ADVANCED CONSCIOUS SEDATION TECHNIQUES FOR PAEDIATRIC DENTAL PATIENTS

TRAINING SYLLABUS

DECEMBER 2011
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ADVANCED CONSCIOUS SEDATION TECHNIQUES IN DENTISTRY

In 2007 the Standing Committee on Sedation for Dentistry published guidance on the use of ‘alternative’ conscious sedation techniques. This syllabus defines the training required by dental and medical practitioners wishing to use alternative sedation techniques for paediatric dental patients.

INTRODUCTION

The majority of conscious sedation provided for dental procedures involves the use of a single drug, either nitrous oxide with oxygen or midazolam. For adult patients these techniques are considered to be ‘basic’ and are the basis of undergraduate teaching in conscious sedation in United Kingdom dental schools. Postgraduate courses are also available for these techniques.

For children, conscious sedation using anything other than nitrous oxide with oxygen is referred to as ‘advanced’ sedation. How to use advanced conscious sedation techniques is not part of dental undergraduate training and further training is required.

Advanced conscious sedation techniques are far less widely used, and more complex to fully understand, than the basic techniques. In order to ensure essential standards of quality and safety, it is important that all dental and medical practitioners administering advanced sedation techniques are trained to the same high standard and meet a pre-requisite set of competencies. Many of the drugs that are used for conscious sedation are also used to produce general anaesthesia and thus require specific training in their administration.

Reliably achieving an appropriate level of conscious sedation in a range of children is generally recognised as being more difficult than in adult patients.

Previous professional guidance refers to ‘standard’ and ‘alternative’ conscious sedation techniques. The IEGTSSD considers the terms ‘basic’ and ‘advanced’ to be more appropriate and so these are used in this document. Appendix 1 is a summary of what constitutes basic and advanced conscious sedation techniques and the level of training required for each.

Whilst qualifications and training requirements for the practitioner administering sedation using advanced techniques should acknowledge differences in educational and training backgrounds, entry to training in specific advanced techniques requires that practitioners have documented experience of basic techniques.
This document sets out the requirements for entry to training in advanced conscious sedation techniques, the training objectives, a training syllabus, models of learning, supervision and assessment. The syllabus defines the knowledge, skills, attitudes and behaviours required of dental and medical practitioners wishing to train in the administration of advanced conscious sedation for dentistry, including those anaesthetists not in possession of a Certificate of Completion of Training (CCT) and documented evidence of satisfactory completion of equivalent training in conscious sedation for dentistry under the auspices of a Royal College of Anaesthetists approved training programme. It is acknowledged that practitioners currently practising advanced conscious sedation techniques may have undertaken a different training pathway.

BACKGROUND

The Independent Expert Group on Training Standards for Sedation in Dentistry (IEGTSSD) is publishing this syllabus in order to facilitate the development of practical training programmes in advanced sedation techniques.

Continuing access to a range of safe and effective conscious sedation techniques is necessary in order to provide care for patients who are unable to tolerate treatment without sedation techniques and also to avoid the unnecessary use of general anaesthesia. All providers of advanced conscious sedation techniques have a responsibility to ensure that clinical care is provided in accordance with contemporary standards for clinical governance. Stakeholders/providers involved include: university dental schools, NHS trusts, medical Royal Colleges, specialist societies and individual dental/medical practitioners.

There is limited high quality evidence relating to this field of dental practice. Previous and current guidance has been based on the work of sequential expert committees/working groups representing the above stakeholders. Previous expert groups have taken care to ensure that changes to existing guidance have been based, wherever possible, on published evidence and audit data rather than emotive and unsubstantiated opinion. This syllabus seeks to formalise training for those practitioners who wish to commence the provision of advanced sedation for paediatric dental patients.

The syllabus is based on recommendations contained in three publications: *Conscious Sedation and the Provision of Dental Care – Report of an Expert Group on Sedation for Dentistry*, Department of Heath Standing Dental Advisory Committee (2003), *Standards for Conscious Sedation in Dentistry: Alternative Techniques*, the Standing Committee on Sedation for Dentistry, Royal College of Surgeons of England (2007) and *Sedation in children and young people: National Institute for Clinical Excellence* (2010). All these documents have been accepted by the healthcare professions. However, none contains a training syllabus for practitioners wishing to practice either basic or advanced conscious sedation techniques.
Since 2007 a number of expert groups have sought to advance training by agreeing a syllabus but none has been able to complete the task. In recent months the Intercollegiate Advisory Committee for Sedation in Dentistry (IACSD) succeeded in reaching agreement on the majority of outstanding issues relating to a syllabus for adult advanced sedation techniques. IACSD included representatives from the Faculties of Dental Surgery of all three UK Royal Colleges, the Faculty of General Dental Practice and the Royal College of Anaesthetists. The group also had a lay member.

The IETGSSD is grateful to members of all the previous committees who have contributed to the development of this syllabus.

