Use of Conscious Sedation
And
Anesthesia

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OVERVIEW

INTRODUCTION

Criteria and standards in this section refer specifically and exclusively to methods used to control the pain and anxiety of patients treated in dental school surgery units.

Pain and anxiety control, using various techniques of regional (local) anesthesia, all forms of sedation, and general anesthesia, have been an integral part of the practice of dental specialties. Anxiety and pain are concerns because each is inherent in the patient’s reaction to the proposed surgery. All three must be controlled satisfactorily during the perioperative period to permit safe and effective completion of the surgical procedure. These anesthesia guidelines have been developed to maximize safety and minimize risk for patients undergoing such procedures in the College of Dentistry.

Conscious sedation is a safe and effective means of anxiety control that enables appropriately trained dentists to extend oral health care to many individuals who otherwise would avoid treatment. Conscious sedation has as its goal a drug-induced state in which the conscious patient is rendered free of anxiety while remaining pleasantly relaxed. Sedation may be achieved by several different methods of drug administration including oral, rectal, inhalation, and parenteral (intramuscular, intravenous, or submucosal). The methods most commonly used to achieve conscious sedation are oral sedation, nitrous oxide/oxygen inhalation sedation, intramuscular sedation, and intravenous sedation. Conscious sedation is not a method of pain control and, therefore, should not be confused with general anesthesia. The use of sedative drugs in dentistry by appropriately trained individuals has an excellent record of safety.

Deep sedation and general anesthesia can also be achieved by the routes of administration mentioned above, either alone or in combination, and describes stages of anesthesia representing more pronounced depression of the CNS and loss of protective reflexes. In addition, this degree of anesthesia requires a higher level of training and standard of care in patient monitoring. General anesthesia offers many advantages to other techniques, including a rapid onset of action, high effectiveness, and reliability. All forms of intravenous anesthetics require some degree of patient cooperation for treatment to be successful. The indications for an increased depth of anesthesia include, for example, invasive surgical procedures and the severely phobic, the disruptive pediatric, or the disabled patient.

Patients who receive conscious sedation must be assessed by an attending dentist prior to the procedure. This assessment is documented in the progress notes of the patient's record and all entries are completed prior to the procedure. The ultimate judgment regarding the propriety of any specific procedure must be made by the dentist in light of all circumstances presented by the individual patient and as required by individual state regulations. The dentist who orders or administers parenteral conscious sedation must be appropriately trained in the use of such techniques as outlined in the service specific
delineation of privileges. Specifically, conscious sedation/general anesthesia shall be induced and maintained by a dentist who is appropriately trained and licensed in the use of such techniques and as outlined in the service specific delineation of privileges. This includes satisfactory evidence of completion of the minimum qualifications necessary to protect public safety.

All providers of these techniques must hold a current valid Illinois license in dentistry and parenteral sedation (Permit A), Deep sedation/General Anesthesia (Permit B) and provide a copy of such licenses to the appointed Department and Office of Clinic Administration. (Regulation 225 ILCS 25/8.1, from Ch. 111, par.2308.1) In addition, all providers must be trained in both CPR and ACLS. All auxiliary personnel shall be trained in basic life support and have documented annual reviews of emergency protocols, contents, and use of emergency equipment. It is also recommended that assistants involved in more complex anesthetic techniques complete the course outlined in the American Association of Oral and Maxillofacial Surgeons Office Anesthesia Evaluation Manual (ADDENDUM A).

Controlled Substance Management Policy and Procedures are considered integral to this policy and are retained in the Departments of Oral and Maxillofacial Surgery and Pediatric Dentistry as well as the office of Clinic Administration (ADDENDUM B,C) Nothing in this policy should be construed to contradict the polices stipulated in these manuals or state regulations. The guidelines may in some cases exceed the minimum standard set by state regulation bodies.

PURPOSE

The purpose of these guidelines is to:

• provide clinical dental personnel at the University of Illinois at Chicago/College of Dentistry with guidelines for appropriate monitoring and treatment of patients receiving conscious sedation, deep sedation, and general anesthesia.

• establish approved standards for the safe administration of conscious sedation, deep sedation, and general anesthesia by dentists at the University of Illinois at Chicago/College of Dentistry in compliance with the State of Illinois Regulations.

The practitioner’s selection of a particular technique for controlling pain and anxiety during a specific procedure has to be individually determined for each patient, considering the risks and benefits for each case.

Techniques seldom used or applicable to very few patients are not included in this section. This category includes hypnosis, acupuncture, transcutaneous electrical nerve stimulation, and specific medications and techniques for controlling acute or chronic pain. Behavior modification techniques (biofeedback) and psychiatric management also have been excluded from this section.
In the future, new indications or new anesthetic agents and techniques may lead to changes in equipment. As new pieces of equipment and their techniques for use are evaluated for safety and efficacy and accepted for patient care and treatment, their inclusion in this document will be considered.

DEFINITIONS

The following words and terms, when used in this document, shall have the following meanings, unless the context clearly indicates otherwise:

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

- **analgesia** - the diminution or elimination of pain in the conscious patient.

