

**GUIDELINES FOR TEACHING  
THE COMPREHENSIVE CONTROL OF  
ANXIETY AND PAIN IN DENTISTRY**

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## INTRODUCTION

Anxiety and pain control can be defined as the application of various physical, chemical and psychological modalities to the prevention and treatment of preoperative, operative and postoperative patient anxiety and pain. It involves all phases of dentistry and, as such, is one of the most important aspects of dental education. These *Guidelines* are intended to delineate the scope of anxiety and pain control and to set standards of acceptability for the teaching of this subject at the predoctoral, advanced (graduate and postgraduate) and continuing education levels. They present methods for achieving the objectives identified for each of these phases of instruction, with general descriptions of course content, sequence of instruction, faculty qualifications and suggestions regarding acceptable facilities and equipment. Prerequisites for admission to each level of training also are presented. Finally, these *Guidelines* identify the kinds of institutions and agencies which should properly provide educational programs of anxiety and pain control.

It is not the intent of the guidelines to fit every program into the same rigid educational mold. This is neither possible nor desirable. There must always be room for innovation and improvement. They do, however, provide a reasonable measure of program acceptability, applicable to all institutions and agencies engaged in predoctoral, advanced (graduate and postgraduate) and continuing education.

In proposing these *Guidelines*, it is recognized that many members of the profession have acquired a high degree of competency in the use of anxiety and pain control procedures through a combination of instructional courses and experience. It is assumed that this has enabled these teachers and practitioners to meet the educational criteria described in this document.

## DEFINITIONS

**Methods of Anxiety and Pain Control:** A variety of terms are used to describe the different methods of controlling-anxiety and pain. The following are definitions of the terms as used in this document.

*Analgesia* – the diminution or elimination of pain.

*Anxiolysis* – the diminution or elimination of anxiety.

*local anesthesia* – the elimination of sensation, especially pain, in one part of the body by the topical application or regional injection of a drug.

*conscious sedation*<sup>1</sup> – a minimally depressed level of consciousness that retains the patient's ability to independently and continuously maintain an airway and respond appropriately to physical stimulation or verbal command and that is produced by a pharmacological or non-pharmacological method or a combination thereof.

In accord with this particular definition, the drugs and/or techniques used should carry a margin of safety wide enough to render unintended loss of consciousness unlikely. Further, patients

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<sup>1</sup> Parenteral conscious sedation may be achieved with the administration of a single agent or by the administration of more than one agent.

whose only response is reflex withdrawal from repeated painful stimuli would not be considered to be in a state of conscious sedation.

*combination inhalation-enteral conscious sedation* (combined conscious sedation) – conscious sedation using inhalation and enteral agents.

**When the intent is anxiolysis only, and the appropriate dosage of agents is administered, then the definition of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) does not apply.**

Nitrous oxide/oxygen when used in combination with sedative agents may produce anxiolysis, conscious or deep sedation or general anesthesia.

*titration* – the administration of small incremental doses of a drug until a desired clinical effect is observed.

In accord with this particular definition, titration of oral medication for the purposes of sedation is unpredictable. Repeated dosing of orally administered sedative agents may result in an alteration of the state of consciousness beyond the intent of the practitioner. Except in unusual circumstances, the Maximum Recommended Dose (MRD) of an oral medication should not be exceeded.

*deep sedation* – an induced state of depressed consciousness accompanied by partial loss of protective reflexes, including the inability to continually maintain an airway independently and/or to respond purposefully to physical stimulation *or* verbal command, and is produced by a pharmacological or non-pharmacological method or a combination thereof.

*general anesthesia* – an induced state of unconsciousness accompanied by partial or complete loss of protective reflexes, including the inability to continually maintain an airway independently and respond purposefully to physical stimulation or verbal command, and is produced by a pharmacological or non-pharmacological method or a combination thereof.

The same level of advanced training identified in Part II of this document is necessary for the administration of both deep sedation and general anesthesia.

**Routes of Administration:** The following are definitions of terms used in this document to describe routes of administration.

*enteral* – any technique of administration in which the agent is absorbed through the gastrointestinal (GI) tract or oral mucosa [i.e., oral, rectal, sublingual].

*parenteral* – a technique of administration in which the drug bypasses the gastrointestinal (GI) tract [i.e., intramuscular (IM), intravenous (IV), intranasal (IN), submucosal (SM), subcutaneous (SC), intraocular (IO)].

*transdermal/transmucosal* – a technique of administration in which the drug is administered by patch or iontophoresis.

*inhalation* – a technique of administration in which a gaseous or volatile agent is introduced into the pulmonary tree and whose primary effect is due to absorption through the pulmonary bed.

**Terms:** The terms used in this document (i.e., must, should, and may) were selected carefully and indicate the relative weight attached to each statement. The definitions of these words are as follows.

*must/shall* – indicates an imperative need and/or duty; an essential or indispensable item; mandatory.

*should* – indicates the recommended manner to obtain the standard; highly desirable.

*may* – indicates freedom or liberty to follow a reasonable alternative.

*continual* – repeated regularly and frequently in a steady succession.

*continuous* – prolonged without any interruption at any time.

*time-oriented anesthesia record* – documentation at appropriate intervals of drugs, doses and physiologic data obtained during patient monitoring.

*immediately available* – on site in the facility and available for immediate use.