This syllabus fully embraces the philosophy and principles of the Royal College of Anaesthetists (RCoA) guidance for trainee anaesthetists on the use of conscious sedation for dental procedures. As with the RCoA guidance, it builds on the knowledge, skills and experience which are part of a dental or medical practitioner’s primary qualification. The IEGTSSD syllabus contains considerably more detail than the current RCoA guidance for anaesthetists. It is hoped that this will facilitate the development of appropriate training programmes for interested practitioners. The syllabus is also consistent with all current guidance on conscious sedation for dentistry, including recently published NICE guidelines on Sedation in Children and Young People.
REQUIREMENTS FOR ENTRY TO TRAINING IN ADVANCED CONSCIOUS SEDATION TECHNIQUES IN PAEDIATRIC DENTISTRY*

1. ESSENTIAL
   - A primary registrable dental or medical qualification
   - Not less than 4 years post-registration experience in the UK as a dental or medical practitioner
   - Possession of the knowledge, skills, attitude, behaviour and aptitude compatible with the delivery of basic conscious sedation techniques
   - Evidence of having undertaken training in basic sedation techniques
   - Documented experience of basic sedation techniques for paediatric dental patients (at least 100 cases over last 2 years), including patient outcomes
   - Compliance with GMC/GDC CPD requirements
   - Compliance with contemporary standards for the provision of basic conscious sedation techniques
   - Current Certification in paediatric advanced life support or equivalent

2. DESIRABLE
   - A postgraduate dental qualification (e.g. MFDS/MFGDP, MSc/Diploma/Certificate in sedation)
   - A postgraduate medical qualification (e.g. FRCA)
   - Experience of delivering training in conscious sedation for dentistry

*Anaesthetists holding a CCT and possessing documented evidence of completion of equivalent training in conscious sedation for dentistry under the auspices of the Royal College of Anaesthetists approved training programme (2010) are exempt.
TRAINING OBJECTIVES

The overall aim of training in paediatric advanced conscious sedation techniques in dentistry is the provision of safe and effective patient care. This aim can be delivered through the following objectives which underpin the training set out in this document. They are to:

- Develop the knowledge and skills for the safe and appropriate use of advanced conscious sedation techniques for dentistry in both the primary and secondary care settings

- Understand the spectrum of pharmacological techniques of pain and anxiety control for dentistry as an adjunct to effective behaviour management and local anaesthesia

- Develop an understanding of the potential side effects and complications associated with the use of advanced conscious sedation techniques

- Develop the competencies required for the diagnosis and effective management of a patient who may become more deeply sedated than intended, including the life support skills required for managing an unconscious patient

- Establish an understanding of the limitations of working in a primary care environment

- Recognise the important principle of ‘minimum intervention’, where the simplest and safest technique which is likely to be effective is used to achieve the clinical goal
SYLLABUS IMPLEMENTATION AND QUALITY ASSURANCE

Success in promoting high standards of practice for advanced conscious sedation in dentistry through the implementation and delivery of this syllabus will be dependent on robust quality assurance involving accreditation of training programmes, trainers and workplace-based environments. However, such a mechanism does not yet exist. This document is therefore recommended to those institutions already supporting postgraduate dental education (e.g. dental schools / hospitals) who are intending to train practitioners in the use of advanced conscious sedation techniques for dentistry. Course tutors should use the syllabus and organise training so as to ensure that their programme delivers the breadth and depth of training described in the syllabus. The IEGTSSD will offer initial guidance on quality assurance procedures.

Training providers must ensure that all programmes are fully compliant with the following guidance:

- *Conscious Sedation in the Provision of Dental Care : Standing Dental Advisory Committee (2003)*
- *Conscious Sedation in Dentistry: Dental Clinical Guidance : Scottish Dental Clinical Effectiveness Programme (2006)*
- *Sedation in Children and Young People: National Institute for Clinical Excellence (2010)*
- *Manual for Trainees and Trainers: Competency Based Higher and Advanced Level (Specialty (ST) Years 5, 6, 7) Training and Assessment : Conscious Sedation for Dentistry : Royal College of Anaesthetists (2011)*

Trainees should familiarise themselves with the syllabus and with the training requirements to satisfactorily complete training. They should also make appropriate use of personal development portfolios.

Assessment throughout training will be undertaken as detailed in ‘Assessment’.
# PAEDIATRIC ADVANCED CONSCIOUS SEDATION TECHNIQUES SYLLABUS

## 1. GENERAL PROFESSIONAL CONTENT

### 1.1 MAINTAINING GOOD CLINICAL PRACTICE
Each learning outcome should be prefaced by: ‘On completion of training the trainee in Paediatric Advanced Conscious Sedation Techniques in Dentistry…’