- **Anxiolysis or Mood Altering Sensation** - means a pharmacologically induced altered state of consciousness (altered mood, reduced anxiety) where an individual is awake but has a decreased anxiety to facilitate coping skills, retaining interaction skills.

  1. **nitrous oxide/oxygen/oral sedation inhalation** - The administration by inhalation of a combination of nitrous oxide and oxygen producing an altered level of consciousness that retains the patient's ability to independently and continuously maintain an airway and respond in most circumstances appropriately to physical stimulation and verbal command, produced by a pharmacologic or non-pharmacologic method, or a combination thereof.

- **conscious sedation** - a pharmacologically induced depressed state of consciousness (consciousness, signs of sleep) under which an individual retains the patient's ability to independently and continuously maintain an airway and respond appropriately to physical stimulation and verbal command. Any combination thereof administered by intravenous (IV), intramuscular (IM), subcutaneous (SC), submucosal (SM).

- **deep sedation** - a controlled state of depressed consciousness accompanied by partial loss of protective reflexes, including the inability to respond purposefully to verbal command, produced by a pharmacologic method.

- **general anesthesia** - a controlled state of unconsciousness accompanied by partial or complete loss of protective reflexes, including inability to independently
maintain an airway and respond purposefully to physical stimulation or verbal command, produced by a pharmacologic method.

**GENERAL CRITERIA, STANDARDS, AND CONSIDERATIONS FOR ANESTHESIA IN COD FACILITIES**

**INFORMED CONSENT:** The administration of anesthesia must be preceded by the patient’s or legal guardian’s consent. Informed consent is obtained after the patient or legal guardian has been informed of the indication(s) for the anesthetic procedure, therapeutic goals and benefits, factors that may affect the risk, known risks and complications, and alternative anesthetic procedures. In life-threatening emergency conditions, consent may not be obtained, but such clinical circumstances must be documented adequately.

**DOCUMENTATION:** Documentation of objective findings, diagnoses, and patient management interventions are required. The ultimate judgment regarding the appropriateness of any specific procedure must be made by the individual surgeon in light of the circumstances presented by each patient. Understandable, there may be made be good clinical reasons to deviate from these parameters.

**FACILITIES:** When nitrous oxide is used alone or as an adjunct to any of the anesthetic techniques included in this section, appropriate scavenging equipment must be used to avoid trace gas environmental contamination. It is suggested that all staff be educated in the risks of trace gas and exposure to nitrous oxide and techniques to minimize such risks.

1. **Emergency Equipment**

The following equipment must be in good working order and available for immediate use in or near the treatment area when conscious sedation is administered to patients:

- One standard adult emergency cart complete with a full portable oxygen tank and portable suction unit. The emergency cart must be checked daily that breakaway lock has not been compromised. Contents are checked after every use of the cart and on a monthly routine basis. Standard check lists are signed and witnessed, a copy retained on file in the office of Clinic Administration AND the Department of Oral and Maxillofacial Surgery.

- A portable monitor and defibrillator with cardioversion capabilities for both adult and pediatric patients.
2. Additional Equipment

The following equipment is kept in the treatment area where conscious sedation is administered:

- Suction and oxygen outlets with attached regulators. Tonsil suction tip attachment and appropriate size tubing must be present.

- Oxygen delivery supplies including adult and pediatric face masks, nasal cannulas, extension tubing and connectors.

- Suction tubing and tonsillar suction tips.

- Cardiac monitor with attached lead wires and electrodes.

- Pulse oximeter with sensors appropriate for use on adult and pediatric patients.

- Capnograph for general anesthetic intubated cases.

- One automated blood pressure monitor with cuff sizes appropriate for use on both adult and pediatric patients.

- Self refilling ambu bag with mask sizes appropriate for both adult and pediatric patients.

- Positive pressure oxygen delivery system must be available that is capable of administering greater than 90% oxygen at a 5 liter/minute flow for at least 60 minutes. Equipment must be able to accommodate the selected patients.

- Inhalation sedation equipment must:
  
  a.) provide a maximum of 100% and never less than 20% oxygen concentration at a flow rate appropriate to the patient size, and
  
  b.) have a fail-safe system.

PERSONNEL

For conscious sedation, the minimum number of personnel shall be three - the operator and two assistants (student or auxiliary) trained to monitor appropriate physiologic parameters and assist in any support of resuscitation measures if required. At a minimum, these individuals must have current training in basic life support, shall have specific assignments, and shall have current knowledge of the emergency cart inventory. The practitioner and all auxiliary personnel should participate in periodic reviews of
emergency protocol, including simulated exercises, to assure proper equipment function and staff interaction.

The dentist/surgeon should successfully complete a course in advanced cardiac life support (ACLS) or its equivalent at 2-year intervals. Anesthesia team must be certified in BLS. The unit must also be equipped to provide ACLS care.