**Levels of Knowledge:** The following definitions of levels of knowledge are used in this document.

*familiarity* - a simplified knowledge for the purpose of orientation and recognition of general principles.

*understanding* – adequate knowledge with the ability to apply

*in-depth* - a thorough knowledge of concepts and theories for the purpose of critical analysis and the synthesis of more complete understanding (highest level of knowledge).

**Levels of Skill:** The following definitions of levels of skill are used in this document.

*exposed* - the level of skill attained by observation of or participation in a particular activity.

*competent* - displaying special skill or knowledge derived from training and experience.

*proficient* - the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time (highest level of skill).

**Patient Physical Status Classification:**

*ASA I* - A normal healthy patient. (*ASA* = *American Society of Anesthesiologists*)

*ASA II* - A patient with mild systemic disease.

*ASA III* - A patient with severe systemic disease.

*ASA IV* - A patient with severe systemic disease that is a constant threat to life.

*ASA V* - A moribund patient who is not expected to survive without the operation.

*ASA VI* - A declared brain-dead patient whose organs are being removed for donor purposes.

*E* - Emergency operation of any variety (used to modify one of the above classifications, i.e., *ASA III-E*).

## SCOPE OF ANXIETY AND PAIN CONTROL

A thorough understanding of anxiety and pain and their management requires knowledge in the following areas:

- A. Human behavior and psychologic aspects of anxiety and pain
- B. Anatomy and neuroanatomy relevant to anxiety and pain control
- C. Physiologic aspects of anxiety and pain
- D. Pharmacologic aspects of anxiety and pain control
- E. Patient Evaluation
- F. Prevention, recognition and management of complications and emergencies related to techniques of anxiety and pain control, including cardiovascular and pulmonary resuscitation
- G. Organic pain problems
  - 1. Trigeminal neuralgia
  - 2. Atypical facial neuralgia and vascular pains
  - 3. Oral and facial pain syndromes
- H. Techniques of preoperative and operative anxiety and pain control
  - 1. Analgesia
    - a. Enteral
    - b. Inhalation
    - c. Parenteral
  - 2. Local anesthesia
    - a. Transdermal/Transmucosal
    - b. Injection – Infiltration (supraperiosteal)
    - c. Injection – Nerve block
    - d. Alternative injections
  - 3. Conscious Sedation
    - a. Enteral
    - b. Inhalation
    - c. Combination inhalation-enteral conscious sedation (combined conscious sedation)
    - d. Parenteral
    - e. Combinations
  - 4. Deep Sedation and General Anesthesia
    - a. Enteral
    - b. Inhalation

- c. Parenteral
    - d. Combinations
  - 5. Nonpharmacologic methods
    - a. Psychological and behavioral methods
      - (1) Anxiety management
      - (2) Relaxation techniques
      - (3) Systematic desensitization
    - b. Interpersonal strategies of patient management
    - c. Hypnosis
    - d. Electronic dental anesthesia
    - e. Acupuncture/acupressure
    - f. Other
  - 6. Interaction of psychological management and pharmacological anxiety and pain control
- I. Techniques of postoperative anxiety and pain control
- 1. Enteral
  - 2. Parenteral
  - 3. Combinations
  - 4. Nonpharmacological techniques
- J. Techniques of Chronic Pain Control
- 1. Pharmacologic Methods
  - 2. Transcutaneous electrical nerve stimulation (TENS)
  - 3. Dorsal column stimulation
  - 4. Acupuncture/acupressure
  - 5. Neuro-ablative techniques
  - 6. Nonpharmacological techniques

To acquire the depth of information and breadth of experience needed to become proficient in all these areas of anxiety and pain control obviously requires study beyond the predoctoral level.

**PART ONE**  
**TEACHING THE COMPREHENSIVE CONTROL**  
**OF ANXIETY AND PAIN**  
**TO THE DENTAL STUDENT**

**Introduction:** These *Guidelines* are intended to provide direction for education programs in anxiety and pain control offered at the predoctoral level.\* Faculty responsible for this curriculum must be familiar with the ADA Policy Statement: *The Use of Conscious Sedation, Deep Sedation and General Anesthesia in Dentistry* and the *Guidelines for the Use of Conscious Sedation, Deep Sedation and General Anesthesia for Dentists*.

The curriculum in anxiety and pain control is a continuum of educational experiences that will extend over several years of the predoctoral program. It should provide the dental student with the knowledge and skills necessary to render the conscious patient free from anxiety and pain without inducing detrimental physiological or psychological side effects.

Institutions whose goal is to have students achieve competency in techniques such as local anesthesia and nitrous oxide inhalation sedation must meet all of the goals, prerequisites, didactic content, clinical experiences, faculty and facilities, as described in Part One.

**A. Goals:** The wide spectrum of techniques available to the dental student for the control of anxiety and pain should include both psychological and pharmacological intervention strategies. Psychological strategies should include simple relaxation techniques for the anxious patient and more comprehensive behavioral techniques to control pain. Pharmacological strategies should include not only local anesthetics but also sedatives, analgesics and other useful agents. Students should learn indications and techniques for administering these drugs enterally, parenterally and by inhalation as supplements to local anesthesia. The predoctoral curriculum should provide students with instruction and experience in anxiety and pain control, including conscious sedation. The predoctoral program must also provide students with the knowledge and skill to recognize and manage any emergencies that might arise as a consequence of treatment. Training needed for competency in the administration of deep sedation and general anesthesia are beyond the scope of predoctoral education and can be acquired only at the advanced education level. (See Part Two)

**Students must:**

1. Have an in-depth knowledge of those aspects of anatomy, physiology, pharmacology and psychology involved in the use of various anxiety and pain control methods.
2. Be competent in evaluating the psychological and physical status of the patient, as well as the magnitude of the operative procedure, in order to select the proper regimen.
3. Be competent in monitoring vital functions.
4. Be competent in prevention, recognition and management of related complications.