<table>
<thead>
<tr>
<th>Subject</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Attitudes and Behaviours</th>
<th>Teaching and Learning method(s)</th>
<th>Assessment method(s)</th>
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<tbody>
<tr>
<td>Professional approach</td>
<td>the requirements of an effective leader</td>
<td>provide specialist leadership in the provision of advanced conscious sedation techniques</td>
<td>behave in a professional manner</td>
<td>CBL</td>
<td>MSF, PDP</td>
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<td>the different models of leadership</td>
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<td>Life-long learning</td>
<td>the requirements for continuing professional development</td>
<td>recognise learning opportunities and identify them for members of the advanced conscious sedation team</td>
<td>comply with GDC/GMC requirements for revalidation</td>
<td>CBL, SDL, ST</td>
<td>PDP, WBA</td>
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<td>maintain a personal development portfolio and assist others to do so</td>
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<td>monitor own performance through audit and feedback</td>
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<td>Evidence</td>
<td>the principles of evidence-based practice</td>
<td>critically appraise evidence</td>
<td>use evidence in support of patient care and to defend decisions taken</td>
<td>ST</td>
<td>WBA</td>
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<td></td>
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<td>provide constructive feedback</td>
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<td>Written records</td>
<td>the principles and guidelines for good clinical note keeping</td>
<td>communicate effectively through written records</td>
<td>take account of confidentiality requirements and legal requirements relating to written, electronic and digital records and their transport</td>
<td>CBL, ST</td>
<td>WBA</td>
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<td></td>
<td>the reasons for confidentiality</td>
<td>apply the principles of confidentiality in the context of written records</td>
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<tr>
<td>Subject</td>
<td>Knowledge</td>
<td>Skills</td>
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<tr>
<td>Use of information technology</td>
<td>the principles of retrieval and utilisation of data recorded in clinical systems</td>
<td>apply the principles of confidentiality in the context of information technology</td>
<td>take account of the legal aspects relating to holding electronic and digital records</td>
<td>ACI ST</td>
<td>WBA</td>
</tr>
<tr>
<td>Organisational framework for clinical governance and its application in practice</td>
<td>the elements of clinical governance the principles of clinical governance, in particular related to infection control</td>
<td>participate actively in clinical governance participate in audit report serious untoward incidents</td>
<td>recognise the importance of teamwork in implementing a clinical governance framework recognise and take account of the learning from serious untoward incidents</td>
<td>ACI SDL ST</td>
<td>PDP WBA</td>
</tr>
<tr>
<td>Risk assessment and risk management</td>
<td>the principles of risk assessment</td>
<td>carry out risk assessments develop and apply relevant procedures develop and monitor action plans to obviate further risk</td>
<td>recognise the value of risk assessments</td>
<td>ACI CBL</td>
<td>WBA</td>
</tr>
<tr>
<td>Audit (general)</td>
<td>the principles of internal and external quality assurance the audit process</td>
<td>initiate and complete audit projects demonstrate improvement as the result of audit</td>
<td>recognise the benefit of audit to patient care and individual performance</td>
<td>ACI ST</td>
<td>PDP WBA</td>
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<tr>
<td>Subject</td>
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<td>Teaching and Learning method(s)</td>
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<td>Guidelines</td>
<td>the content of guidelines applicable to the practice and delivery of basic conscious sedation and advanced conscious sedation techniques</td>
<td>interpret and apply guidelines applicable to the practice and delivery of basic conscious sedation and advanced conscious sedation techniques</td>
<td>show regard for individual patient needs when utilising guidelines</td>
<td>ACI CBL ST</td>
<td>PDP WBA</td>
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<tr>
<td>Patient safety</td>
<td>the principles of management of fitness to practice cases</td>
<td>carry out paediatric advanced life support</td>
<td>show regard for patient safety</td>
<td>CBL ST</td>
<td>WBA</td>
</tr>
<tr>
<td></td>
<td>the role of the National Patient Safety Agency (NPSA)</td>
<td>instigate management of medical emergencies in the dental surgery</td>
<td>recognise the importance of team training in the management of medical emergencies in the dental surgery</td>
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<td></td>
<td>the principles of paediatric advanced life support</td>
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<td></td>
<td>the management of medical emergencies in the dental surgery</td>
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<tr>
<td>Relevance of outside bodies</td>
<td>the role of:</td>
<td>communicate with and involve these bodies in appropriate situations</td>
<td>demonstrate acceptance of professional regulation</td>
<td>SDL ST</td>
<td>PDP WBA</td>
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<td></td>
<td>• GDC and GMC</td>
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<td>share best practice</td>
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<td>• specialist societies</td>
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<td>participate in peer review</td>
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<td>• dental/medical defence organisations</td>
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<td>• Royal Colleges</td>
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<td>• BDA</td>
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**Key:**  
Teaching and Learning methods  
ACI= Audit/critical incident analysis, CA = Clinical attachment, CBL= Case-based learning, SDL=Self-directed learning, ST=Structured teaching

Assessment methods  
FA= Formal assessment, MSF=Multi source feedback, PDP=Personal development portfolio, WBA= Workplace-based assessment
1.2 RELATIONSHIPS WITH PATIENTS, PARENTS and CARERS
Each learning outcome should be prefaced by: ‘On completion of training the trainee in Paediatric Advanced Conscious Sedation Techniques in Dentistry...’

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<tbody>
<tr>
<td>Informed consent</td>
<td>the principles of valid consent</td>
<td>obtain valid consent in relation to children and adolescents having advanced conscious sedation techniques</td>
<td>respect patients’ and parents’/carers’ autonomy and wishes, including their right to refuse treatment even when it would be in their best interests</td>
<td>CBL SDL ST</td>
<td>WBA</td>
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<td></td>
<td>the principles of the Mental Capacity Act (2007) and the Deprivation of Liberty Safeguards</td>
<td>assess capacity</td>
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<td></td>
<td>the process for gaining valid consent</td>
<td>work with other agencies to obtain informed consent in circumstances where there is lack of capacity</td>
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<td>share information appropriately when necessary to safeguard vulnerable children and adolescents</td>
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<td>Confidentiality</td>
<td>Relevant strategies to ensure confidentiality</td>
<td>apply the principles of confidentiality in relation to clinical care</td>
<td>respect the right to confidentiality</td>
<td>CBL SDL ST</td>
<td>WBA</td>
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<td></td>
<td>the situations when confidentiality might be broken</td>
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<td>Legal issues</td>
<td>the legal issues relating to the practice and delivery of basic conscious sedation and advanced conscious sedation techniques</td>
<td>work within appropriate legal frameworks</td>
<td>demonstrate empathy while acting in the patient’s/family’s best interests</td>
<td>CBL SDL ST</td>
<td>WBA</td>
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</tbody>
</table>