PERIOPERATIVE COMPLICATIONS AND EMERGENCIES

Because adverse outcomes related to anesthesia, though rare, may be catastrophic, the following must be available and/or provided:

A. Mobile auxiliary sources of light and suction that can be used during power failure.
   In addition to the central source of oxygen, there must be an auxiliary source capable of delivering oxygen under positive pressure for at least 1 hour.
B. Periodic scheduled practice sessions for all personnel to demonstrate knowledge and skillful management of potential emergency problems.
C. By definition, total reversal of the application or administration of sedatives and anesthetic agents
D. Patient (family) acceptance of procedure and understanding of outcomes

GENERAL KNOWN RISKS AND COMPLICATIONS FOR ANESTHESIA IN OUTPATIENT FACILITIES

A. Syncope
B. Drug overdosage or reaction (allergy or sensitivity)
C. Adverse cardiovascular event
D. Peripheral vascular injury
E. Respiratory arrest
F. Unplanned intubation
G. Prolonged intubation
H. Reintubation or surgical airway
I. Displacement of foreign body into upper airway or bronchi
J. Development of peripheral or central neurological deficit relating temporally to anesthesia care
K. Organ failure related temporally to anesthesia care
L. Unplanned admission to hospital
M. Dental injury related to anesthetic care (when likelihood of dental injury is possible, it should be noted in the patient’s record prior to surgery)
N. Ocular injuries related to anesthetic care
O. Death
PREANESTHETIC PHYSICAL AND LABORATORY ASSESSMENT

Preanesthetic physical assessment is described in Patient Assessment. Routine laboratory testing is not indicated. The need for laboratory testing should be based on the history and physical examination of the patient and the nature of the surgical procedure. Laboratory testing should be performed only when the results may alter the management of the patient.

PATIENT ASSESSMENT

This section addresses the assessment of the patient’s medical history and physical status in all patient care settings, including the documentation of:

I. Specific Goals for Patient Assessment

   A. Establish accurate diagnoses
   B. Determine the need for care or treatment
   C. Identify factors affecting risk to determine the patient’s ability to undergo care, treatment, surgery, or anesthesia
   D. Establish the rationale for care, treatment, or surgery of diagnosed conditions
   E. Develop care or treatment recommendations
   F. Identify new or previously unrecognized conditions and determine the need for further assessment or consultation, treatment, surgery, or procedure and perioperative management
   G. Document outcomes and recommendation for further care or treatment
   H. Confirm diagnoses
   I. Confirm appropriateness of planned operation or procedure

Practitioners need to document findings, recommendations, and ASA classification. Medical risk for treatment should be established following history, physical, and sometimes laboratory examinations. Assessment is performed according to the American Society of Anesthesiologists (ASA) risk classification system:

Medical Risk Assessment

ASA I – A patient without systemic disease; a normal healthy patient with little or no anxiety.

ASA II – A patient with mild systemic disease. Examples: patients with non-insulin dependent diabetes mellitus (NIDDM), well-controlled epilepsy, well-controlled asthma, hypothyroid or hyperthyroid conditions who now presents euthyroid with proper care, and even the ASA I patient with more extreme anxiety or fear toward dentistry.
ASA III – A patient with severe systemic disease; definite functional limitation.

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

ASA V – A moribund patient unlikely to survive 24 hours with or without an operation.

Patients considered for outpatient intravenous anesthetic/conscious sedation should fall into ASA I, II, and selectively III categories.

II. Specific Factors Affecting Risk for Patient Assessment

(Factors that increase the potential for inadequate assessment)

A. Incomplete initial assessment
B. Patient’s failure to return for scheduled follow-up assessment
C. Communication barriers (eg. language or cultural barriers, communication disorders, altered mental status or level of consciousness)
D. Patient’s legal guardian’s or responsible party’s failure to disclose
E. Physical barriers (eg. obesity, trismus, trauma)
F. Psychological barriers
G. Situational barriers (eg. life-threatening emergency, pending litigation)
H. Degree of patient’s and/or family’s cooperation and/or compliance
I. Regulatory and/or third party decisions concerning access to care, indicated therapy, drugs, devices, and/or materials

Patient assessment should be documented in the medical record. The medical history (obtained from the patient, guardian, or a responsible party) and the physical examination findings form the basis of this document. Documentation of a patient’s condition and planned surgery or procedure includes the following elements of information as indicated by the patient’s presentation or form of encounter.

A. History

1. Chief Complaint
2. History Present illness
3. Past medical history with elaboration of positive findings
   a. Medical, dental and psychological conditions and/or illnesses
   b. Hospitalizations
   c. Anesthetic experience
   d. Operations
e. Medications
f. Medications
g. Allergies
4. Review of Systems
5. General
6. Eyes
7. Ears, Nose, Mouth and Throat
8. Cardiovascular
9. Respiratory
10. Gastrointestinal
11. Genitourinary
12. Musculoskeletal
13. Integumentary
14. Neurologic
15. Psychiatric
16. Endocrine
17. Hematologic/Lymphatic
18. Allergic Immunologic

19. Family history
20. Social History
   a. Occupation
   b. Substance use (eg. Tobacco, alcohol, illicit drugs)
   c. C. other issues as indicated by the patient’s presentation (eg. Religious or philosophical objections to care or treatment)

B. Physical examination

The surgeon is responsible for documenting the performance of an appropriate examination. The patient may be referred to another qualified professional for an examination. A patient’s refusal to consent to an examination must be documented.