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\* Accreditation standards related to this area are contained in the Commission on Dental Accreditation's Accreditation Standards for Dental Education Programs – Standard 2-25e.

5. Be familiar with the appropriateness of and the indications for medical consultation or referral.
6. Be competent in each anxiety and pain control modality in which competency is certified. Determination of competency is the responsibility of qualified faculty.
7. Be competent in the maintenance of proper records with accurate chart entries recording medical history, physical examination, vital signs, drugs administered and patient response.

**B. Prerequisites:** Gross anatomy, neuroanatomy, physiology, pharmacology, immunology and behavioral sciences provide the necessary background for the predoctoral instruction in anxiety and pain control. In schools where pharmacology is taught late in the curriculum, those aspects related to the management of anxiety and pain should be presented during the anxiety and pain control instruction. When human behavior and the psychological aspects of patient management are not taught as a separate course, they too should be included in the program of anxiety and pain control instruction.

Knowledge at the understanding level of physical diagnosis and internal medicine are necessary to prepare the student for proper patient evaluation. Instruction in these areas should familiarize the student with the specific problems related to anxiety and pain control that each disease process or physical disability may present in persons seeking dental care.

In all of these prerequisites, the material must be presented in sufficient depth to give the student the didactic background necessary for the safe and effective administration of local anesthesia, nitrous oxide, and other methods of anxiety and pain control taught to competency in the dental program. In-depth knowledge of the recognition and management of medical emergencies and competency in the delivery of basic life support are required prerequisites for the student to assume primary clinical responsibilities in anxiety and pain control.

**C. Didactic Curricular Content:** Predoctoral instruction in anxiety and pain control should emphasize the following areas:

1. Philosophy of anxiety and pain control and patient management, including the nature and purpose of pain
2. Review of physiologic and psychologic aspects of anxiety and pain
3. Review of airway anatomy and physiology
4. Physiologic monitoring
  - a. Observation
    - (1) Central nervous system
    - (2) Respiratory system
      - a. oxygenation
      - b. ventilation
    - (3) Cardiovascular system
  - b. Monitoring equipment

5. Pharmacologic aspects of anxiety and pain control
  - a. Local anesthetics
  - b. Anxiolytics
  - c. Sedatives
  - d. Analgesics
  - e. Agonists/antagonists
  - f. Adverse side effects
  - g. Drug interactions
6. Organic pain problems and their management
7. Control of preoperative and operative anxiety and pain
  - a. Patient evaluation
    - (1) Psychological status
    - (2) ASA physical status
    - (3) Type and extent of operative procedure
  - b. Nonpharmacologic methods
    - (1) Psychological and behavioral methods
      - (a) Anxiety management
      - (b) Relaxation techniques
      - (c) Systematic desensitization
    - (2) Interpersonal strategies of patient management
    - (3) Hypnosis
    - (4) Electronic dental anesthesia
    - (5) Acupuncture/Acupressure
    - (6) Other
  - c. Pharmacologic Methods
    - (1) Analgesia and anxiolysis
      - (a) Review of physiologic considerations
      - (b) Selection of agents
      - (c) Techniques of administration
        - (i) Enteral
        - (ii) Parenteral
        - (iii) Inhalation
      - (d) Prevention, recognition and management of complications and emergencies

- (e) Potential occupational hazards associated with conscious sedation
  - (i) Abuse potential by dental personnel
  - (ii) Chronic exposure to waste anesthetic gas
  - (iii) Infection risk
- (2) Local anesthesia
  - (a) Review of related anatomy, pharmacology and physiology
  - (b) Selection of agents
  - (c) Techniques of administration
    - (i) Transdermal/transmucosal
    - (ii) Infiltration (supraperiosteal)
      - (iii) Nerve block – maxilla
        - (aa) Posterior superior alveolar
        - (bb) Infraorbital
        - (cc) Nasopalatine
        - (dd) Greater palatine
        - (ee) Maxillary (2<sup>nd</sup> division)
      - (iv) Nerve block – mandible
        - (aa) Inferior alveolar-lingual
        - (bb) Mental-incisive
        - (cc) Buccal
        - (dd) Gow-Gates
        - (ee) Closed mouth
      - (v) Alternative injections
        - (aa) Periodontal ligament
        - (bb) Intraosseous
  - (d) Prevention, recognition and management of complications and emergencies
- (3) Conscious sedation
  - (a) Review of related anatomy, pharmacology and physiology
  - (b) Selection of agents
  - (c) Armamentarium for administration
  - (d) Techniques of administration
    - (i) Enteral
    - (ii) Parenteral