Key:  
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ACI= Audit/critical incident analysis, CA= Clinical attachment, CBL= Case based learning, SDL=Self-directed learning, ST=Structured teaching  
Assessment methods  
FA= Formal assessment, MSF=Multi source feedback, PDP=Personal development portfolio, WBA= Workplace-based assessment
2. **SPECIALTY-SPECIFIC CONTENT**

**PAEDIATRIC CONSCIOUS SEDATION**

*Note: Oral, intranasal and IV techniques which are described as ‘Basic’ are considered to be ‘Advanced’ when administered to children*

Each learning outcome should be prefaced by: ‘On completion of training the trainee in Paediatric Advanced Conscious Sedation Techniques in Dentistry…’

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<tbody>
<tr>
<td>1. Anatomy and physiology</td>
<td>the anatomical and physiological differences between children and adults and how this relates to the use of advanced conscious sedation techniques assessment of previous and current airway problems in order to anticipate potential difficulties during sedation or if ventilation is required</td>
<td>apply their knowledge of the anatomical and physiological differences between children and adults in planning and providing advanced conscious sedation techniques in children carry out airway assessment and anticipate potential breathing difficulties during sedation or if ventilation is required</td>
<td></td>
<td>SDL ST</td>
<td>FA PDP WBA</td>
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<td>2. Pharmacology</td>
<td>the applied pharmacology of drugs used in sedation for children – for example - benzodiazepines - propofol - opioids - ketamine - nitrous oxide - sevoflurane</td>
<td>apply their knowledge of pharmacology of drugs used in sedation to the practical situation in such a way as to select sedation drugs that are safe and appropriate for the individual child</td>
<td>take account of this knowledge in diagnosis and treatment planning and provision of advanced conscious sedation techniques in children</td>
<td>SDL ST CA</td>
<td>FA PDP WBA</td>
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<td>3. Patient assessment</td>
<td>the terminology describing levels of sedation (minimal, conscious, moderate, deep) and general anaesthesia</td>
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<td>important drug interactions:</td>
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<td>- of sedation drugs with other prescribed medication</td>
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<td>- of sedation and recreational drugs</td>
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<td>differences in the pharmacokinetic and pharmacodynamic effects when drugs are administered by different routes, infusion and/or in combination</td>
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<td>safe maximum doses of local anaesthetics for children</td>
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<td>apply their knowledge of sedation drugs, prescribed medication and recreational drugs to avoid interactions in the clinical setting</td>
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<td>demonstrate the safe and effective use of local anaesthetics in children</td>
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<td>how to obtain accurate and detailed information about past and current medical/surgical conditions including current and previous medication (including allergies)</td>
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<td>the use of weight and height data, growth charts and normal ranges to estimate a child’s stage of physical development</td>
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<td>how information about medical problems associated with previous conscious sedation or anaesthesia may influence future management</td>
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<td></td>
<td>take a detailed medical, family, social and dental history to identify serious medical and surgical conditions that impact on safe delivery of sedation</td>
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<td>carry out a physical examination to identify children:</td>
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<td>- with serious problems which might impact on the safe delivery of conscious sedation</td>
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<td>- who are not in the normal range</td>
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<td>know when to ask for specialist medical advice or clarification of the patient’s medical history</td>
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<td></td>
<td>identify serious problems which might impact on safe delivery of conscious sedation – know when to ask for clarification</td>
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<td>take account of this knowledge in diagnosis and treatment planning and provision of advanced conscious sedation techniques in children</td>
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<td>SDL ST CA FA PDP WBA</td>
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<td>the patient’s (ASA) status</td>
<td>the significance of the maturity of airway development and any problems which might arise due to airway abnormalities</td>
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<td>how the patient’s psychological and developmental status may influence management</td>
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<td>consideration of the evidence and guidance relating to fasting</td>
<td>recognise when fasting is desirable</td>
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<td>the provision of pre- and post-sedation instructions for parents and children in an age appropriate format</td>
<td>provide pre- and post-sedation instructions for parents and children in an age appropriate format</td>
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<td>appropriate communication techniques for children</td>
<td>communicate effectively with children</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Sedation drug selection</th>
<th>the process of selecting a safe, effective and appropriate sedation technique for the child in terms of both the drug selection and the route of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>the indications and contraindications for conscious sedation drugs in children including:</td>
<td>choose a safe effective and appropriate sedation technique for the child in terms of both the drug selection and the route of administration</td>
</tr>
<tr>
<td>- benzodiazepines</td>
<td>recognise the indications and contraindications for conscious sedation drugs in children including:</td>
</tr>
<tr>
<td>- propofol</td>
<td>- benzodiazepines</td>
</tr>
<tr>
<td>- opioids</td>
<td>- propofol,</td>
</tr>
<tr>
<td>- ketamine</td>
<td>- opioids</td>
</tr>
<tr>
<td>- nitrous oxide</td>
<td>- ketamine</td>
</tr>
<tr>
<td>- sevoflurane</td>
<td>- nitrous oxide</td>
</tr>
<tr>
<td></td>
<td>- sevoflurane</td>
</tr>
</tbody>
</table>

| take account of the indications and contraindications for conscious sedation in children and the various agents and routes of administration when planning individual patient care | ACI CBL SDL ST |
| | FA MSF PDP WBA |
| the indications and contraindications for conscious sedation in children using different routes of administration including:  
- oral  
- transmucosal  
- inhalation  
- IV  
- IM  

the selection of the most appropriate agents for each child patient taking into account:  
- proposed dental treatment  
- age and body weight  
- degree of anxiety  
- medical history (see above)  
- physical examination  
- social history  
- healthcare environment  
- healthcare team sedation training and experience  