1. General examination
2. Vital signs: Pulse, Blood Pressure, Respiratory Rate, Temperature (where applicable)
3. Head, Ears, Eyes, Nose, Mouth and Throat
4. Neck
5. Chest and Lungs
6. Heart and Great Vessels

SPECIAL CONSIDERATIONS FOR PEDIATRIC PATIENT ASSESSMENT

As in the adult patient, initial assessment of the child begins with a careful history, followed by physical examination and radiographic and laboratory evaluation. However, the information may, of necessity, be provided by the parents (for infants and toddlers) or by both the patient and the parents (older children and teenagers). Informed consent for all children younger than age 18 must be obtained from the parents although it is
advisable to have the child sign the consent if he/she is old enough to understand the risks and complications of the procedure. Furthermore, it is critical to ascertain that the parent or adult giving the consent is the legal guardian and has the legal authority to do so this is especially true when the parents are divorced or when the child is living with guardians other than the biologic parents. There are special conditions when a minor may have legal autonomy (liberated); this is state specific and should be determined prior to treatment.

Several important aspects of the initial patient assessment are unique to the pediatric group. The Oral and Maxillofacial Surgeon must deal with the parent(s) as well as the patient. The parent may have different goals for treatment and may not appreciate or accept any psychological or physical barriers to treatment. The Surgeon must be the advocate for the minor patient and ensure that all concerned parties understand the procedure, the risks, and the benefits.

Indicated therapeutic standards are affected by the patient’s chronologic age and stage of psychological, physical, and dental development. These affect no only the indication for therapy, but also the timing of treatment and must be considered in the final assessment of the pediatric patient. Studies such as the hand-wrist radiograph and technetium bone scan of the condyles and mandible and a careful menstrual history for female patients are helpful in evaluating growth. In some cases, serum hormone markers may be helpful in determining developmental milestones.

The family history, particularly the mother’s obstetric history and the existence of similar conditions in other relatives or siblings, is important when evaluating pediatric patients with congenital or developmental anomalies. Exposure to known teratogens during pregnancy or in the early developmental years is a key component in the initial evaluation of growth-deficient children.

When performing the physical examination, it is critical to remember the differences between children at various ages and adults with regard to anatomy (eg. airway), vital signs (eg. heart and respiratory rates), and physiology (greater body surface area/mass and cardiac output).

When assessing the child for anesthesia, the surgeon must pay particular attention to the patient’s allergic history for the common childhood precipitants of asthmatic attacks: pollen, other indoor airborne irritants, animal hair, physical exercise, and/or anxiety. Upper respiratory infections that produce airway irritability are exceedingly common in young children.

Outcomes assessment indices in children must include not only those surrounding the procedure, but also those affected by the fourth dimension of time and growth. The surgeon must consider the effects of the child’s growth on the ultimate outcome of treatment.
SPECIAL CONSIDERATIONS FOR PEDIATRIC ANESTHESIA IN COD

Perhaps in no other patient group is the area of anxiety and pain control more pertinent than in the pediatric population. The goals of pediatric anesthesia are to provide efficient, safe, reversible and profound anesthesia or analgesia as indicated. Moreover, the surgeon should make every effort to limit, if not eliminate recall of the anesthetic surgical experience.

Children have unique anatomic and physiologic characteristics that must be considered during anesthesia. Their airways provide little margin for error because of small mandibles, relatively large tongue and tonsillar/adenoidal tissues, smaller and more anteriorly superiorly placed glottises, and supple, pliable larynges that are easily compressed. It is paramount to avoid periods of oxygen desaturation which very quickly suppress cardiac function (ie. bradycardia) and reduce cardiac output.

Pharmacologic considerations demand a thorough knowledge of parenteral and oral anesthetic and analgesic agents. Most if not all agents should be administered and prescribed as units per kilogram weight of the child, which is standard pediatric practice.

Pediatric Advanced Life Support (PALS) courses are recommended by many medical groups and hospitals to practitioners providing anesthesia to children. PALS protocols may be useful in the resuscitation of children. Pediatric paddles are also available for defibrillators.

Finally, socioeconomic, psychological, emotional, and relational factors may affect a child’s perception of anesthesia subsequent induction of anesthetic, the postanesthetic recovery experience and ultimate pain control. Accordingly, the Practitioner must understand how to identify these factors and how to modify, control, or eliminate them if they adversely affect the surgeon’s/anesthetist’s management of the pediatric patient.

SPECIAL CONSIDERATIONS FOR ANESTHESIA MANAGEMENT OF THE PREGNANT PATIENT IN COD

Although elective surgery can usually be delayed until postpartum, there are situations in which a gravida female will present to the office requiring immediate surgery. The consequences of not providing essential care may present a greater risk than surgical intervention. The anesthetic goals in treating the pregnant patient include the ability to control the patient’s pain and anxiety. In addition to maternal safety, anesthetic management must maintain fetal safety, which includes avoiding intrauterine fetal asphyxia and preterm labor.