- (iii) Inhalation
      - (iv) Combinations
    - (e) Potential occupational hazards associated with conscious sedation
      - (i) Abuse potential by dental personnel
      - (ii) Chronic exposure to waste anesthetic gas
      - (iii) Infection risk
    - (f) Prevention, recognition and management of complications and emergencies
  - (4) Overview of deep sedation and general anesthesia
    - (a) Review of related anatomy, pharmacology and physiology
    - (b) Selection of agents
    - (c) Indications and contraindications for use of deep sedation and general anesthesia in ambulatory patients
    - (d) Patient selection and preparation
    - (e) Complications associated with use of deep sedation and general anesthesia
  - (5) Interaction of pharmacological and psychological methods
  - (6) Control of postoperative anxiety and pain
    - (a) Use of appropriate instructions and interpersonal strategies
    - (b) Selection of appropriate pharmacological agents based on procedure and psychological background
    - (c) Nonpharmacological techniques
8. Techniques of Chronic Pain Control
- a. Pharmacologic Methods
  - b. Transcutaneous electrical nerve stimulation (TENS)
  - c. Dorsal column
  - d. Acupuncture/Acupressure
  - e. Neuro-ablative techniques
9. Principles of advanced life support
- a. Students should have access to an advanced cardiac life support course or an appropriate equivalent.

**D. Sequence of Didactic and Clinical Instruction:** The predoctoral program in anxiety and pain control should begin with a course in local anesthesia. Generally this instruction is offered after the student has satisfactorily completed anatomy, physiology and behavioral sciences, and prior to the time that the student undertakes clinical procedures that demand knowledge of the subject. Ideally, it would also be beneficial for the student to have completed pharmacology. However, when this is not possible, those aspects of the basic sciences related to local anesthetics should be

taught as part of the clinical course. Before beginning the clinical use of any drugs, the student must document current successful completion of a course in basic life support or an appropriate equivalent and receive instruction in the management of other emergencies.

Beyond the basic didactic instruction in local anesthesia, additional time should be provided for demonstrations and clinical practice of the injection techniques. This instruction preferably should be offered prior to the clinical courses requiring use of local anesthetic agents.

The teaching of other methods of anxiety and pain control, such as the use of analgesics and enteral, inhalation and parenteral conscious sedation, should start after the course in pharmacology. By this time the student also will have developed a better understanding of patient evaluation and the problems related to prior patient care. As part of this instruction, the student should be taught the techniques of venipuncture and physiologic monitoring. Time should be included for demonstration of conscious sedation techniques.

Following didactic instruction in conscious sedation, the student must receive sufficient clinical experience to demonstrate competency in those techniques in which the student is to be certified. It is understood that all institutions may not be able to provide instruction to the level of clinical competence in anxiety and pain control modality to all students. The amount of clinical experience required to achieve competency will vary according to student ability, teaching methods and the anxiety and pain control modality taught.

Clinical experience in conscious sedation techniques should be related to various disciplines of dentistry and not limited to surgical cases. Typically, such experience will be provided in managing healthy adult patients. Additional supervised clinical experience is necessary to prepare students to manage children and those patients with special care needs.

Throughout both didactic and clinical instruction in anxiety and pain control, psychological management of the patient should be stressed. The relation between the patient's anxiety level and the ease of obtaining analgesia or sedation should be emphasized.

- E. Student Evaluation and Documentation of Experience:** All students performing conscious sedation techniques must be under the supervision of qualified faculty. Students to be certified as competent in a conscious sedation technique must be provided sufficient clinical experience to achieve competence. The faculty must be prepared to certify student competency upon satisfactory completion of training in each anxiety and pain control modality. In addition, records of the number of patients managed by each student in each modality must be maintained and available for review by appropriate credentialing agencies.
- F. Faculty:** Instruction must be provided by qualified faculty for whom anxiety and pain control are areas of major proficiency, interest and concern.

One individual should be designated coordinator, and it should be that individual's responsibility to integrate the anxiety and pain control program within the various department of the school. This individual should be qualified in all aspects of the subject and should have qualified faculty and staff to assist in teaching the dental students, as well as to orient faculty members in other departments to become proficient in anxiety and pain control techniques. This will provide continuity of instruction in the use of the various aspects of anxiety and pain control and, hence, present a unified teaching effort to the students. Where feasible, the talents and resources of a related medical school, hospital dental department or hospital department of anesthesiology should be used in the teaching and research program in anesthesiology.

Members of the faculty must be available during all clinic hours for consultation, supervision and assistance.

- G. Facilities:** All areas in which local anesthesia and sedation are being used must be properly equipped with suction, physiologic monitoring equipment, positive pressure oxygen and emergency drugs. A protocol for the management of emergencies must be developed and training programs held at frequent intervals.

**PART TWO**  
**TEACHING THE COMPREHENSIVE CONTROL**  
**OF ANXIETY AND PAIN**  
**AT THE ADVANCED EDUCATION LEVEL**

**Introduction:** These *Guidelines* are intended to provide direction for education programs in anxiety and pain control offered at the advanced level (graduate or postgraduate). Advanced education programs in endodontics, oral and maxillofacial surgery, pediatric dentistry, periodontics, general practice residency and advanced education in general dentistry have requirements specific to the training in anxiety and pain control. These requirements are described in the Commission on Dental Accreditation requirements for each advanced program. Accordingly, these *Guidelines* are not meant to apply to the anesthesia component of advanced education programs in any of the above mentioned education programs.