the principle of ‘minimum intervention’ (the use of the smallest amount of a single drug or the least number of drugs which is likely to produce clinically effective, safe conscious sedation)  

recognise the indications and contraindications for conscious sedation in children using different routes of administration, including:  
- oral  
- transmucosal  
- inhalation  
- IV  
- IM  

select the most appropriate agents for each patient taking into account:  
- proposed dental treatment  
- age and body weight  
- degree of anxiety  
- medical history (see above)  
- physical examination  
- social history  
- healthcare environment  
- healthcare team sedation training and experience  

administer sedation according to the principle of ‘minimum intervention’ (the use of the smallest amount of a single drug or the least number of drugs which is likely to produce clinically effective, safe conscious sedation)  

| 5. Administration of sedation  
the physical signs of both conscious (moderate) and deep sedation and how to recognise the conscious sedation endpoint.  

demonstrate recognition of the conscious sedation endpoint and avoid going beyond it  

show continuous regard for patient safety  

| ACI  
CA  
CBL  
SDL  
ST  

| FA  
MSF  
PDP  
WBA |
<table>
<thead>
<tr>
<th>6. Good practice and medico-legal requirements</th>
<th>the use of appropriate clinical and electrical monitoring techniques (including SaO₂, CO₂, BP, ECG)</th>
<th>select and demonstrate use of appropriate clinical and electrical monitoring techniques (including SaO₂, CO₂, BP, ECG)</th>
<th>determine and demonstrate use of appropriate drug dosage(s)</th>
<th>select and demonstrate use of appropriate drug dosage(s)</th>
<th>demonstrate safe use of the techniques for administering propofol by:</th>
<th>operate infusion devices</th>
<th>consult and collaborate with colleagues in other specialties where necessary</th>
<th>ACI CA CBL SDL ST FA MSF PDP WBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>the method of assessing appropriate drug dosage(s)</td>
<td>appropriate method of administering drug(s) to produce conscious sedation</td>
<td>appropriate method of administering drug(s) to produce conscious sedation</td>
<td>appropriate combinations of drugs, including knowing the correct sequence of administration</td>
<td>appropriate combinations of drugs, including knowing the correct sequence of administration</td>
<td>the techniques for administering propofol by:</td>
<td>the techniques for administering propofol by:</td>
<td>the techniques for administering propofol by:</td>
<td>the techniques for administering propofol by:</td>
</tr>
<tr>
<td></td>
<td>- manual titration</td>
<td>- manual titration</td>
<td>- patient controlled infusion</td>
<td>- patient controlled infusion</td>
<td>- patient controlled infusion</td>
<td>- patient controlled infusion</td>
<td>- patient controlled infusion</td>
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<td>- patient controlled infusion</td>
<td>- patient controlled infusion</td>
<td>- target controlled infusion</td>
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<td>- target controlled infusion</td>
<td>- target controlled infusion</td>
<td>the operation of infusion devices</td>
<td>the operation of infusion devices</td>
<td>the operation of infusion devices</td>
<td>the operation of infusion devices</td>
<td>the operation of infusion devices</td>
<td>the operation of infusion devices</td>
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<tr>
<td>the knowledge and experience another practitioner must have in order to be able to provide safe conscious sedation for a dentist without training in conscious sedation</td>
<td>select an appropriate individual to provide conscious sedation which is beyond the operator’s competence</td>
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<tr>
<td>patient discharge, post-operative and aftercare instructions appropriate to each individual and taking into account their social circumstances</td>
<td>recognise when a patient is fit for discharge taking into account their social circumstances and whether other arrangements for post-operative care are required</td>
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<tr>
<td>sedation-related complications, including:  - over-sedation  - respiratory depression  - airway obstruction  - vomiting  - idiosyncratic responses  - delayed recovery  - failure</td>
<td>provide patients, families and/or carers with appropriate discharge and post-operative instructions in a format that they can understand</td>
<td></td>
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</tr>
<tr>
<td>the management of sedation-related complications using appropriate procedures in a step-wise manner, including:  - over-sedation  - respiratory depression  - airway obstruction  - vomiting  - idiosyncratic responses  - delayed recovery  - failure</td>
<td>recognise sedation-related complications, including:  - over-sedation  - respiratory depression  - airway obstruction  - vomiting  - idiosyncratic responses  - delayed recovery  - failure</td>
<td></td>
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</tr>
<tr>
<td>manage sedation-related complications using appropriate procedures in a step-wise manner, including:  - over-sedation  - respiratory depression  - airway obstruction  - vomiting  - idiosyncratic responses  - delayed recovery  - failure</td>
<td>show regard for individual patient, family and/or carer needs</td>
<td></td>
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<tr>
<td>recognise the importance of team training in the recognition and management of sedation/medical emergencies in the dental surgery (including recovery areas)</td>
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</tr>
</tbody>
</table>
| 7. Training and continued professional development (CPD) | current guidelines on:  
- gaining valid consent  
- teamwork  
- clinical holding/restraint  
- ending holding/restraint if required  
- appropriate record keeping  
- controlled drugs  
- ‘off-licence’ use of drugs | be able to apply current guidelines on:  
- gaining valid consent  
- teamwork  
- clinical holding/restraint  
- ending holding/restraint if required  
- appropriate record keeping  
- controlled drugs  
- ‘off-licence’ use of drugs | show regard for individual patient needs when utilising guidelines |
|---|---|---|---|
| the training required by the dental team (dentist, doctor, DCP) in order that the sedationist can safely provide advanced conscious sedation techniques for children | demonstrate through safe practice and leadership that the training required by the dental team (dentist, doctor, DCP) in order that the sedationist can safely provide advanced conscious sedation techniques for children is contemporaneous | keep up to date with developments in conscious sedation techniques and their application to dentistry | ACI  
CA  
CBL  
SDL  
ST |
| current advanced paediatric life support training | perform advanced paediatric life support | | FA  
MSF  
PDP  
WBA |
| the requirements for CPD to keep up to date with recent developments in conscious sedation techniques and their application to dentistry | demonstrate through debate, safe practice and leadership that CPD is up to date with developments in conscious sedation techniques and their application to dentistry | | |
| how to critically evaluate the literature on conscious sedation drugs and techniques | critically evaluate the literature on conscious sedation drugs and techniques to reach a decision on its validity | | |
| the importance of relevant clinical audit | maintain relevant clinical audit | | |