A thorough knowledge of pharmacologic agents is required. Most local anesthetics are considered relatively safe during pregnancy. Single exposure to the commonly used sedatives, benzodiazepines, opioids, and nitrous oxide has minimal risk of teratogenicity.
However, a written preoperative consultation from the treating physician is required. The Practitioner should also counsel the patient about analgesics, including over-the-counter medications since certain medications may not be acceptable during specific stages of pregnancy.

Both physiologic changes of pregnancy and the stage of pregnancy can influence the risk of the fetus and/or mother. Notable physiologic changes that will affect the anesthetic management of the patient include decreased functional residual capacity and increased oxygen consumption, increased cardiac output and decreased systemic vascular resistance, and decreased gastric emptying and decreased lower esophageal sphincter pressure. These changes make the patient more susceptible to developing hypoxia, becoming hypotensive and aspirating under anesthesia.

Pain and anxiety control options for these patients include local anesthesia, sedation, or general anesthesia. The technique selected depends on multiple factors, including the diagnosis, the ability to treat the patient comfortably, and the stage of pregnancy.

**PRE-OPERATIVE INSTRUCTIONS**

The following preoperative instructions are given to patients scheduled for conscious sedation, deep sedation, or general anesthesia. Failure to adhere to these instructions may lead to cancellation or delay of the scheduled procedure.

- **Eating and Drinking** - For all forms of anxiolysis, sedation or general anesthesia, no food or liquid should be consumed for six (6) hours before the scheduled appointment. In general, an after midnight recommendation is given to all patients regardless of the time of the procedure. Patients for morning treatment shall have no food or liquid after midnight.

- **Medications** - Medications normally taken should be taken unless otherwise agreed upon by the attending dentist at pre-op, and may be taken only with a sip of water.

- **Clothing and Makeup** - Short sleeves, sleeveless or loose fitting shirts are desirable and it is suggested that pants be worn as well as comfortable flat shoes. Avoid turtle necks, tight shirts or excess clothing layers. All valuables should be left at home.

- **Change in Health** - A change in the patient's health, especially the development of a cold or fever, is very important. For patient safety, the procedure may be rescheduled for another day. If possible, the patient should inform the student/resident of any change in health prior to the appointment.
• Arriving – All preoperative sedative premedication should be given on site. The patient should arrive early and use the bathroom just before the procedure.

• Getting Home - The patient must be accompanied by a responsible adult who can remain in the building during the surgical procedure. Treatment will not begin until an adult is present, and any plans to drive a vehicle or operate potentially dangerous equipment should be postponed for at least twenty-four (24) hours after treatment. A taxi is not acceptable, unless the patient is accompanied by a responsible adult.

• Home - A responsible adult should remain with the patient until the following day.

CONSCIOUS SEDATION

Conscious sedation may be achieved with parenteral agents, nitrous oxide, and/or oral, rectal, intranasal medications.

I. Indications for Therapy

(May include one or both of the following)

A. Need to depress the level of consciousness, anxiety, and/or pain minimally so that the patient can undergo a planned procedure
B. Need to retain the patient’s ability to maintain an airway independently and continuously and respond appropriately to physical stimulation and verbal command

II. Specific Therapeutic Goals for Conscious Sedation

A. The presence of a general therapeutic goal as listed in the section entitled General Criteria Standards, and Considerations for Anesthesia in Outpatient Facilities
B. Minimally depressed level of consciousness
C. Reduced anxiety and improved patient cooperation during the surgical Procedure
D. Ability to respond purposefully to physical stimulation and to spoken commands and ambulate normally without assistance shortly after completion of procedure(s)

III. Specific Factors Affecting Therapeutic Goals for Conscious Sedation

(Severity of factors that increase risk and the potential for known complications)

A. The presence of a general therapeutic goal as listed in the section entitled
General Criteria Standards, and Considerations for Anesthesia in Outpatient Facilities
B. Noncompliance with eating and drinking (nothing by mouth [NPO]) requirements or physical conditions that could affect gastric emptying
C. Presence of infection

IV. Indicated Therapeutic Standards for Conscious Sedation

A. Completion of a medical history questionnaire, signed and dated by the patient or responsible adult
B. Review of medical history by the attending on the day of surgery, with all significant responses evaluated and noted in the patient’s record (dialogue history)
C. Completion of medical consultation or additional laboratory testing, if indicated, prior to initiation of treatment (except in extreme emergency)
D. Maintenance and completion of time-oriented anesthesia record for each anesthetic administration (ADDENDUM D)
   1. Documentation of the anesthetic agents, including dosages, routes of administration, and times of administration
   2. Documentation of continuous monitoring, including heart rate, blood pressure, and oxygen saturation

