

What is midazolam?

Midazolam belongs to a group of medications called benzodiazepines. It is a short-acting sedative that can be used in the emergency treatment of seizures.

When is it used for seizures?

Midazolam is prescribed for some people who experience severe, cluster or prolonged seizures which may potentially develop into status epilepticus. Outside of the hospital setting, it is given via the nose (intranasal) or into the space between the cheek and teeth (buccal).

Why is midazolam given into the nose or mouth?

This delivery route has several advantages:

- The nose and mouth provide very easy access and are practical for medication delivery outside the hospital setting
- It works relatively quickly. The nose and mouth are covered by mucus membrane and have a very good blood supply for rapid absorption
- No needles or injections are needed
- It's proven to be an effective, fast and safe way to administer midazolam

What is the doctor's role?

The doctor is to provide:

- Written instructions that cover:
 - The person's details including known allergies
 - A clear description of the seizure(s) for which the midazolam has been prescribed
 - The dosage to be given
 - When and how the midazolam is to be given
 - When an ambulance is to be called
- Referral to appropriate training for safe administration.
- An explanation of the effects and potential side-effects of giving midazolam in these circumstances.

What is your role?

Your role is to ensure that you:

1. Provide effective first aid to someone having a seizure
2. Recognise the person's seizure(s) for which midazolam has been prescribed
3. Understand the doctor's written instructions - if unsure ask the doctor to explain
4. Are trained to give midazolam and that your training is reviewed every 2 years
5. Are competent in performing seizure first aid and CPR should it be required.



If a seizure happens:

1. Remain calm.
2. Stay with person.
3. Time the seizure.
4. Protect the person from injury.
5. Identify that the seizure matches the description for which midazolam has been prescribed.
6. Prepare the midazolam for administration.
7. Give the midazolam and/or call an ambulance as stated in the doctor's written instructions.

How is midazolam packaged?

Midazolam comes in two forms:

1. A prefilled syringe with midazolam (for buccal use only)
2. A plastic ampoule with liquid midazolam (for buccal or intranasal)

They both are labelled with medication name, dose (mg) & volume of solution (ml), and an expiry date



1. A prefilled syringe of midazolam oromucosal solution



2. Pack of plastic midazolam ampoules

***NOTE** Midazolam is also available in glass ampoules, but it is not recommend using glass ampoules for nasal or buccal administration.

Preparing the midazolam

1. Wash your hands or use hand sanitiser. Apply gloves.
2. Check the doctor's written instructions.
3. Check the medication name, dose and expiry date match that in the doctor's medication order
4. **Ampoule** Twist the top of the plastic ampoule to open and
- if using a syringe, draw up only the prescribed amount



3. Midazolam Ampoule



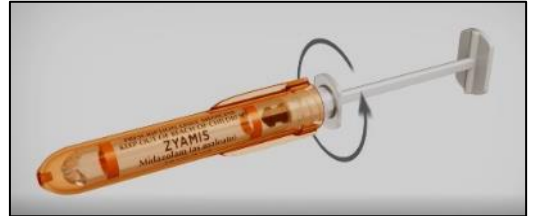
Preparing the medication- continued....

5. Pre-filled Syringe: Pull off the tamper evident tab to open the box.

- If this tab is broken, do not use the medication (call an ambulance)
- Unscrew (twist) the amber cap on the syringe to remove it. Do not use if the solution is not clear (e.g. cloudy or white particles are present)



4. Pre-filled syringe – pull tab



5. Pre-filled syringe, twist off cap

Giving the midazolam

Check the seizure is still active.

Buccal (in the cheek)

1. Position the person on their side in the recovery position (if possible)
 - Buccal medication can also be given in the upright position
2. Insert the ampoule, syringe or pre-filled syringe between the inside of the lower cheek and the teeth
3. Gently squeeze the ampoule or syringe over 4-5 seconds until the prescribed amount has been given.



Intranasal (in the nose)

1. Position the person on their back so that their head is tilted back. This may require placing something soft under the shoulders
2. Hold the ampoule or syringe over one nostril, gently squeeze and drip the midazolam, 2-3 drops at a time, into one nostril, and then 2-3 drops into the other nostril
- 3. Continue alternating nostrils until the entire prescribed dose is given.**



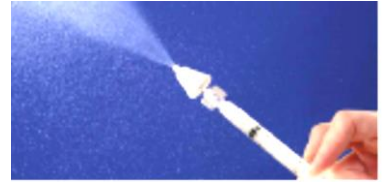
Giving the midazolam continued.....