**Key:**  
**Teaching and learning methods**  
ACI = audit/critical incident analysis, CA = clinical attachment, CBL = Case based learning, SDL = Self-directed learning, ST = structured teaching  
**Assessment methods**  
FA = Formal assessment, MSF = Multi source feedback, PDP = Personal development portfolio, WBA = Workplace-based assessment
ASSESSMENT

The assessment strategy will follow the principles set down in *Principles for an Assessment System for Postgraduate Medical Training* by GMC/PMETB, including:

- Provision of feedback to trainees about progress in achieving competencies
- Identification of learning needs and progression
- Supporting trainees in gaining the required competencies
- Provision of assurance to the public that the successful trainee is capable of unsupervised practice

Throughout the advanced conscious sedation training programme, an integrated system of assessments must be used to measure the progress of the trainee and their level of achievement against agreed criteria. A number of assessment tools will be employed to provide evidence of knowledge, skills and attitudes throughout training and these will be blueprinted against the learning outcomes as evidenced in the accompanying tables and appendices. Trainees will be expected to maintain a personal development portfolio including workplace-based assessments.

WORKPLACE-BASED ASSESSMENTS

Assessment of progress and competence throughout the training period will be achieved principally through workplace-based assessment. The trainees will be assessed on work that they are doing on a day-to-day basis thus integrating assessment into their daily work and fulfilling the principle of workplace-based assessment.

The trainee should initiate the assessment process and throughout their training must identify opportunities for assessment choosing the assessment tool, procedure and the assessor. The assessments must be undertaken by a number and range of different assessors covering a broad range of activities and procedures appropriate to the stage of training.

Workplace-based assessments will include the mini Clinical Evaluation Exercise (MiniCEX), the Direct Observation of Procedural Skills in Surgery (DOPS), Case-based Discussion (CBD) and Procedure-based Assessment (PBA) by Multi source Feedback (MSF).
TRAINING

The training plan must be structured and training should take precedence over service provision. For the foreseeable future it is likely that training will be administered and quality assured by university dental schools/hospitals, which will be expected to link with relevant hospital departments and community establishments to ensure access to relevant facilities and expertise. The training syllabus has been planned in modules that are linked to topics as shown in the tables and appendices. Modules need not necessarily be studied in the order presented.

The majority of the syllabus will be delivered through work-based experiential learning. The programme should comprise at least 60% direct clinical care, including participation in diagnostic and treatment planning and provision of treatment using advanced conscious sedation techniques.

Trainers will allow trainees to become less dependent upon direct supervision as they progress through training, subject to satisfactory assessment.

Though envisaged to be administered by university dental schools/hospitals, the syllabus will be delivered through a variety of learning experiences in primary, secondary and/or tertiary care settings (including universities and Royal Colleges) thus allowing the trainee to develop transferable skills appropriate to the practice and delivery of paediatric advanced conscious sedation techniques.

Trainees will have different learning styles. The training environment should provide appropriate reference material, for example: textbooks, journals, computer packages, etc.

SUPERVISION AND FEEDBACK

Where possible, the training programme should allow the trainee access to more than one experienced/specialist practitioner in advanced conscious sedation techniques. The trainee should be allowed to gain a perspective of the range and effectiveness of contemporary practice in advanced conscious sedation techniques to allow adult learning. This will allow a balance between a programme which provides core knowledge and one which encourages the trainee to make judgements and choices.
SYLLABUS REVIEW AND UPDATING

The Paediatric Advanced Conscious Sedation Techniques syllabus should be considered a document that will require updating in line with future progress in the practice and research within conscious sedation. This will ensure that the syllabus continues to be fit for purpose.

It is anticipated that a full review of the syllabus will normally occur 5-yearly.
# APPENDIX 1:

## PAEDIATRIC BASIC AND ADVANCED CONSCIOUS SEDATION TECHNIQUES

<table>
<thead>
<tr>
<th>Drug (s) / Combination</th>
<th>Level of sedation training required</th>
<th>Operator (O) or Dedicated (D) sedationist</th>
<th>Reversal agents required</th>
<th>Additional requirements</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam alone</td>
<td>Advanced</td>
<td>OS</td>
<td>Flumazenil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation sedation</td>
<td>Basic</td>
<td>OS</td>
<td>None required / available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with nitrous oxide and oxygen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opioid followed by midazolam</td>
<td>Advanced</td>
<td>D</td>
<td>Flumazenil and naloxone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propofol infusion</td>
<td>Advanced</td>
<td>D</td>
<td>None available for propofol</td>
<td>Infusion pump</td>
<td>Includes Patient and Target Controlled Sedation</td>
</tr>
<tr>
<td>+/- other drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketamine +/- other</td>
<td>Advanced</td>
<td>D</td>
<td>None available for ketamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sevoflurane with</td>
<td>Advanced</td>
<td>D</td>
<td>None available</td>
<td>Gas delivery system, vaporiser and scavenging</td>
<td>With dedicated equipment limited to sedative dose, could be ‘operator’</td>
</tr>
<tr>
<td>oxygen +/- other drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines via</td>
<td>Advanced</td>
<td>OS</td>
<td>Flumazenil</td>
<td>Basic IV sedation training and experience required whichever route used</td>
<td></td>
</tr>
<tr>
<td>oral or transmucosal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>routes</td>
<td></td>
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</tbody>
</table>
APPENDIX 2:

