

Oral Sedation and Premedication

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Objectives

Define conscious sedation

Define child, young person, adult

Aware of the different techniques available in conscious sedation

Define oral sedation and premedication

Know the ideal properties of oral sedatives

Know the advantages and disadvantages of oral sedation

Understand the process of first pass metabolism

Environment for oral sedation

Know properties of benzodiazepines

Be aware of the drugs used for oral sedation and premedication



Conscious Sedation

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

Conscious Sedation

- No single technique will be effective for all patients, greater range of techniques available, the greater likelihood of a successful outcome
- The aim is to use the **safest and simplest** technique
- Wherever possible **titration** of drugs to effect should be employed
- This eliminates the need for **guessing the most appropriate dose**

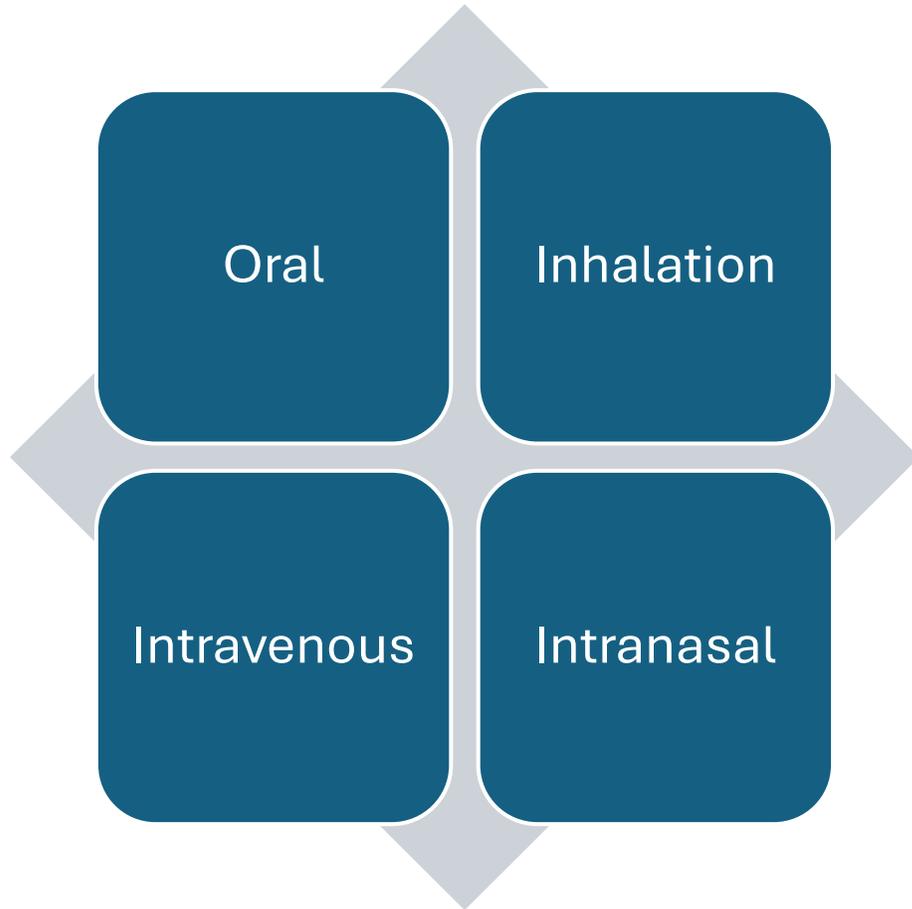
Child, Young
Person, Adult

Child <12 years old

Young person 12-16 years
old

Adult over 16 years old

Conscious Sedation Techniques



- Standard technique
 - Oral midazolam for a young person or an adult
- Advanced techniques
 - Oral midazolam for a child
 - Combined techniques e.g. oral sedation combined with intravenous or inhalation sedation for a child, young person or adult
 - Should only be used when a standard technique is not suitable

Oral Sedation



A technique where an oral drug is administered to produce a state of conscious sedation, where the patient will allow treatment to be carried out



Relieve fear and reduce anxiety



Administered at the dental surgery **NOT** at home



Patient care is the same as for IV sedation – assessment, monitoring, pre and post-op instructions

Ideal Oral Sedative

Alleviate	Alleviate fear and anxiety
Supress	Not supress protective reflexes
Easy	easy to administer
Quick	quickly effective
Free	free of side effects
Predictable	predictable in duration of action
Quickly	Quickly metabolised and excreted
Produce	Not produce active metabolites
Half-life	Have a half life of approximately 45-60 minutes