Intranasal via Mucosal Atomiser Device (MAD)

This device is designed to allow delivery of nasal medications as an atomised spray.

It is helpful in situations where the person cannot be positioned lying down (eg in a wheelchair) and for babies and young children.

1. Draw up the prescribed amount of medication in a syringe
2. Firmly attach the atomizer (MAD) by twisting it on the syringe
3. Gently place the MAD into one nostril so that it is a tight fit, aiming slightly upward and outward toward the ear
4. Depress the syringe plunger to deliver half the medication – it must be depressed quickly to create an atomised mist
5. Remove and place in other nostril in same manner and administer the other half with a quick plunge of the syringe.



6. MAD device



7. Using a MAD

After giving the midazolam

1. Place the person on their side in the recovery position
2. Stay with the person until they have recovered
3. Monitor their breathing
4. Unused midazolam should be safely discarded
5. Document when and how much midazolam has been given.



8. Recovery position

Call an ambulance

1. If you are in any doubt about what to do
2. If an injury has occurred
3. As stated in the doctor's written instructions, the person's seizure management plan or organisation's policy and procedure document.



What are the possible side effects of midazolam?

- Drowsiness, tiredness, weakness
- Weakness, poor coordination and balance
- Irritability or euphoria
- Stinging in the nostrils (intranasal), terrible taste (buccal)
- Confusion and disorientation can occur after a seizure or having midazolam
- Slow shallow breathing.

Very rarely, the person's breathing may become more shallow and slower (respiratory depression). If this happens, call an ambulance (000) immediately.

Any unwanted side-effects are to be mentioned to the prescribing doctor.

How should midazolam be stored?

- In the original box, protected from light.
- In a locked cupboard, out of the reach of children
- In a cool, dry place, below 25°C
- Do not leave medication in a hot location such in a car or handbag. Use an insulated bag when transporting medication.

What about other medications?

Sometimes medications interact with each other. It is important that the prescribing doctor and the pharmacist are aware of any other medications that the person is taking including over the counter, supplements and herbal medicines.

Other important information:

- It is important to ensure that **enough supplies** of midazolam are available.
- Check the **expiry date** of the midazolam regularly. Return expired ampoules when obtaining new stock. Once it has expired, it may not be effective or safe to use.
- A **seizure management plan** needs to be prepared and **training** arranged for anyone who may be required to give the midazolam.

Our services

EAA has an online training courses to learn more about epilepsy, seizure emergencies and administration of emergency medications for seizures.

Go to our [Online Academy](#) or email us at education@epilepsy.org.au for more details.

We use Registered Nurses to provide training and education sessions.

Checklist

Prepare medication – do this BEFORE the 5 minute mark	
Gather the correct equipment	Medication ampoule, syringe, or prefilled syringe, or MAD Hand sanitiser, gloves Emergency Medication Order
Clean hands and apply gloves	Make sure someone stays with the person
Read medication order & medication confirming	Right Person- check identity Right Medication -check medication name Right Indication- does the seizure match the description Right Time- check time for med to be given Right Dose- check dose to be given (state mg & mls) Right Route- check administration route Right documentation- do we have the legal documentation to administer? Check for correct medication name, dose & expiry Check ambulance instructions
Set up & open medication	Draw up required amount in syringe, if necessary, OR Use ampoule directly if it contains the required amount OR Gather the pre-filled syringe
Administer the medication	
Check the seizure is still active	If seizure has stopped, discard medication
Explain what you are doing to the person having the seizure	
1. Intranasal: Put person on their back and tilt head. Hold the ampoule or syringe over nostril	- 2-3 drops alternating nostrils <i>until full dose is given</i>
OR	
MAD: Apply MAD to end of syringe. Insert MAD in nostril	- Rapidly depress plunger, half in each nostril
2. Buccal: Put the person in the recovery position. Insert ampoule, syringe or pre-filled syringe between the lower teeth & cheek	- Gently plunge the full medication dose over 4-5 seconds
After administration	
Place the person in the recovery position	
Call an ambulance if it has not been called and it is necessary or organisational policy	
Monitor breathing and stay with the person until they have fully recovered, or the ambulance arrives	
Document what happened	
Tidy up and discard unused medication. Wash hands	