E. Determination and documentation of the patient’s ASA classification and fitness for conscious sedation in the office
F. Determination and documentation that the patient has been NPO for an appropriate period of time
G. Documentation that contact lenses or complete/partial intraoral prosthesis have been removed
H. Documentation of maintenance of calibration of the analgesic/anesthetic machine at specified intervals (eg. Manufacturer’s recommendation)
I. Documentation of the presence and identity of each team member throughout the administration of conscious sedation. The team should consist of the surgeon trained and currently competent in ACLS or its equivalent, and one additional person trained and currently competent in basic cardiac life support (BCLS) or its equivalent
J. Consideration given to the use of supplemental oxygen. Regardless of the procedure and use of supplemental oxygen, immediate availability of mechanism to provide supplemental oxygen and a positive-pressure oxygen system
K. Intravenous access for patients receiving intravenous medications for conscious sedation and maintenance of vascular access throughout the procedure and until the patient is no longer at risk for cardiorespiratory depression
L. Intravenous access for patients who receive conscious sedation by non intravenous routes: determination by the Oral and Maxillofacial Surgeon
of the advisability of establishing or re-establishing intravenous access on a case-by-case basis

M. Intravenous access using a new infusion set, including a new infusion line and new bag of fluid for each patient

N. Continuous use of pulse oximetry and blood pressure monitoring at regular intervals

O. Positioning of the patient to avoid injury to him/herself or others during the period of conscious sedation

P. Immediate availability of equipment to assess body temperature

Q. Facility equipped with emergency drugs and equipment that allow complete ACLS intervention

R. Adherence to recommendations for management of complications and emergencies, as described in the American Association of Oral and Maxillofacial Surgeons Office Anesthesia Evaluation Manual or in the ACLS Manual

S. Determination and documentation that oxygenation, ventilation, circulation, and temperature (when indicated) are stable prior to discharge

T. Written postoperative instructions given to the patient and a responsible adult and explained to both the patient and a responsible adult at the time of discharge. These should include instructions not to operate any vehicle or machinery and/or be involved in any contractual or legal process for an appropriate period of time. In certain situations, the surgeon will not have written instructions in all languages.

U. Determination by the surgeon that the patient has returned to his/her pre-procedural physical and mental baseline and is no longer at risk for cardiorespiratory depression

V. Discharge of the patient in the care of a responsible adult. A responsible adult should be available to provide assisted care to the patient until the patient is fully recovered from anesthetic drugs (generally the next day)

V. **Outcome Assessment Indices for Conscious Sedation**

(Indices used by the specialty to assess aggregate outcome of care. Outcomes are assessed through clinical evaluation)

A. Favorable Therapeutic Outcomes
   1. General favorable therapeutic outcomes, as listed in the section entitled General Criteria Standards, and Considerations for Anesthesia in Outpatient Facilities

B. Known Risks and Complications Associated with Therapy
   1. Presence of general known risks or complications, as listed in the section entitled General Criteria Standards, and Considerations for Anesthesia in Outpatient Facilities
   2. Unintended changes of the patient’s level of consciousness (e.g. to that of deep sedation or general anesthesia)
   3. Events related temporally to conscious sedation
a. Aspiration (e.g. Gastric contents, blood)  
b. Respiratory changes (e.g. hypoventilation, tachypnea)  
c. Dysphoria  
d. Psychogenic sequelae (e.g. depression, sexual fantasies)  
e. Changes in blood pressure, such as hypotensive and hypertensive episodes  
f. Cardiac dysrhythmia, other than arrest  
4. Failure to emerge form sedation sufficiently for discharge from facility within the appropriate time after procedure  
5. Unplanned hospital admission after administration of conscious sedation

DEEP SEDATION/GENERAL ANESTHESIA

I. Indications for Therapy

Need to depress the patient’s level of consciousness, anxiety, pain, and recall sufficiently during a planned procedure, recognizing that this may result in the partial or complete loss of protective reflexes and/or the patient’s ability to maintain an airway independently.

II. Specific Therapeutic Goals for Deep Sedation/General Anesthesia

A. The presence of a general therapeutic goal, as listed in the section entitled General Criteria, Standards, and Considerations for Anesthesia in Outpatient Facilities  
B. In the case of deep sedation, a controlled state of depressed consciousness resulting in:  
   1. An inability to respond purposefully to physical stimulation or verbal command  
   2. Absence of pain and anxiety  
   3. Depressed  
C. In the case of general anesthesia, a controlled state of unconsciousness resulting in:  
   1. An inability to respond purposefully to physical stimulation or verbal command  
   2. Absence of pain, anxiety, and awareness during procedure

III. Specific Factors Affecting Risk for Deep Sedation/General Anesthesia

A. The presence of a general factor affecting risk, as listed in the section entitled General Criteria, Standards, and Considerations for Anesthesia in Outpatient Facilities
B. Loss of the ability to respond purposefully to physical stimulation or verbal command and or loss of protective reflexes and the ability to maintain an airway independently
C. Factors compromising airway patency (eg. obesity, trismus, retrognathia)
D. Noncompliance with or conditions affecting NPO requirements (eg. gastroparesis)
E. Psychological aversion to intravenous or intramuscular injections and/or anesthetic mask
F. Presence of intraoral abscess or cellulites
G. Presence of a recent or active upper respiratory infection
H. Regulatory and/or third party decisions concerning access to care, indicated therapy, drugs, devices, and/or materials

