradycardia pacing, anti-tachycardia pacing (ATP) and shocks for VT not responding to ATP, or VF. • ECG records, especially at the time that shocks are given, can be vital in subsequent patient management. A recording should always be made if circumstances allow. • Cardiac arrest should be managed according to normal guidelines. • Avoid placing the defibrillator electrode over or within 5 centimetres of the generator. • A discharging ICD will not harm a rescuer touching the patient or performing CPR. • An inappropriately discharging ICD can be temporarily disabled by placing a ring magnet over the generator.
Recognition Of Life Extinct for ambulance personnel (ROLE)	• Removal of the preamble and historical background. • Modification of the protocol to emphasise the desirability of making a paper trace of the monitor outlook as evidence of death. • Recognition of increasing acceptability of the patient's right to decide not to be resuscitated by the use of Living Wills/Advanced Directives. • Modification to appendix C to improve the documentation process and inclusion of the addition of another choice: 'patient in a terminal phase of illness'. This last choice will need very sensitive and careful handling by trainers and should be used with caution by the road staff. • Removal of appendix D as all ambulance services now have leaflets to hand out to bereaved relatives.

Traumatic cardiac arrest	This guideline recognises that traumatic cardiac arrest differs from the more usual medical cardiac arrest. Traumatic cardiac arrests are categorised as blunt or penetrating: • **Blunt (un-witnessed):** 5 minutes CPR to rule out reversible causes, if unsuccessful then resuscitative efforts may be terminated. • **Blunt (witnessed):** rapid evacuation to the emergency department for urgent surgical assessment/intervention – assess for reversible causes such as tension pneumothorax, without delaying transport. Provide pre-alert. • **Penetrating:** rapid evacuation to the emergency department for urgent surgical assessment/intervention – assess for reversible causes e.g. tension pneumothorax without delaying transport. Provide pre-alert. • If, after 20 minutes of advanced life support management, the patient is unresponsive, resuscitative efforts may be terminated as per the recognition of life extinct by ambulance clinician guidance.
Medical Emergencies	
Medical emergencies in adults – overview	• Information regarding “medic alert jewellery”. • Guidance regarding assisted ventilation. • Recognition of the dangers of restraint (positional) asphyxia. • Insertion of blood glucose assessment. • Fluid therapy evidence inserted. • Guidance relating to the management of Addisonian Crisis. • Reminder regarding uncorrectable ABCD problems and pre alert.
Abdominal pain	Additional reference made to: • Ectopic pregnancy. • Pelvic inflammatory disease. • Presence of similar symptoms in others. • Elderly and confused patients. • Paediatric patients. • Appendicitis. • Immunosuppressed, HIV and alcoholic patients. • Fluid therapy evidence inserted. • Section considering analgesia (Entonox etc).

Decreased level of consciousness	• Change of title from unconsciousness to decreased level of consciousness. • Definition altered to include AVPU scale scoring. • Expansion on causes, with subheadings to group together related causes. • Note to check with bystanders or friends and relatives for history. • Note to check neurological signs. • Note to check blood glucose. • Expanded oxygen administration guidance (and for special cases e.g. COPD and laryngectomee patients). • Indications for supporting ventilation in severely compromised patients. • Instructions on looking for causes in the environment and on the patient – medic alert bracelets, warning stickers in the home and patients' warning cards, etc.
Dyspnoea	• Insertion of information regarding assisted ventilation. • Links to appropriate / relevant guidelines. • Omitted – section referring to children / with stridor.
Headache	• Insertion of links in history section to relevant guidelines specifically stroke/TIA, head injury and glycaemic emergencies. • Insertion of blood glucose assessment section. • Expanded oxygen and fluid administration guidance.
Mental disorder	• Additional section to emphasise that physical illness needs to be excluded as it can manifest as a mental health disorder. • Patients with a mental health disorder may still have the capacity to consent to assessment and treatment and so they may also decline this and their wishes should be respected. • Application for powers for compulsory assessment and treatment of patients under the Mental Health Act has different criteria and requirements from the capacity to consent. The law relating to this is under review in England and Wales. In Scotland it has already changed and comes under Mental Capacity legislation. • Recognition of the dangers of restraint (positional) asphyxia.
Non-traumatic chest pain/discomfort	• Acute coronary syndromes have been separated from the wider group of undifferentiated chest pain. • This guideline is intended to help differentiate the cause of chest pain. An important new inclusion is the recommendation that a 12-lead ECG is performed on all patients with chest pains. • For specific guidance on cardiac-related chest pain, the acute coronary syndrome guideline should be followed.

