

Intranasal Midazolam Summary Sheet

Midazolam and diazepam belong to a class of medication called benzodiazepines. This class of medication is very effective in stopping seizures in emergencies due to its inhibitory mechanism of action.

DIAZEPAM (DIASTAT) VS. MIDAZOLAM (VERSED)

Emergency medication is best delivered in a form that will be rapidly absorbed by the bloodstream in order to stop seizures in the brain. Diazepam is an FDA approved medication available in rectal gel form (Diastat), which is safe and effective for emergency seizure treatment in children. The need to administer this medication by rectum is often not appealing to patients and involved school personnel. Midazolam (Versed) is now available in spray (atomized) form that can be delivered by nasal spray that is safe and effective in children^{1,2}. Intranasal midazolam is



widely used by neurologists and less expensive than diazepam despite the need to replace the medication supply more often. The atomizer device allows for easy and safe administration of the medication that is less invasive for the patient than rectal diazepam/Diastat. *See reverse for administration instructions for midazolam.*

RESPIRATORY SUPPRESSION

Both midazolam and diazepam at high doses can suppress breathing, which is a potential risk of either medication. However, both are dispensed at pre-set doses established by the physician, which should adequately minimize the risk of respiratory suppression. It is very important to note that not effectively treating seizures also carries the risk of respiratory compromise, including choking and stopping of breathing. While midazolam is not FDA approved to use in nasal form, it is important to note that in general, many seizure medications do not have FDA approval for pediatric use. Despite these limitations, many of these medications are carefully prescribed by treating physicians because they are found in research studies to be safe and effective and provide treatment.

**FOR MORE INFORMATION,
PLEASE CONTACT:**



EPILEPSY
ASSOCIATION®
OF WESTERN AND CENTRAL PA

800-361-5885
www.eawcp.org

This summary was prepared by:

Miya Asato MD
Children's Hospital of Pittsburgh
(412) 692-6106
Created on January 22, 2013

¹ Holsti M, Sill BL, Firth SD, Filloux FM, Joyce SM, Furnival RA. Prehospital intranasal midazolam for the treatment of pediatric seizures. *Pediatr Emerg Care.* 2007 Mar; 23(3):148-53

² Lahat E, Goldman M, Barr J, Bistrizter T, Berkovitch M. Comparison of intranasal midazolam with intravenous diazepam for treating febrile seizures in children: prospective randomised study. *BMJ.* 2000 Jul 8; 321(7253):83-6.

Administering Intranasal Midazolam

- Always store the syringe(s), needle or needleless vial adapter, atomizer tip(s) and medication bottle together in the same place where you can easily access them.
- Familiarize yourself with the midazolam prescription, as some doctors prescribe midazolam in pre-filled syringes. If working with a pre-filled syringe, all you will need to do is connect the atomizer and deliver the correct dose for the individual. In situations where the entire volume might not be appropriate (smaller child), the syringe can have an indelible mark or piece of tape applied by the clinician or pharmacy at the appropriate dosage so the parent/provider knows how much to give.
- Unless seizures occur on a weekly basis, do not store the medication pre-drawn up in a plastic syringe – this may lead to the active medication leaching out of the fluid into the plastic and result in inadequate medication effect on the patient.

PROCEDURE:

1. Pull the plunger of the syringe back until the black seal is at the mark on your syringe.



2. Pop the protective plastic cap off the bottle of Versed (midazolam).



3. Connect the syringe (twist or slip) to the needle or needleless access device and puncture the rubber seal of the medication bottle vial.



4. Tip the bottle up-side down so the syringe is on the bottom and the bottle rubber seal faces down.



5. Compress the syringe plunger – injecting air into the bottle vial.

6. Pull the plunger back and allow the syringe to fill with medication. Draw up the proper volume of medication required to treat the patient.



7. Twist off/remove the syringe from the needle/needleless device

8. Attach the atomizer tip via Luer lock mechanism – this product twists into place.



9. Using your free hand to hold the crown of the head stable, place the tip of the atomizer snugly against the nostril aiming slightly up and outward (towards the top of the ear).



10. Briskly compress the syringe plunger to deliver half of the medication into the nostril.

11. Move the device over to the opposite nostril and administer the remaining medication into that nostril.

Administration instructions adapted from: <http://www.intranasal.net/seizure%20therapy%20at%20home%20directions/default.htm>; Accessed: January 24, 2013