**A. Goals:** The goal of an advanced education program (graduate or postgraduate) in anxiety and pain control should be to prepare the dentist, in the most comprehensive manner, to use pharmacologic and non-pharmacologic methods to manage anxiety and pain of adults, and children, and those patients with special care needs, as well as to be qualified in the diagnosis and treatment of acute and chronic orofacial pain.

**B. Objectives:** Upon completion of training, the dentist must be:

1. Proficient in the diagnosis and treatment of pain problems related to the head and neck region.
2. Able to demonstrate in-depth knowledge of the anatomy and physiology of the human body and its response to the various pharmacologic agents used in anxiety and pain control.
3. Proficient in evaluating patients as physiological and/or psychological risks for the use of various modalities of anxiety and pain control.
4. Proficient in evaluating patients' psychological and/or physiological need for various forms of anxiety and pain control and their potential response to anxiety and pain control procedures.
5. Proficient in selecting the proper modality to use in relation to specific pain problems and the physical and psychological condition of the patient.
6. Proficient in the various techniques of local anesthesia, sedation and general anesthesia, as well as in psychological management and behavior modification, as they relate to anxiety and pain control in dentistry.
7. Proficient in handling emergencies and complications related to anxiety and pain control procedures, including the immediate establishment of an airway and maintenance of respiration and circulation, and must document current successful completion of an advanced cardiac life support course or an appropriate equivalent.
8. Able to demonstrate in-depth knowledge of current research in the field.

**C. Prerequisites:** To be eligible for enrollment in an advanced education program (graduate or postgraduate) in anxiety and pain control, the dentist must have graduated from either a dental school accredited by the Commission on Dental Accreditation of the American Dental Association or from a foreign dental school that has equivalent predoctoral requirements as

determined by the institution and program. The applicant's scholastic record should indicate the ability to pursue advanced education in the area of anxiety and pain control. Prior hospital experience is desirable.

**D. Course Content:** The advanced education program in anxiety and pain control must consist of didactic as well as clinical training. The didactic component may precede the clinical component, or the components may be integrated. The trainee must receive the equivalent of two calendar years of training, on a consecutive or divided basis, as the minimum time required to provide an acceptable clinical and didactic program in comprehensive anxiety and pain control. Students should be encouraged to become involved in some form of basic or clinical research during the program.

Both lectures and seminars are appropriate for providing the didactic portion of the program. Students also must participate in appropriate journal clubs and have specific assignments requiring literature review and critique. The didactic subject matter must include:

1. Applied biomedical sciences (physiology, pharmacology, immunology, gross anatomy and neuroanatomy). The instruction in physiology and anatomy should be sufficiently broad to provide for a thorough understanding of the body processes related to anesthesia and anxiety and pain control. Instruction in pharmacology should provide an understanding of the mechanisms of drug action and interaction, as well as information about the properties of drugs used.
2. Patient evaluation.
3. Psychological aspects of human behavior as they relate to the management of anxiety and pain.
4. Diagnosis and treatment of pain problems of the head and neck.
5. Techniques of anxiety and pain control, including physical, pharmacological and nonpharmacological methods.
6. Management of related emergencies and complication.
7. Review of contemporary literature.

The time required to achieve clinical proficiency in anxiety and pain control will vary with facilities, teaching staff and patient load. At a minimum, a total of twelve months over the two-year period should be devoted exclusively to clinical training in general anesthesia and related subjects such as establishing and maintaining an emergency airway and use and interpretation of appropriate monitoring. If students are assigned to a hospital anesthesia service, their commitment assignment should be full time, and each student should participate in all of the usual duties of anesthesiology residents, including preanesthetic patient evaluation, administration of anesthesia in the operating room on a daily scheduled basis, postanesthetic patient management and emergency call. To establish and conduct a meaningful joint training program, the support and cooperation of the director of the Department of Anesthesiology is desirable.

Experience in the administration of general anesthesia and other forms of anxiety and pain control for ambulatory dental patients must be provided. Qualified dental members of the

medical-dental staff should supervise this aspect of the training. When all aspects of clinical training can be provided in the dental department, such arrangements are acceptable.

- E. Length of Program:** An advanced education program in anesthesia and anxiety and pain control must be a minimum of two calendar years in length.
- F. Faculty:** The individual responsible for the advanced education program should be a dentist or physician qualified by experience and training in comprehensive anxiety and pain control in dentistry. This individual should have had at least three years of experience, including the individual's formal training in general anesthesia. Research experience also is desirable. When specialists in more than one discipline of dentistry are being trained in the program, the teaching staff should include individuals qualified in these special areas, as well as in anesthesiology, in order to provide for proper clinical instruction.
- G. Facilities:** All areas in which this level of clinical training is being conducted must be appropriately equipped with suction, physiologic monitoring equipment, positive pressure oxygen and emergency drugs and equipment for the administration of deep sedation and general anesthesia.

**PART THREE**  
**TEACHING THE COMPREHENSIVE CONTROL**  
**OF ANXIETY AND PAIN**  
**IN A CONTINUING EDUCATION PROGRAM**

The goal of continuing education programs in anxiety and pain control is to provide the educational opportunity for dentists to receive training in the various techniques and skills required to manage anxiety and pain in the conscious dental patient and to permit dentists who have previously received such training to maintain and/or upgrade their knowledge and skills. The faculty responsible for curriculum in conscious sedation techniques must be familiar with the ADA Policy Statement: *The Use of Conscious Sedation, Deep Sedation and General Anesthesia in Dentistry*, and the Commission on Dental Accreditation's *Accreditation Standards for Dental Education Programs*.