Specific Treatment Options	
Acute coronary syndrome	• The key change is the new, wider focus on 'acute coronary syndrome' rather than merely on acute ST elevation (MI). • The growing use of pre-hospital thrombolytic treatment and primary percutaneous coronary intervention (PCI) are highlighted. • The fact that cardiac networks will largely determine the appropriate reperfusion strategy in the context of locally available facilities is also discussed.
Anaphylaxis and allergic reactions in adults	• Common precipitants identified and their effect explained. • Precise definitions used to facilitate rapid diagnosis. • Mild reaction (allergy) linked with severe reaction (anaphylaxis) via a continuum, rather than two separate categories. • Mild presentations distinguished from severe presentations, along the continuum, to promote appropriate management. • Conforms to current UK Resuscitation Council's drug guidelines. • Additional reference made to adrenaline self administration (Epipen), MAOI/ tricyclic use, beta-adrenergic blocker use, biphasic response, removal of triggering source, O_2 administration, patient positioning, judicious use of crystalloid solution, brief explanation for the drugs used. • Inclusion of new EU peak flow charts and explanation of changes.
Asthma in adults	• Removal of references to the management of asthma in children. • Signs of severe and life-threatening asthma in adults are given.
Chemical, Biological, Radiological and Nuclear (CBRN)	• Assessment of degree of likelihood of Chemical, Biological, Radiological and Nuclear (CBRN) contamination when no cause is known. • Institute self-decontamination when appropriate. • CHALETS mnemonic for rapid incident assessment. • Surgical masks and gloves should be worn when dealing with infectious patients. • Advise that blast injury may be co-existent with radiological incidents. • Discussion of CBRN detection. • Redesigned CBRN triage sieve and SORT.
Chronic Obstructive Pulmonary Disease (COPD)	• Oxygen administration to be titrated to maintain an oxygen saturation of 90-92%. • A reminder for ambulance clinicians to check if patients carry an information card/treatment plan.
Convulsions in adults	• Removal of references to the management of convulsions in children.

Gastro Intestinal Bleeds (GI Bleeds)	• Common causes of upper and lower GI bleeding identified and discussed; including initiating factors, common presentations and potential risk factors. • Additional reference made to beta/calcium channel blocker use, consumption of iron tablets/foods and drink with red dye and alcohol abuse. • Guide to estimating quantity of blood loss. • Fluid therapy evidence inserted.
Glycaemic emergencies in adults	• New focus on the causes of hypoglycaemia. • Common symptoms replaces early and late stages. • Signs of infection as a factor to attend hospital following treatment of a hypoglycaemic attack.
Hyperventilation syndrome	• Change of title from hyperventilation to hyperventilation syndrome.
Hypothermia	• Introduction of a table of severity. • Inclusion of non-specific symptoms. • Information on cardiac arrest in hypothermia. • Fluid therapy evidence inserted.
Meningococcal septicaemia	• Information regarding assisted ventilation. • Evidence-based information regarding fluid therapy.
Overdose and poisoning in adults	• New section 'intentional overdose'. • Suicide assessment e.g. SAD PERSONS score inserted. • Reference to CS gas in common poisons. • New expanded table listing common poisons presentations and management. • New table format for illegal drugs and insertion of ecstasy.
Pulmonary embolism	• Link drawn between DVT and PE such that they can be thought of as two presentations of the same disease. • Wells criteria table added. • Expanded oxygen administration guidance.
Pulmonary oedema	• The pathophysiology of the condition has been expanded. • Addition of new symptoms. • Recent symptoms of MI added to highlight this as the most likely precipitant. • Contra-indications to continuous positive airway pressure added in line with the evidence.

