



Drug Name: Midazolam
Trade Name: Versed
REVISED: November 1, 2017

Class:

- Benzodiazepine (nonbarbiturate sedative-hypnotic agent)
- Schedule IV Controlled Substance

Mechanism of Action:

- Acts at the level of the limbic, thalamic, and hypothalamic regions of the CNS through potentiation of GABA (inhibitory neurotransmitter).
- Decreases neural cell activity in all regions of CNS
- Anxiety is decreased by inhibiting cortical and limbic arousal
- Promotes relaxation through inhibition of spinal motor reflex pathway, also depresses muscle & motor nerve function directly
- As an anticonvulsant, augments presynaptic inhibitions of neurons, limiting the spread of electrical activity. However, it does not alter the electrical activity of the seizure's focus
- Midazolam has twice the affinity for benzodiazepine receptors than does diazepam and has more potent amnesic effects
- It is short acting and roughly 3-4 times more powerful than diazepam

Indications:

- Sedation prior to cardioversion & intubation
- Maintenance of sedation in mechanically ventilated patients
- Seizure control in pediatrics

Contraindications:

- | | |
|------------------|-----------------------|
| Shock | Pregnancy (D) |
| Coma | Closed Angle Glaucoma |
| Hypersensitivity | |

Precautions:

- Patients with respiratory insufficiency (asthma, COPD, etc.) are more susceptible to respiratory depression.
- Effects are enhanced by other CNS depressants.
- Elderly

Use caution when administering to patients with:

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|-----------------------------|-----------------------|
| • Hepatic dysfunction | • Parkinson's Disease |
| • Renal insufficiency | • Myasthenia gravis |
| • History of drug addiction | |

Dosage:

Adults:

- **As an adjunct to intubation:**
 - **IV/IM:** IV: 0.5-5 mg, repeat every 5-10 minutes PRN,
 - **Max of 10 mg**
- **Status epilepticus, cardioversion and pacing, inner ear s/s, sedation, and muscular spasms:**
 - IV: 0.5-2.5 mg, repeat every 5-10 minutes PRN, Max of 5 mg
 - IM: 5 mg (If no vascular access)
 - **Maximum dose of 5 mg**

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This document is for **reference only**. Please refer to SWO's for specific indications, dosages, and applications

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Pediatrics:

- **As an adjunct to intubation:**
 - 0.1-0.2 mg/kg to a max of 5 mg/dose.
 - Repeat as needed for ongoing sedation to a max of 10 mg.
- **Seizures:**
 - IN/IM: 0.2 mg/kg repeat every 5 minutes PRN. Max 10 mg.
 - IV/IO: 0.1 mg/kg every 5 –10 minutes PRN. Max 5 mg.
- **Sedation for painful procedures, cardioversion, pacing, muscular spasms, hyperdynamic drug ingestion/exposure:**
 - IV/IO/IM: 0.05-0.1 mg/kg every 5-10 min (over 2-5 minutes if IV). Maximum dose of 2.5 mg
 - IN: 0.2 mg/kg every 5-10 min. Max dose 2.5 mg
 - Not for children under 2 yrs.

Onset:

- IV: 1-3 minutes (dose dependent)
- IN: 1-5 minutes (dependent on nasal structures)

Duration:

- IV: 2-6 hours (dose dependent)

Side Effects:

Minor:

- N/V
- Headache
- Drowsiness
- Lethargy
- Cough
- Hiccups

Major:

- Respiratory Depression
- Apnea
- Paradoxical CNS stimulation (i.e. Valium Rage)
- Hypotension
- Cardiac Arrest

Interactions:

- Additive with other CNS depressants

PEARLS:

- ***Premedication with an opiate may potentiate midazolam, reducing the dose 30-50% is suggested***
- ***Can cause phlebitis and pain at the IM injection sight.***
- ***Has more potential than other benzodiazepines to cause respiratory depression and arrest. Use with extreme caution in peds. Slower administration may reduce this***
- ***Elderly, debilitated, or patients under the influence of other CNS depressants require reduced dosages***

Physician Preference: Versed is preferred over other benzodiazepines in cases without IV access due to rapid absorption IM and IN, however may have more profound respiratory depression. Diazepam remains acceptable as well. If unable to control seizures after max dose any single benzodiazepine, call medical control to continue with another benzodiazepine.

REFERENCE ONLY