These *Guidelines* present a basic overview of the requirements for properly teaching continuing education courses in anxiety and pain control for the conscious patient. These include courses in local anesthesia, pharmacological and non-pharmacological methods of controlling anxiety and pain and the management of related complications. This section is divided into three sections: inhalation, enteral and/or combination inhalation-enteral (combined) and parenteral conscious sedation techniques.

The scope of training and time required to prepare the practitioner to manage patients with deep sedation or general anesthesia restrict this aspect of teaching to an advanced education program (graduate or postgraduate). (See Part Two)

**I. General Principles**

- A. Course Level:** Continuing education may be offered at three different levels (intensive, supplemental and survey courses). A description of these different levels follows:
1. **Intensive Courses** are designed to meet the needs of dentists who wish to become knowledgeable and proficient in the safe and effective administration of inhalation, enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) and parenteral conscious sedation techniques. They consist of lectures, demonstrations and sufficient clinical participation to assure the faculty that the dentist understands the procedures taught and can safely and effectively apply them. Faculty must be prepared to assess and document the individual's competency upon successful completion of such training. To maintain competency, periodic supplemental courses must be completed.
  2. **Supplemental Courses** are designed for persons with previous training. They are intended to provide a review of the subject and an introduction to recent advances in the field. They should be designed didactically and clinically to meet the specific needs of the participants. Participants must be able to document previous training (equivalent, at a minimum, to the intensive continuing education course described in this document) and current experience to be eligible for enrollment in a supplemental course.
  3. **Survey Courses** are designed to provide general information about subjects related to anxiety and pain control. Such courses should be didactic and not clinical in nature, since they are not intended to develop clinical competency. Practitioners seeking to develop

clinical competency in any technique described in Part Three must successfully complete an intensive continuing education course teaching that technique.

**B. General Objectives:** Upon completion of an intensive continuing education course in inhalation, enteral and/or combination inhalation-enteral (combined) or parenteral conscious sedation techniques, the dentist should be able to:

1. Describe the adult and pediatric anatomy and physiology of the respiratory, cardiovascular and central nervous systems, as they relate to the above techniques.
2. Describe the pharmacological effects of drugs.
3. Describe the methods of obtaining a medical history and conduct an appropriate physical examination.
4. Apply these methods clinically in order to obtain an accurate evaluation.
5. Use this information clinically for ASA classification and risk assessment.
6. Choose the most appropriate technique for the individual patient.
7. Use appropriate physiologic monitoring equipment.

## **II. Inhalation Sedation (Nitrous Oxide/Oxygen)**

**A. Course Objectives:** Upon completion of a course in inhalation sedation techniques, the dentist should be able to:

1. Describe the basic components of inhalation sedation equipment.
2. Discuss the function of each of these components.
3. List and discuss the advantages and disadvantages of inhalation sedation.
4. List and discuss the indications and contraindications of inhalation sedation.
5. List the complications associated with inhalation sedation.
6. Discuss the prevention, recognition and management of these complications.
7. Administer inhalation sedation to patients in a clinical setting in a safe and effective manner.
8. Discuss the abuse potential, occupational hazards and other untoward effects of inhalation agents.

### **B. Inhalation Course Content**

1. Historical, philosophical and psychological aspects of anxiety and pain control.
2. Patient evaluation and selection through review of medical history taking, physical diagnosis and psychological profiling.
3. Definitions and descriptions of physiological and psychological aspects of anxiety and pain.
4. Description of the stages of drug-induced central nervous system depression through all levels of consciousness and unconsciousness, with special emphasis on the distinction between the conscious and the unconscious state.
5. Review of pediatric and adult respiratory and circulatory physiology and related anatomy.
6. Pharmacology of agents used in inhalation sedation, including drug interactions and incompatibilities.
7. Indications and contraindications for use of inhalation sedation.
8. Review of dental procedures possible under inhalation sedation.

9. Patient monitoring using observation and monitoring equipment, with particular attention to vital signs and reflexes related to consciousness.
10. Importance of maintaining proper records with accurate chart entries recording medical history, physical examination, vital signs, drugs administered and patient response.
11. Prevention, recognition and management of complications and life-threatening situations.
12. Administration of local anesthesia in conjunction with inhalation sedation techniques.
13. Description and use of inhalation sedation equipment.
14. Introduction to potential health hazards of trace anesthetics and proposed techniques for limiting occupational exposure.
15. Discussion of abuse potential.
16. Discussion of hallucinatory effects.

**C. Inhalation Sedation Course Duration:** While length of a course is only one of the many factors to be considered in determining the quality of an educational program, the course should include a minimum of *14 hours*, including a clinical component during which competency in inhalation sedation technique is demonstrated.

**D. Participant Evaluation and Documentation of Inhalation Sedation Instruction:** Intensive courses in inhalation sedation techniques must afford participants with sufficient clinical experience to enable them to achieve competency. This experience must be provided under the supervision of qualified faculty and must be evaluated. The course director must certify the competency of participants upon satisfactory completion of training in each conscious sedation technique, including instruction, clinical experience and airway management.