Sickle cell crisis	• Change of description of red blood cell architecture from 'discoid' to 'bi-concave'. • Further explanation of serious sequelae of sickle cell disease – including Acute Coronary Syndrome (ACS). • Explanation of symptoms and signs of sickle cell disease – in particular those that might indicate ACS. • Management – the patient may be able to guide their own treatment and may even have an individualised treatment plan. • Guidance on obtaining ECG – particularly as only sign of ACS. • Guidance on the decreased need for initial fluids.
Stroke/Transient Ischaemic Attack (TIA)	Change of title from Stroke to Stroke/Transient Ischaemic Attack (TIA). • Guideline now includes TIA, but excludes subarachnoid haemorrhage (covered in head injuries guideline). • Strokes now referred to as intracranial haemorrhage or infarction (as opposed to ischaemic/embolic or bleed). • Insertion of explanation of TIA. • Change to provision of oxygen for all stroke patients, with emphasis now being on correcting hypoxia. • More detail to FAST assessment with terminology matching that of Stroke Association and Royal College of Physicians Stroke Guidelines Working. • Stress on not administering aspirin (reason – detrimental effect in haemorrhagic strokes and inability to assess swallowing function).
Trauma emergencies in adults – overview	• Change of title from trauma emergencies to trauma emergencies in adults. • New mnemonic for assessment of life threatening injury by neck signs. • New fluid management guidance based upon the presence and absence of the central and radial pulses. • Recognition of the dangers of restraint (positional) asphyxia.
Abdominal trauma	• Expanded oxygen administration guidance. • Guidance given on when to institute assisted ventilation. • Guidance given on how to supply fluids in trauma. • Algorithm provided for supplying fluids dependent on the presence of pulses. • Removal of supplementary information on gun shot wounds and stabbing.
Burns and scalds in adults	• Change of title from burns to burns and scalds in adults.
The immersion incident	• Change of title from drowning to the immersion incident. • New definitions of immersion and submersion. • Mechanical drainage of the lungs should not be carried out. • Guidelines on when to consider assisted ventilation.

Electrocution	• Guideline now emphasises the risk of c-spine injury in electrocution. • Hospital admission now not routinely required if electrocution is from domestic or low voltage source, with an asymptomatic patient with no injuries and normal 12-lead ECG.
Head trauma	• Allows a risk balance for airway manoeuvres that could move the cervical spine to open the airway. • Airway adjunctions are discussed, specifically the laryngeal mask airway and Combitube™. • Emphasis is placed on both oxygenation and ensuring the adequacy of ventilation with support if necessary. • The role of hypertonic saline and manitol is still unclear.
Limb trauma	• Fluids now only recommended with blood loss greater than 500mls, with fluid replacement commenced with a 250ml bolus of crystalloid. • New guidelines on fluid management based upon presence or absence of central and radial pulses.
Neck and back trauma	• The criteria for when patients do not need spinal immobilisation has been further developed with the publication of the Canadian and NEXUs guidelines. This allows more precise criteria for not immobilising and particularly de-emphasises the mechanism of injury as a predictor of serious injury. A new flow chart has been developed to assist this. • The new information from the Cochrane review of spinal immobilisation has been included, although this mainly stressed the lack of randomised controlled trials. • There is greater recognition of the hazards of immobilisation but little is known about the risk-benefits of various devices. • Recognition that most penetrating trauma does not require spinal immobilisation. Re-emphasis of: • Need for vacuum mattresses for long transfers. • Compromises that need to be adopted in restless patients and in emergency extrication.
Thoracic trauma	• Advice on patient transport – semi-recumbent/upright, if not otherwise contraindicated. • Expanded oxygen administration guidance oxygen (and for special cases – COPD and laryngectomee). • Advice given on when to institute assisted ventilation. • Guidance given on how to supply fluids in trauma. • Algorithm provided for supplying fluids dependent on the presence of pulses. • Advice on analgesia expanded.
Trauma in pregnancy	• Guidance on when to consider assisted ventilation. • New evidence noted on decreased survival in penetrating trauma with the routine use of IV fluids. • New guidelines on fluid management based upon the presence and absence of central and radial pulses.

Obstetrics and Gynaecology	
Birth Imminent (normal delivery and delivery complications)	Change of title from birth imminent to birth imminent: normal delivery and birth complications. • Initial section on normal stages of labour followed by expanded sections on acute birth complications affecting both mother and fetus (including postpartum haemorrhage). • Changes to transport destination related to gestation: – <20 weeks – transport to nearest ED Dept – 20-36+ weeks – transport to booked obstetric unit (previously up to 34 weeks) – 37 weeks – move on to next stage of assessment (previously 35-40 weeks). • Premature delivery changed to 'preterm' delivery (i.e. any delivery before 37 weeks). • Postpartum haemorrhage and abruption sections – general background expanded. • Shoulder dystocia management expanded and clarified.
Effects of pregnancy on maternal resuscitation	Change of title from normal pregnancy to effects of pregnancy on maternal resuscitation. • Difficulties and differences in maternal resuscitation are reviewed: – resuscitation of the mother will resuscitate the fetus – importance of 30 degrees left lateral tilt is emphasised – Susceptibility to acid regurgitation emphasised – need for early intubation in cardiorespiratory arrest. • IMPORTANCE OF CONSIDERING EMERGENCY PERIMORTEM CAESAREAN SECTION AFTER 5 MINUTES OF ACTIVE CPR is emphasised. The prime aim is to make the mother easier to resuscitate by emptying the uterus. It is not primarily done to save the baby (although rarely the baby may survive a maternal arrest). • Importance of informing the obstetric team early if admitting a pregnant woman undergoing active CPR. Ideally, senior obstetric staff should be waiting in ED when the patient is admitted (see perimortem section notes).
Haemorrhage during pregnancy (including miscarriage and ectopic)	Change of title from haemorrhage during pregnancy to haemorrhage during pregnancy (including miscarriage and ectopic). • Present edition concentrates on bleeding in EARLY pregnancy (miscarriage and ectopic) and LATE pregnancy (placenta praevia and placental abruption). • Postpartum haemorrhage is now contained in the chapter 'birth imminent: normal delivery and birth complications'. • The difference between 'revealed' and 'concealed' haemorrhage is emphasised. • Need for awareness of how pregnant women react to increasing haemorrhage. They may exhibit no symptoms and signs until late (i.e. after loss of 30% blood volume) and then present with sudden collapse. Importance of establishing early, large bore venous access is noted.