IV. Indicated Therapeutic Standards for Deep Sedation/General Anesthesia

A. Completion of an appropriate medical history questionnaire, signed and dated by the patient or a responsible adult
B. Review of medical history by an Oral and Maxillofacial Surgeon, with all significant responses evaluated and noted in the patient’s record (dialogue history) on the date of surgery
C. Completion of medical consultation or additional laboratory testing, if indicated, prior to initiation of treatment
D. Maintenance and completion of a time-oriented anesthesia record (ADDENDUM D) for each anesthetic administration
   1. Documentation of the anesthetic agents, including dosages, routes of administration, and times of administration
   2. Documentation of continuous monitoring, including heart rate, blood pressure, and oxygen saturation
E. Determination and documentation of the patient’s ASA classification and fitness for general anesthesia in the office
F. Determination and documentation that the patient has been NPO for an appropriate period of time
G. Documentation that the patient is presently not wearing contact lenses and/or complete or partial denture
H. Documentation of maintenance and calibration of the anesthetic machine at specified intervals (eg. manufacturer’s recommendations)
I. Documentation of the presence and identity of each team member throughout administration of general anesthesia. The team should consist of the surgeon, trained and currently competent in ACLS or its equivalent, and tow additional persons, trained and currently competent in BCLS or its equivalent
J. Use of supplemental oxygen throughout the anesthetic period and availability of supplemental oxygen throughout the postoperative period
K. Intravenous access for patients receiving intravenous medications for deep sedation/anesthesia and maintenance of vascular access throughout the procedure and until the patient is no longer at risk for cardiorespiratory depression
L. Intravenous access for patients who receive deep sedation/general anesthesia by non-intravenous routes and determination by the attending on the advisability of establishing or re-establishing intravenous access on a case-by-case basis

M. Intravenous access using a new infusion set, including a new infusion line and new bag of fluid, for each patient

N. Continuous supervision, monitoring (continuously and/or regular intervals), and documentation in the anesthetic record of:
   1. Ventilation and oxygenation during the administration of the anesthetic
      a. Continuous use of pulse oximetry during both the intraoperative and recovery period with the appropriate alarm settings established
      b. Documentation of data on a regular interval
      c. Auscultation of breath sounds. Additional ventilatory monitoring should include at least one of the following:
         i. Observations of the excursions of the chest wall
         ii. Observations of the reservoir bag
         iii. Monitoring color of skin, mucosa, nail beds, and surgical site
         iv. Monitoring of expiratory gases, such as end-tidal CO₂ (capnometry or capnography)
      d. When endotracheal intubation is used:
         i. Monitoring of end-tidal CO₂
         ii. Monitoring of inspired oxygen concentration
         iii. Use of a disconnect monitor with an audible alarm when a ventilator is used
   2. The cardiovascular status of the patient
      a. Obtaining and recording of blood pressure and pulse at induction and at regular intervals throughout the intraoperative and recovery period of anesthesia. This includes at least every 5 minutes (in periods of anesthesia beyond 5 minutes) during the perioperative period and at least every 10 minutes during the recovery period
      b. Use of the electrocardioscope (ESC), which must be continuously displayed and/or recorded until the patient leaves the operating room, and documentation of its use in the anesthetic record
      c. In addition, either of the following:
         i. Auscultation of heart sounds
         ii. Palpation of peripheral pulse

O. Positioning and protection of the patient to avoid injury to him/herself or to others during the period of anesthesia
   1. Appropriately positioned and padded extremities to minimize peripheral nerve injuries
   2. Appropriately protected eyes to avoid injury

P. Equipment to assess body temperature that is immediately available. Body temperature must be continuously monitored in all patients who are being anesthetized with agents that can induce malignant hyperthermia, and a plan to treat malignant hyperthermia must be in place. It is recommended that all children have their temperature monitored
Q. Facility equipped with emergency drugs and equipment that allow complete ACLS intervention, including a device to confirm end-tidal CO2
R. Adherence to recommendations for management of complications and emergencies, as described in the American Association of Oral and Maxillofacial Surgeons Office Anesthesia Evaluation Manual (ADDENDUM A) or in the Advanced Cardiac Life Support (ACLS) Manual
S. Determination and documentation that oxygenation, ventilation, circulation, and temperature (when indicated) are stable prior to discharge
T. Written postoperative instructions given to the patient and a responsible adult and explained to both the patient and a responsible adult at the time of discharge, In certain situations the surgeon will not have written instructions available in all languages
U. Determination by the surgeon that the patient has returned to his/her Pre-procedural physical and mental baseline and is no longer at risk for cardiorespiratory depression prior to discharge
V. Discharge of the patient into the care of a responsible adult using the Aldrete Scoring System. (SEE ADDENDUM E). A responsible adult should be available to provide assisted care to the patient until the patient is fully recovered from the anesthetic (generally the next day).

V. Outcome Assessment Indices for Deep Sedation/General Anesthesia

(Indices used by the specialty to assess aggregated outcomes of care. Outcomes are assessed through clinical evaluation.)