Oral Sedation Advantages

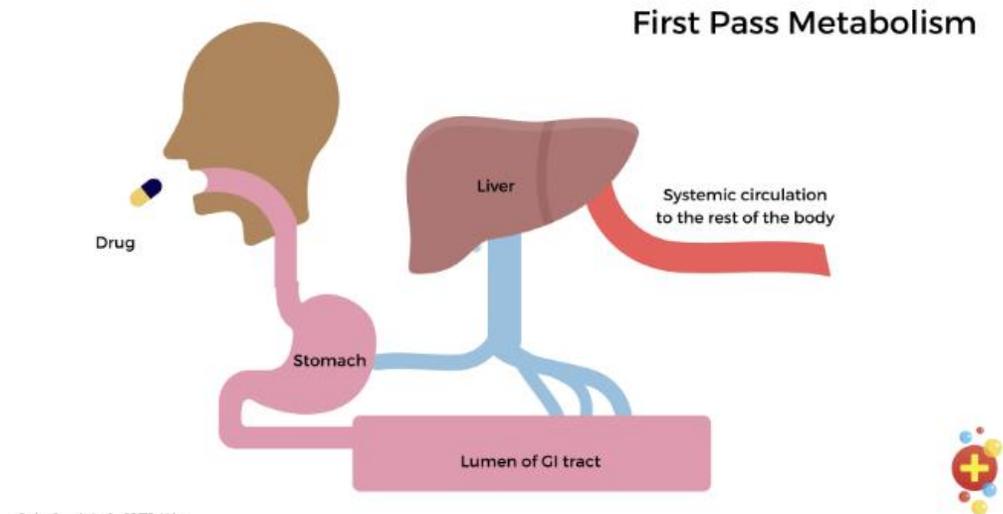
- As an alternative or adjunct to intravenous sedation – nonthreatening approach – no needle
- Easy to administer
- Produces sedation, relaxes patient, amnesic effects
- Less adverse drug reactions than IVS
- Inexpensive
- Can be used when titratable techniques (IHS/IVS) are not suitable
 - Patients with special needs - learning or physical disabilities
 - Patients anxious about venepuncture – needle phobia
 - Cannulation impossible due to lack of cooperation

Oral Sedation Disadvantages

- The state of conscious sedation can be comparable to IV but is less controlled and less predictable
- No analgesia
- Can take time to take effect
- Patient can become oversedated
- Depth of sedation cannot be altered as drug cannot be titrated
- Variation in predictability due to:
 - The patient's degree of anxiety
 - The pattern of absorption of the drug
 - The rate of metabolism of the drug

First Pass Metabolism

- Drugs concentration is reduced before entering the systemic circulation
- Latent period – time from drug administration until it is absorbed in the stomach and small intestine and absorbed into the circulation
- First pass: Once in blood stream travels via the portal vein to hepatic portal system in the liver where the liver enzymes metabolise the drug so that only a small amount of active drug emerges from the liver
- Bioavailability of midazolam 15-30%
- Most oral administered drugs have maximal effect after 60mins of administration
- This leads to considerable individual variation in response, sedative outcome is much less predictable than those given parenterally



Environment for Oral Conscious Sedation

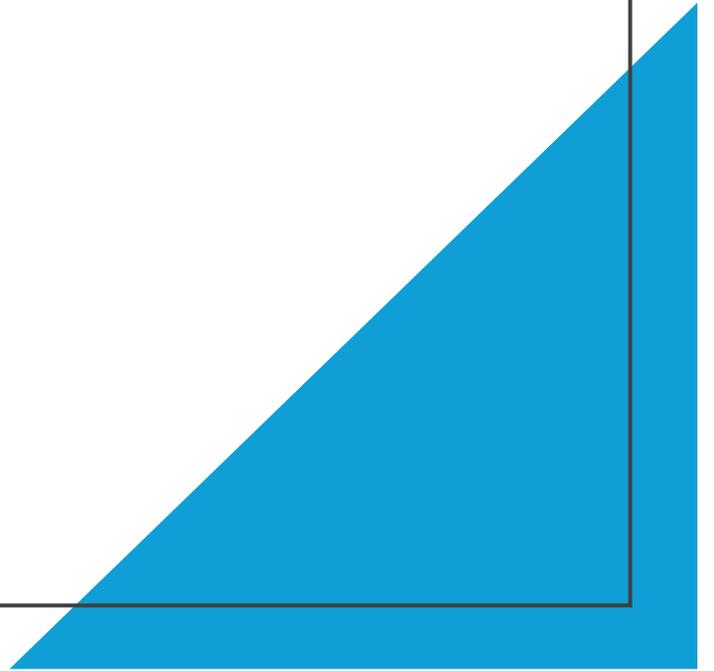
- Consent separate visit
- Require escort
- Can't drive
- Oral sedation should be administered in practice/hospital
- Gain IV access ASAP in case reversal required
- Vital signs must be monitored throughout the period of sedation and treatment
- Recovery times are variable essential to keep the patient until they meet the desired discharge criteria