STANDARDS OF TRAINING AND EXPERIENCE FOR CONSCIOUS SEDATION IN DENTISTRY

A standard is a level of excellence or quality against which another practice can be judged or measured. Experience is direct personal participation or observation and an accumulation of knowledge of practical matters that relate to the subject.

All statements on standards should take into consideration the currently accepted definition of conscious sedation for dentistry:

“A technique in which the use of a drug or drugs produces a state of depression of the central nervous system enabling treatment to be carried out, but during which verbal contact with the patient is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation for dental treatment should carry a margin of safety wide enough to render loss of consciousness unlikely.”

Any statement on standards should take into account the following factors:

- Current regulatory guidance from the General Dental Council and General Medical Council
- Existing and adopted professional guidance
- Scientific development and change of knowledge base that has occurred since previous publications of standards
- Fully investigated critical incident adverse event reports where the outcome has been negative, despite the adoption of current standards
- Accepted clinical governance, pathways and risk management strategies
PRESENT STANDARDS AND GUIDANCE

Standards for training and experience in dental sedation have largely come from the Department of Health and the Dental Sedation Teachers Group which comprises representatives from all UK and Irish dental schools. The following documents are relevant (see References for web links):


Conscious Sedation In the Provision of Dental Care: Standing Dental Advisory Committee (2003)

Standards for Dental Professionals: General Dental Council (2005)

Training in Conscious Sedation for Dentistry: Dental Sedation Teachers Group (2005)


Commissioning Conscious Sedation Services in Primary Dental Care: Department of Health (2007)


Guidelines for the Appointment of Dentists with a Special Interest (DwSI) in Conscious Sedation: Faculty of General Dental Practice/Department of Health (2007)

Conscious Sedation in Dentistry: Standards for Postgraduate Education: Dental Sedation Teachers Group (2008)


Manual for Trainees and Trainers: Competency Based Higher and Advanced Level (Specialty (ST) Years 5, 6, 7) Training and Assessment: Conscious Sedation for Dentistry: Royal College of Anaesthetists (2011)
CURRENT UK STANDARDS

THE DENTAL TEAM – BASIC TECHNIQUES

The standards for training the dental team need to be considered for each of the groups of staff involved.

The norm for the provision of basic conscious sedation techniques is that the dentist will act as the operator and also the sedationist assisted by an appropriately trained second person – usually a dental nurse. This system has been in place for a considerable period of time and has an excellent safety record in addition to being cost efficient.

TRAINING FOR THE ‘SECOND APPROPRIATE PERSON’

The standards for the training for the second appropriate person were developed by the National Examining Board for Dental Nurses (NEBDN). There is a nationally recognised syllabus and training programme which is quality assured by an independent committee which reports directly to the NEBDN Board of Directors. The Quality Assurance process is GDC approved. All candidates sitting the NEBDN sedation examination must be enrolled on an NEBDN approved course. The prospectus for this examination can be found at: http://www.nebdn.org/documents/DSNProspectus.pdf . The prospectus provides guidance on the standard of training required of anyone acting as a second appropriate person where conscious sedation is being provided.

At present there is no specific guidance for what level of training is required for the second appropriate person when advanced sedation techniques are used in paediatric patients.

TRAINING FOR THE OPERATOR/SEDATIONIST

Although training was initially designed for a sedationist who also carries out the dental treatment (commonly referred to as an ‘operator/sedationist’), it is expected that any individual providing conscious sedation will have the same level of sedation training.

The first ever postgraduate conscious sedation course for dentistry was given in 1949 by Dr Harry Langa covering his technique of ‘Relative Analgesia’. The Society for the Advancement of Anaesthesia in Dentistry (SAAD) started providing dental sedation training in the 1950s and it remains the UK’s largest provider training up to 300 dentists/doctors and 250 dental nurses each year.
During the 1990s the first attempt at producing a ‘standard national syllabus’ was undertaken by the Dental Sedation Teachers’ Group. This resulted in the publication “Sedation in Dentistry. Undergraduate Training. Guidelines for Teachers”. The aims of this document were:

1. To provide an introduction to the attitude, knowledge and skills required for the practice of conscious sedation as defined in the core curriculum

2. To enable the undergraduate to acquire a sound foundation in these skills through clinical practice

The objectives were:

1. To acquire knowledge and understanding of the practice of conscious sedation in dentistry

2. To provide clinical experience in the:
   a. Assessment and treatment planning of patients who require conscious sedation
   b. Administration of sedation
   c. Dental care for sedated patients
   d. Appropriate discharge of patients who have received conscious sedation

3. To promote an awareness and understanding of the importance of:
   a. Sedation in the management of pain and anxiety
   b. Communication skills in the management of patients requiring conscious sedation

4. To appreciate the limitations of the undergraduate experience and understand the benefit of continuing professional education

5. To promote a critical and caring approach to the management of anxious patients
The delivery of undergraduate dental education is monitored by the quinquennial GDC visitations to all Dental Schools in the UK. The standards for undergraduate dental education are contained within the GDC’s publication “The First Five Years”. This document requires all dental undergraduates to “have knowledge of conscious sedation”. The phrase “have knowledge of” in this context means having clinical experience of using the technique, but not sufficient to be competent to practice independently.