Records of the didactic instruction and clinical experience (including the number of patients managed by each participant in each anxiety and pain control modality) must be maintained and available for review by appropriate credentialing agencies. Such documentation must not be, or resemble, a certificate or diploma.

**E. Faculty:** For all facets of training, the course should be directed by a dentist or physician qualified by experience and training. This individual should have had at least three years of experience, including the individual's formal postdoctoral training in anxiety and pain control. Dental faculty with broad clinical experience in the particular aspect of the subject under consideration should participate. In addition, the participation of highly qualified individuals in related fields, such as anesthesiologists, pharmacologists, internists, and cardiologists and psychologists, should be encouraged.

A participant-teacher ratio of not more than ten-to-one when inhalation sedation is being used allows for adequate supervision during the clinical phase of instruction; a one-to-one ratio is recommended during the early state of participation.

The faculty should provide a mechanism whereby the participant can evaluate the performance of those individuals who will be presenting the course material.

**F. Facilities:** Intensive courses should be presented where adequate facilities are available for proper patient care, including drugs and equipment for the management of emergencies.

### **III. Enteral and/or Combination Inhalation-Enteral Conscious Sedation (Combined Conscious Sedation)**

**A. Course Objectives:** Upon completion of a course in enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) techniques, the dentist should be able to:

1. Describe the basic components of inhalation sedation equipment.
2. Discuss the function of each of these components.
3. List and discuss the advantages and disadvantages of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).
4. List and discuss the indications and contraindications for the use of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).
5. List the complications associated with enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).
6. Discuss the prevention, recognition and management of these complications.
7. Administer enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) to patients in a clinical setting in a safe and effective manner.
8. Discuss the abuse potential, occupational hazards and other effects of enteral and inhalation agents.
9. Discuss the pharmacology of the enteral and inhalation drugs selected for administration.
10. Discuss the precautions, contraindications and adverse reactions associated with the enteral and inhalation drugs selected.
11. Describe a protocol for management of emergencies in the dental office and list and discuss the emergency drugs and equipment required for management of life-threatening situations.
12. Demonstrate the ability to manage life-threatening emergency situations, including current successful completion of a basic life support course.
13. Discuss the pharmacological effects of combined drug therapy, their implications and their management.

#### **B. Course Content**

1. Historical, philosophical and psychological aspects of anxiety and pain control.
2. Patient evaluation and selection through review of medical history taking, physical diagnosis and psychological profiling.
3. Definitions and descriptions of physiological and psychological aspects of anxiety and pain.
4. Description of the stages of drug-induced central nervous system depression through all levels of consciousness and unconsciousness, with special emphasis on the distinction between the conscious and the unconscious state.
5. Review of pediatric and adult respiratory and circulatory physiology and related anatomy.
6. Pharmacology of agents used in enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation), including drug interactions and incompatibilities.
7. Indications and contraindications for use of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).
8. Review of dental procedures possible under enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).

9. Patient monitoring using observation, monitoring equipment, with particular attention to vital signs and reflexes related to consciousness.
10. Importance of maintaining proper records with accurate chart entries, recording medical history, physical examination, vital signs, drugs administered and patient response.
11. Prevention, recognition and management of complications and life-threatening situations.
12. Administration of local anesthesia in conjunction with enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) techniques.
13. Description and use of inhalation sedation equipment.
14. Introduction to potential health hazards of trace anesthetics and proposed techniques for limiting occupational exposure.
15. Discussion of abuse potential.
16. Discussion of hallucinatory effects.

**C. Enteral and/or Combination Inhalation-Enteral Conscious Sedation (Combined Conscious Sedation) Course Duration:** Participants must be able to document relevant training (e.g., basic life support, nitrous oxide instruction, emergency management) to be eligible for enrollment in this intensive course. A minimum of *18 hours* of instruction, plus *20 clinically-oriented experiences* are required to achieve competency in enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) techniques. Clinically-oriented experiences may include group observations on patients undergoing enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation). Clinical experience in managing a compromised airway is critical to the prevention of life-threatening emergencies. Participants should be provided supervised opportunities for clinical experience to demonstrate competence in management of the airway. Typically, clinical experience will be provided in managing healthy adult patients. Additional supervised clinical experience is necessary to prepare participants to manage children and medically compromised adults. The faculty should schedule participants to return for additional clinical experience if competency has not been achieved in the time allotted.

**D. Participant Evaluation and Documentation of Instruction:** Intensive courses in enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) techniques must afford participants with sufficient clinical experience to enable them to achieve competency. This experience must be provided under the supervision of qualified faculty and must be evaluated. The course director must certify the competency of participants upon satisfactory completion of training in each conscious sedation technique, including instruction, clinical experience and airway management.

Records of the didactic instruction and clinical experience must be maintained and available for review by appropriate credentialing agencies. Such documentation must not be, or resemble, a certificate or diploma.

**E. Faculty:** For all facets of training, the course should be directed by a dentist or physician qualified by experience and training. This individual should have had at least three years of experience, including the individual's formal postdoctoral training in anxiety and pain control. Dental faculty with broad clinical experience in the particular aspect of the subject under consideration should participate. In addition, the participation of highly qualified individuals in

related fields, such as anesthesiologists, pharmacologists, internists, and cardiologists and psychologists, should be encouraged.

A participant-teacher ratio of not more than five-to-one allows for adequate supervision during the clinical phase of instruction.