A. Favorable Therapeutic Outcomes
   1. General favorable therapeutic outcomes, as listed in the section entitled General Criteria, Standards, and Considerations for Anesthesia in Outpatient Facilities

B. Known Risks and Complications Associated with Therapy
   1. Presence of general risks or complications, as listed in the section entitled General Criteria, Standards, and Considerations for Anesthesia in Outpatient Facilities
   2. Events related temporally to general anesthesia
      a. Aspiration
      b. Respiratory arrest or hypoventilation
      c. Hypoxia
      d. Hypercarbia
      e. Pulmonary edema
      f. Unanticipated need to intubate patient
      g. Prolonged intubation
      h. Prolonged emergence from anesthesia
      i. Postoperative dysphoria, excitation, or psychogenic sequelae (eg, sexual fantasies)
      j. Peripheral vascular injury (eg, phlebitis, intra-arterial injection)
k. Peripheral or central neurologic deficit
l. Cardiovascular injury (eg, myocardial infarction, dysrhythmia, cardiac arrest)
m. Organ damage
n. Ocular injury
o. Failure to emerge from anesthesia, requiring overnight admission for observation
p. Death

**DISCHARGE CRITERIA**

The time and condition of the patient at discharge is documented in the patient's record. Patients are discharged from the UIC/COD after conscious sedation or deep sedation/general anesthesia when specific discharge criteria have been met using the Aldrete Scoring System (ADDENDUM E).

The patient discharged must:

- be alert, awake and oriented to person, place and time
- have stable vital signs
- not be experiencing nausea or vomiting
- controlled bleeding
- The patient is well hydrated, voiding without difficulty, and is tolerating fluids by mouth (general anesthesia only).
- The patient and patient's family have received written and verbal post-operative instructions for care at home and an emergency phone number is given to the patient should any problems arise.
- The patient and patient's family have received prescriptions for post-operative medications and instructions for taking the medications.
- The patient **must** have arranged for transportation home with a responsible adult (anxiolysis, conscious sedation, deep sedation, and general anesthesia).
- The patient/responsible adult has received instructions for follow-up (if applicable).

**Discharge Instructions**

After returning home, the patient should rest for the first day and be carefully watched. The following instructions should be given to patients upon discharge.

- **Pain** - Depending upon the procedure performed, the patient may experience some pain or discomfort. Prescribed medication should be taken as directed to minimize or eliminate this problem.

- **Drinking and Eating** - The first drink should be plain water. Sweet drinks can be taken next (fruit juice or GatorAide). Small drinks should be taken repeatedly.
Food may be taken when desired, however it should be soft and not hot. No alcoholic beverages should be consumed for 24 hours.

- **Intravenous Site** – A small percentage of patients experience post-operative tenderness and/or redness in their hand or arm which is a chemical phlebitis associated with intravenous infusion. Any patient who reports this occurrence should contact the attending physician for treatment/referral.

**Highlights of documentation for Nitrous Oxide/Sedation/General Anesthesia**

- Completed *Nursing Assessment Record* and *Anesthesia Record*, respectively, including patient's vital signs, oximetry value, EKG interpretation, color, level of consciousness and activity level.
- Confirmation of informed consent for the procedure.
- Any known allergies.
- Intravenous access, fluids and/or medications infused on anesthesia record with drug dosage & times, and signed by attending dentist.
- Starting and completion time of the procedure.
- Diagnosis and planned procedure.
- Dentists in attendance.
- Time, route, dose and name of medications administered.
- Patient's response to medications and tolerance of procedure.
- Any adverse responses to sedation or procedure, resulting interventions.
- Patient's condition prior to discharge
- a written history & physical, or a minimum past medical history and review of systems including but not limited to cardiovascular and respiratory systems, liver, kidneys, central nervous system, and gastrointestinal systems.
- a comprehensive examination and classification of the patient's airway
- auscultation of the heart and lungs
- laboratory testing as needed, which may include hematocrit, hemoglobin, complete blood count, urinalysis, and pregnancy test. Some adult patients may require a chest x-ray and twelve-lead electrocardiogram.

Because of the nature of general anesthesia, the need for intense monitoring and documentation is necessary. Several vital functions (e.g., heart rate and rhythm, blood pressure, respiratory rate, tidal volume, peak inspiratory pressures, SaO2, temperature, and end-tidal CO2) are continuously monitored and recorded. Blood loss and urine output may also be recorded for those procedures requiring close monitoring of fluid shifts or losses.

Required documentation of intubated anesthetic procedures include endotracheal tube information (size, cuffed/uncuffed, length of insertion, verification of correct placement)
and airway adjuncts employed during the placement of the endotracheal tube (laryngoscope blade style and size, oral/nasal airway utilization) and protection of the eyes and limbs during surgery.

*ADDENDUM*

B. Controlled Substance Management Policy and Procedures, OMFS
C. Controlled Substance Management Policy and Procedures, Pediatric Dentistry
D. Sample Time-oriented Anesthesia Record for Each Anesthetic
E. Discharge Criteria: Aldrete Score
F. UIC/COD Controlled Substance Management, Policy and Procedure Statement
G. UIC/COD Medication Administration – Controlled Substances Reports (inspections)

*Complete set of addendum documents on file in the Office of the Associate Dean for Patient Services, Room 301.*