The next step in the development of a ‘standard national syllabus’ was to make recommendations about the amount of sedation experience required to make a new graduate competent to practice independently. This was addressed in the DSTG’s document ‘Conscious Sedation in Dentistry: The Competent Graduate’ (2000).

This document states that “dentists should be aware of the advantages and disadvantages of using conscious sedation techniques and should be capable of providing effective sedation for selected patients undergoing straightforward dental procedures in the primary care setting”.

This means that a graduate should:

i) Be able to assess a patient’s need and suitability for conscious sedation and

ii) Possess the ability and confidence to apply knowledge and skills relating to inhalation sedation (using nitrous oxide and oxygen) and intravenous sedation (using midazolam)

The amount of clinical experience recognised as generally being sufficient to lead to competence was equivalent to about 12 clinical sessions of supervised clinical practice.

The syllabus and clinical experience recommended in the DSTG document continues to be recognised as appropriate and was used as the basis for the recommendations in the FGDP/DoH guidance on the appointment of dentists with a special interest in sedation (DwSI).

The DSTG syllabus has been accepted by all the UK dental schools and sedation-related specialist societies.
POSTGRADUATE QUALIFICATIONS IN CONSCIOUS SEDATION

The first university-based postgraduate qualification in sedation was introduced in 1997. Since then a number of Certificate, Diploma and MSc programmes have been established. These courses are designed for those who wish to pursue sedation as a major component of their practicing life and thus wish to extend their range of competence primarily in the range of patients who can be managed. They are not an entry requirement to be able to practice sedation in dentistry.

ADVANCED CONSCIOUS SEDATION TECHNIQUES

The draft syllabus that has been prepared for advanced sedation techniques builds on the experience within dentistry of teaching basic sedation techniques. It is proposed to utilise a similar framework for teaching advanced techniques.

Standards for Conscious Sedation in Dentistry: Alternative Techniques 2007 (RCS Eng) gives definitions of advanced techniques and detailed guidance on the sedation environment, patient selection, qualifications and training, experience and continuing professional development.

Entry to training on advanced sedation techniques is restricted to practitioners with documented experience of 100 basic cases (within a two-year period) and evidence that training in specific advanced techniques will take place in an appropriate environment.
SUMMARY

Standards for undergraduate and postgraduate training in basic conscious sedation techniques already exist and have been proven to be safe and appropriate. They should, however, be kept under review. These proven training methods should be used as the foundation for the development of training in advanced sedation techniques.

THE STRENGTHS OF CURRENT CONSCIOUS SEDATION TRAINING IN DENTISTRY INCLUDE:

1. There is a nationally recognised syllabus for the teaching of basic sedation techniques
2. Recognition that training to a defined level of competence (including supervised clinical practice) is essential for the safe and effective practice of conscious sedation
3. The consensus between the UK specialist societies on the syllabus, training requirements and standards of practice
4. Clear national standards for the provision of conscious sedation in dentistry

THE AREAS FOR POTENTIAL DEVELOPMENT ARE:

1. Provision of clinical attachment places for all who undertake didactic training
   a. These places may be in primary, secondary or tertiary care
   b. The facilities where the training is provided should be inspected and quality assured
   c. There should be an agreed outcome with a clear definition of criteria for success and failure
2. Quality assurance
   a. There would be merit in a single authority quality assuring the provision of training in conscious sedation mirroring the situation with the NEBDN sedation qualification quality assurance process
   b. This would also require QA
3. Assessment of performance
   a. At the end of training there should be an assessment of competence
   b. This would also require QA

4. Development of training programs in advanced conscious sedation techniques
   a. The training programs should follow an agreed syllabus based on existing evidence and practice
   b. All courses must include supervised clinical practice
   c. In the first instance the supervised clinical practice will take place in association with university dental schools/hospitals

APPENDIX 3:

CONTRIBUTORS

The members of IEGTSSD who contributed to this document are:

Robina Bush – Lay Representative
Sanjay Chopra – Specialist in Oral Surgery
Paul Coulthard – Professor of Oral and Maxillofacial Surgery
David Craig – Consultant in Special Care Dentistry (Chairman)
Martin Foster – Dento-Legal Adviser, Dental Protection Limited
Christopher Holden – General Dental Practitioner
Isabelle Holroyd – Consultant Paediatric Dentist
Nigel Robb – Senior Lecturer in Sedation
Mike Sury – Consultant Anaesthetist
REFERENCES:


Conscious Sedation in the Provision of Dental Care: Standing Dental Advisory Committee (2003)

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Conscious Sedation in Dentistry: Standards for Postgraduate Education: Dental Sedation Teachers Group (2008)
http://www.dstg.co.uk/files/teaching/dstg-pg-standards.pdf

http://guidance.nice.org.uk/CG112

Manual for Trainees and Trainers: Competency Based Higher and Advanced Level (Specialty ST) Years 5, 6, 7 Training and Assessment: Conscious Sedation for Dentistry: Royal College of Anaesthetists (2011)
http://www.rcoa.ac.uk/docs/CCT%20in%20Anaesthetics%20Part%20IV%20-%20July%202011.pdf