The faculty should provide a mechanism whereby the participant can evaluate the performance of those individuals who will be presenting the course material.

- F. Facilities:** Intensive courses should be presented where adequate facilities are available for proper patient care, including drugs and equipment for the management of emergencies.

#### **IV. Parenteral Sedation**

- A. Course Objectives:** Upon completion of a course in parenteral technique of conscious sedation, the dentist should be able to:

- 1 List and discuss the advantages and disadvantages of parenteral sedation.
- 2 Discuss the prevention, recognition and management of complications associated with parenteral sedation.
- 3 Administer parenteral sedation to patients in a clinical setting in a safe and effective manner.
- 4 Discuss the abuse potential, occupational hazards and other untoward effects of parenteral sedation.
- 5 Describe and demonstrate the technique of venipuncture and other parenteral techniques.
6. Discuss the pharmacology of the drug(s) selected for administration.
7. Discuss the precautions, indications, contraindications and adverse reactions associated with the parenteral drug(s) selected.
8. Administer the selected drug(s) parenterally to dental patients in a clinical setting in a safe and effective manner.
9. List the complications associated with parenteral techniques of sedation.
- 10 Describe a protocol for management of emergencies in the dental office and list and discuss the emergency drugs and equipment required for management of life-threatening situations.
- 11 Discuss principles of advanced cardiac life support or an appropriate equivalent.
- 12 Demonstrate the ability to manage life-threatening emergency situations, including current successful completion of a basic life support course.

#### **B. Parenteral Sedation Course Content**

1. Historical, philosophical and psychological aspects of anxiety and pain control.
2. Patient evaluation and selection through review of medical history taking, physical diagnosis and psychological profiling.
3. Definitions and descriptions of physiological and psychological aspects of anxiety and pain.
4. Description of the stages of drug-induced central nervous system depression through all levels of consciousness and unconsciousness, with special emphasis on the distinction between the conscious and the unconscious state.
5. Review of pediatric and adult respiratory and circulatory physiology and related anatomy.

6. Pharmacology of agents used in parenteral sedation, including drug interactions and incompatibilities.
7. Indications and contraindications for use of parenteral sedation.
8. Review of dental procedures possible under parenteral conscious sedation.
9. Patient monitoring using observation and monitoring equipment, with particular attention to vital signs and reflexes related to consciousness.
10. Importance of maintaining proper records with accurate chart entries recording medical history, physical examination, vital signs, drugs administered and patient response.
11. Prevention, recognition and management of complications and life-threatening situations.
12. Administration of local anesthesia in conjunction with parenteral conscious sedation techniques.
13. Description and use of parenteral sedation equipment.
14. Introduction to potential health hazards of trace anesthetics and proposed techniques for limiting occupational exposure.
15. Discussion of abuse potential.
16. Discussion of hallucinatory effects.
17. Venipuncture: anatomy, armamentarium and technique.
18. Sterile techniques in intravenous therapy and other parenteral techniques.
19. Prevention, recognition and management of local complications of venipuncture and other parenteral techniques.
20. Description and rationale for the technique to be employed.
21. Prevention, recognition and management of systemic complications of parenteral sedation, with particular attention to airway maintenance and support of the respiratory and cardiovascular systems.

**C. Parenteral Conscious Sedation Course Duration:** A minimum of *60 hours* of instruction, plus management of *at least 20 patients* per participant, is required to achieve competency in parenteral conscious sedation techniques. Clinical experience in managing a compromised airway is critical to the prevention of life-threatening emergencies. Participants should be provided supervised opportunities for clinical experience to demonstrate competence in management of the airway. Typically, clinical experience will be provided in managing healthy adult patients. Additional supervised clinical experience is necessary to prepare participants to manage children and medically compromised adults. The faculty should schedule participants to return for additional clinical experience if competency has not been achieved in the time allotted.

**D. Participant Evaluation and Documentation of Instruction:** Intensive courses in parenteral conscious sedation techniques must afford participants with sufficient clinical experience to enable them to achieve competency. This experience must be provided under the supervision of qualified faculty and must be evaluated. The course director must certify the competency of participants upon satisfactory completion of training in each parenteral conscious sedation technique, including instruction, clinical experience and airway management.

Records of the didactic instruction and clinical experience (including the number of patients managed by each participant in each anxiety and pain control modality) must be maintained and available for review by appropriate credentialing agencies. Such documentation must not be, or resemble, a certificate or diploma.

**E. Faculty:** For all facets of training, the course should be directed by a dentist or physician qualified by experience and training. This individual should have had at least three years of experience, including the individual's formal postdoctoral training in anxiety and pain control. Dental faculty with broad clinical experience in the particular aspect of the subject under consideration should participate. In addition, the participation of highly qualified individuals in related fields, such as anesthesiologists, pharmacologists, internists, cardiologists and psychologists, should be encouraged.

A participant-teacher ratio of not more than five-to-one when parenteral sedation is being used allows for adequate supervision during the clinical phase of instruction; a one-to-one ratio is recommended during the early stage of participation.

The faculty should provide a mechanism whereby the participant can evaluate the performance of those individuals who will be presenting the course material.

**F. Facilities:** Intensive courses should be presented only in a dental or medical school, hospital, dental society-sponsored educational institution or other institution where adequate facilities are available for proper patient care, including drugs and equipment for the management of emergencies.