Visalia
PEDIATRIC DENTISTRY
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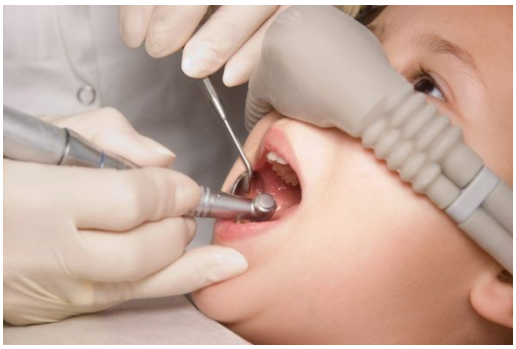
AAPD Policy on the Use of Nitrous Oxide for Pediatric Dental Patients

(Excerpts Taken from AAPD.org)

Nitrous oxide is a colorless and virtually odorless gas with a faint, sweet smell. It is an effective analgesic/anxiolytic agent causing central nervous system (**CNS**) depression and euphoria with little effect on the respiratory system. Nitrous oxide has multiple mechanisms of action. Nitrous oxide is relatively insoluble, passing down a gradient into other tissues and cells in the body, such as the CNS.



Nitrous oxide is absorbed rapidly, allowing for both rapid onset and recovery (two to three minutes). It causes minimal impairment of any reflexes, thus protecting the cough reflex. It exhibits a superior safety profile with no recorded fatalities or cases of serious morbidity when used within recommended concentrations (here we strive to keep the concentration of nitrous between 35-50%, depending on each patient's needs).

The American Academy of Pediatric Dentistry (**AAPD**) recognizes nitrous oxide/oxygen inhalation as a safe and effective technique to reduce anxiety, produce analgesia, and enhance effective communication between a patient and health care provider.

Dentists have expertise in providing anxiety and pain control for their patients. While anxiety and pain can be modified by psychological techniques, in many instances pharmacological approaches are required. The clinical effect of nitrous oxide/oxygen inhalation, however, is more predictable among the majority of the population. When used for analgesia/anxiolysis, **nitrous oxide/oxygen inhalation allows for the reduction or elimination of pain and anxiety in a conscious patient**, *while entailing minimum risk*. In children, analgesia/ anxiolysis may expedite the delivery of procedures that are not particularly uncomfortable, but require that the patient not move. It also may allow the patient to tolerate unpleasant procedures by reducing or relieving anxiety, discomfort, or pain.

Nitrous oxide generally is acceptable to children and can be titrated easily. Most children are enthusiastic about the administration of nitrous oxide/oxygen; many children report feeling a tingling or warm sensation. Objectively, children may appear with their hands open, legs limp, and a trancelike expression. For some patients, however, the feeling of losing control may be troubling, and children with claustrophobia may find the nasal hood confining and unpleasant.

The objectives of nitrous oxide/oxygen inhalation include:

1. reduce or eliminate anxiety
2. reduce untoward movement and reaction to dental treatment
3. enhance communication and patient cooperation
4. raise the pain reaction threshold (it is a mild analgesic)
5. increase tolerance for longer appointments
6. aid in treatment of the mentally/physically disabled or medically compromised patient
7. reduce gagging

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Disadvantages of nitrous oxide/oxygen inhalation may include:

1. lack of potency, it will not take the fight out a kiddo that does not want to cooperate for dentistry
2. dependant largely on psychological reassurance
3. patient must be able to breathe through the nose, if the nose is stuffy, its effect will be limited

Contraindications for use of nitrous oxide/oxygen inhalation may include:

1. some chronic obstructive pulmonary diseases
2. current upper respiratory tract infections (stuffy noses are not good candidates for Nitrous)
3. recent middle ear disturbance/surgery (could result in pain in the ear)
4. severe emotional disturbances or drug-related dependencies
5. first trimester of pregnancy

Adverse effects of nitrous oxide/oxygen inhalation

Nitrous oxide/oxygen analgesia/anxiolysis has an excellent safety record. When administered by trained personnel on carefully selected patients with appropriate equipment and technique, nitrous oxide is a safe and effective agent for providing pharmacological guidance of behavior in children.

- Acute and chronic adverse effects of nitrous oxide on the patient are rare.
- The most common adverse effects, occurring in 0.5-1.2 percent of patients, are nausea and vomiting. A higher incidence is noted with
    - longer administration of nitrous oxide/oxygen
    - fluctuations in nitrous oxide levels
    - lack of titration
    - increased concentrations of nitrous oxide
    - a heavy meal prior to administration of nitrous oxide

Fasting is not required for patients undergoing nitrous oxide analgesia/ anxiolysis. The practitioner, however, may recommend that only a light meal be consumed in the two hours prior to the administration of nitrous oxide.