Pregnancy induced hypertension (including eclampsia)	• Clearer definitions and explanations of different types of hypertension in pregnancy: – PIH – pregnancy-induced hypertension (without proteinuria) – PIH (with proteinuria) = pre-eclampsia. • Expanded discussion about severe pre-eclampsia and eclampsia. • Emphasise the danger of overzealous IV fluid administration (which can lead to pulmonary oedema). • Describe in detail the TIME CRITICAL symptoms that may be associated with severe disease. • In eclampsia: a) fits can occur with minimally-raised blood pressure; b) management of a single fit should be 'supportive' with avoidance of routine diazemuls (magnesium sulphate will be used in hospital). Diazemuls is still recommended for repeated fits.
Vaginal bleeding – gynaecological causes (including abortion)	Change of title from vaginal bleeding (non obstetric causes) to vaginal bleeding – gynaecological causes (including abortion). • The newer methods of terminating a pregnancy are described (i.e. medical = non-surgical). • A short review of colposcopy is also included.
Treatment and management of assault and abuse	
Safeguarding children	References included reflecting recent legislation and guidelines relating to child protection issues, including: Every Child Matters: Change for Children, 2003. Working Together to Safeguard Children 2006. National Service Framework for Children, Young People and Maternity Services, 2004. The Victoria Climbié Inquiry: Report of an Inquiry, 2003.

Emergencies in children This edition sees the introduction of a paediatric section, recognising that the management of children is frequently different from that of adults.	
Medical emergencies in children – overview	Change of title from recognition and management of the seriously ill child to medical emergencies in children – overview. • Airway – discussion of the relevance of stridor and stertor. • Omitted – over 12 years from respiratory rate table. • Enhanced discussion of recession (including pathophysiology) in respiratory distress. • Added – table of effects of respiratory inadequacy on other body systems. • Heart rate assessment – indication of bradycardia as a peri-arrest sign. • Omitted – over 12 years from heart rate table. • Blood pressure – not necessary as part of prehospital assessment – especially when it may delay definitive care. • Extension of basic neurological assessment. • Inclusion of a table of the impact of effect of cerebral inadequacy on other body systems. • Increased explanation of airway management – ET intubation and needle cricothyroidotomy. • Expansion of advice on breathing management. • Expansion of advice on circulation management – peripheral access – IV, IO, etc., and fluid administration algorithm. • Reminder to address immediately treatable conditions e.g. convulsions, opiate poisoning, meningococcal septicaemia.
Trauma emergencies in children – overview	• Fluid administration is now 5ml/kg boluses titrated to response in trauma emergencies.
Anaphylaxis and allergic reactions in children	A new guideline for the assessment and management of anaphylaxis and allergic reactions in children. • Discussion about common precipitants. • Physical signs and environmental indicators – alert bracelets, warning stickers in the home and patient warning cards. • Guidance relating to hydrocortisone administration. • Discussion of possible sequelae.