Environment for Conscious Sedation

- Ensure all necessary equipment for the administration of sedation are available in the treatment area:
 - Reversal agents
 - Cannulae
 - Labels
 - Supplemental oxygen
 - Calibrated pulse oximeter with audible alarm and blood pressure monitors
 - Appropriately trained staff

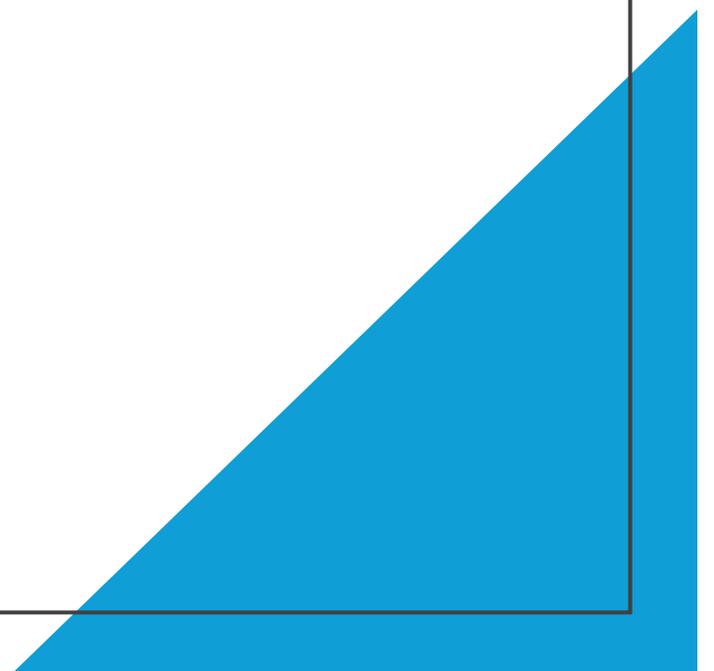
Examples of Oral Sedatives

- Midazolam
- Temazepam
- Ketamine
- Hydroxyzine



Benzodiazepine Properties

- Central nervous system depressants
- Act on the GABA network - sensory neurones
- Inhibits the transmission of sensory signals producing:
 - Sedation
 - Anxiolysis
 - Anterograde amnesia
 - Muscle relaxation
 - Anticonvulsant effects
- Can be reversed with Flumazenil



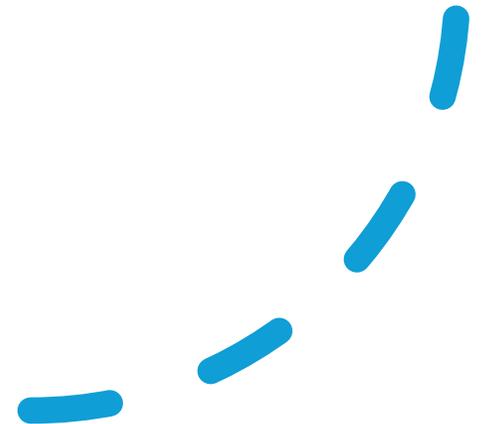


Benzodiazepines cautions

- Caution in patients with: obvious psychoses, neuromuscular disorders, respiratory, liver or kidney disease
 - Children <10 yrs old – paradoxical reaction
 - Elderly can be more sensitive to sedatives
 - Antidepressants – can enhance the effect of benzodiazepines
 - Pregnancy – potentially harmful to fetus
 - Alcohol – Enhances sedative effect (tolerance)
 - Myasthenia gravis – muscle relaxant effect could worsen patient's muscle weakness
 - Allergy or sensitivity to benzodiazepines
 - Antihistamines – enhanced drowsiness
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Side effects