Asthma in children	A new guideline for the assessment and management of asthma in children. • Signs of severe and life-threatening asthma in children are given. • The use of ipratropium is included. • Infants <one year of age may be given more than one salbutamol nebuliser if needed, *if they respond well* to the first one. • Parenteral adrenaline should **NOT** now routinely be used in children however severe the asthma (change of guideline).
Burns and scalds in children	A new guideline for the assessment and management of burns and scalds in children. • Additional details regarding special burns may be found in the adult section.
Convulsions in children	A new guideline for the assessment and management of convulsions in children.
Glycaemic emergencies in children	A new guideline for the assessment and management of glycaemic emergencies in children. • Description of diabetes mellitus in children with emphasis on a number of differences from adults. • There is a heavy emphasis on the dangers of administering intravenous fluid to children and adolescents because of the risk of cerebral oedema and death. • Fluid should only be given if there are significant signs of circulatory failure (shock), **NOT** in pure dehydration. • A description of hypoglycaemia in children and the differences from adults. • Glucagon, whilst it works effectively in diabetic hypoglycaemia in children, is relatively discouraged (i.e. use GlucoGel) as it makes children vomit.
Overdose and poisoning in children	• A new guideline written for children and outlining the types of overdose (ingestion) that may occur. • General principles of management are discussed. • Management of some specific, commoner poisons are discussed in more depth. • New expanded table listing common poisons presentations and management. • The risk of deliberate overdose in young people and need for transfer to hospital for assessment even if the overdose is not dangerous is emphasised.

Child Basic Life Support (BLS)	Updated in line with 2005 UK Resuscitation Guidelines: • Lone rescuers witnessing or attending paediatric cardiac arrest will use a ratio of 30 compressions to 2 ventilations. • They will start with 5 rescue breaths and continue with the 30:2 ratio as taught in adult BLS. • Two or more rescuers will use the 15:2 ratio in a child up to the onset of puberty. It is inappropriate and unnecessary to establish the onset of puberty formally; if the rescuer believes the victim to be a child then they should use the paediatric guidelines. • In an infant (less than 1 year) the compression technique remains the same: two-finger compression for single rescuers and two-thumb encircling technique for two or more rescuers. • Above one year of age, there is no division between one- or two-hand technique. The one or two hands technique may be used according to rescuer preference. • AED may be used in children above one year of age. Attenuators of the electrical output are recommended between 1 and 8 years of age.
Child Advanced Life Support (ALS)	Updated in line with 2005 UK Resuscitation Guidelines: • Endotracheal intubation should be avoided unless more basic measures fail to provide adequate ventilation. • The laryngeal mask airway is an acceptable initial airway device for providers experienced in its use. • Hyperventilation is harmful during cardiac arrest, the ideal tidal volume should achieve modest chest wall rise. • When defibrillating, a dose of 4 J kg^{-1} (biphasic or monophasic waveform) should be used for all shocks. • Ventricular fibrillation/pulseless ventricular tachycardia (VF/VT) should be treated with a single shock, followed by immediate resumption of CPR (15 compressions to 2 ventilations). • Do not reassess the rhythm or feel for a pulse. • After 2 min of CPR, check the rhythm and give another shock (if indicated). • Give adrenaline 10 micrograms kg^{-1} IV if VF/VT persists after a second shock. • Repeat adrenaline every 3-5 min thereafter if VF/VT persists. • Asystole or pulseless electrical activity (PEA) should be treated with adrenaline 10 micrograms kg^{-1} IV or IO and repeated every 3-5 min.
Child foreign body airway obstruction	Updated in line with 2005 UK Resuscitation Guidelines: • Renamed from Choking Guideline (Child), obstruction categorised by ability to cough. • Attempt five rescue breaths. • In the absence of response, proceed to chest compressions without further assessment of the circulation. • Perform 1 minute CPR inspecting the airway before each cycle of ventilation. Remove any visible obstructions. • Introduction of new flow chart.

Neonatal resuscitation	Updated in line with 2005 UK Resuscitation Guidelines: • Protect the baby from heat loss. • Ventilation: an initial inflation for 2-3 seconds must be given for the first few breaths to promote lung expansion. • Suctioning meconium from the baby's nose and mouth before delivery of the baby's chest (intrapartum suctioning) is not useful and no longer recommended.
Page for age charts (resuscitation and other emergencies in children)	• Paediatric dosages are shown as exact weight calculations. It is appreciated that where small volumes are involved an exact amount will be difficult to draw up; in these instances approximate as closely as possible to the stated dose.
Methodology	
Guideline development methodology	A new section outlining the methodology adopted by the guidelines development sub-committee.

The **procedure section** including the following guidelines: airway management, assisted ventilation, blood glucose level testing, blood pressure measurement, clinical records, clinical waste and sharps, defibrillation, ECG, equipment to scene, hospital alert / information call, infection control, intraosseous infusion, intravenous cannulation, intravenous fluid therapy, longboard, needle cricothyroidotomy, needle thoracocentesis, professional standards, street safety, peak flow readings, pulse oximetry, scene assessment, splintage, temperature taking and transportation have been removed from the 2006-2008 edition as this material is now covered in training manuals.