- Respiratory depression
- Cardiovascular depression
- Over-sedation in children or older people
- Tolerance
- Sexual fantasy



Drugs used in Oral Sedation

- Midazolam
 - Schedule 3 – misuse of drugs regulations 2001 – moderate potential for misuse
 - 20mg adult dose
 - Available as an elixir: 0.3-0.5mg/kg taken in fruit juice 20-30mins prior to procedure
 - Not licenced for oral route of administration
 - Use must be fully justified
 - The injectable form can be prepared by local hospital pharmacy units for use orally either 10mg/2ml, 10mg/5ml
 - Onset approx 20-30 mins
 - Children have a high basal metabolic rate and duration of action can be short
 - Side effects: reduced respiratory drive, hiccups, paradoxical effect



Drugs used for Oral Sedation

- Temazepam –schedule 3
 - 30-40mg given 30-60mins pre-operatively
 - Half the adult dose for children and elderly
 - Elderly can be more sensitive to sedatives and elimination can be prolonged
 - Contraindicated in children <10yrs - paradoxical reaction
 - Best administered as a proprietary oral syrup rather than tablets which may be difficult to swallow
 - 10mg/20mg tablet, 10mg/5ml elixir
 - Adequate sedation occurs 30-45 mins
 - Half life 8-10 hours
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Drugs used for Oral Sedation

- Ketamine – schedule 2 – high potential for misuse
 - Dissociative anaesthetic
 - Creates **dissociation sedation with analgesic component** – helps with pain associated with intra oral injections and with cannulation
 - **Amnesic**
 - 2-3mg/kg
 - **Side effects** nausea, vomiting, blurred vision, hallucinations
 - **Advanced technique** for a child, young person or adult
 - **Separate** sedationist required
 - Ensure that the sedationist has the skills equivalent to those expected of a **consultant in anaesthesia** competent in sedation for dentistry



Drugs used in Oral Sedation

- Hydroxyzine
 - Antihistamine
 - Syrup form 10mg/5ml
 - 1-2mg/Kg 30mins prior to dental treatment
 - Useful in children with learning difficulties, autism, ADHD
 - Can be used in combination with midazolam 0.3mg/Kg with 1mg/Kg hydroxyzine or RA (Advanced technique)
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Disadvantages of the Oral Route Recap

- Bad taste
 - Unpredictable absorption
 - Long latent period and onset of working
 - Duration of action can be prolonged
 - Because of the portal system where the drugs are detoxified in the liver, higher doses need to be administered
 - Some children can become disinhibited
 - Bioavailability 15-30%
 - Off licence use – licenced for IV use
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Premedication

- Refers to a small amount of drug given to a patient prior to treatment to obtain **anxiolysis**
- Premedication generally given by the **oral route**
- Patient takes this at home, and may be given another form of sedation when they arrive for treatment
- Consent at a separate visit
- Require escort
- Should not drive

Indications of premedication

- Reduce anxiety the night before the appointment
- Reduce anxiety 1-2 hour period before the treatment
- To aid cannulation for those who are needle phobic



Drugs used for pre-operative anxiety

- Several agents can be used as premedication, benzodiazepines are the most commonly used:
 - Diazepam
 - Temazepam

Diazepam

- Schedule 4 - low potential for misuse
- Available tablet form 2mg, 5mg, 10mg doses, syrup 2mg/5ml, 5mg/5ml
- Effects begin after 30mins
- Adult dose 0.1-0.25mg/kg body weight 5-10mg 1 hour pre-op
- Half dose in children or elderly
- Can give 5mg night before and 5mg 2 hours before procedure
- Half life – 36-57 hours
- Some risk of re-sedation after 2-3 days due to production of active metabolite n-desmethyldiazepam, can cause a rebound sedation 72hours after initial administration

Temazepam

- Adult normal weight 10mg 30-60mins pre-operatively
- Half the adult dose for children and elderly
- Dose may be doubled for severely anxious patients
- Forms: tablet, gel-filled capsule, elixir
- Sedative effects last about 45mins

References

- Scottish Dental Clinical Effectiveness Programme guidelines for conscious sedation in dentistry updated 2022
- Conscious Sedation for Dentistry, Girdler, N.M, Hill, C.M, and Wilson, K.E second edition 2018
- Sedation a guide to patient management. Malamed, S.J. sixth edition. 2018