Package leaflet: Information for the patient
Midazolam 1 mg/ml Solution for Injection or Infusion
Midazolam 5 mg/ml Solution for Injection or Infusion
midazolam

Read all of this leaflet carefully before you are given this medicine because it contains important information for you.
- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor or nurse.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor or nurse. This includes any possible side effects not listed in this leaflet. See section 4

What is in this leaflet:

1. What midazolam is and what it is used for

Midazolam 1 mg/ml & 5 mg/ml Solution for Injection or Infusion contains Midazolam which belongs to a group of medicines known as benzodiazepines.

It is a short acting medicine that is used to induce sedation (a very relaxed state of calm, drowsiness or sleep) and relieves anxiety and muscle tension.
This medicine is used for:
- Conscious sedation (an awake but very relaxed state of calm or drowsiness during a medical test or procedure) in adults and children
- Sedation of adults and children, in intensive care units.
- Anaesthesia in adults, used alone or with other medicines.
- Premedication (medicine used to cause relaxation, calm and drowsiness before an anaesthetic) in adults and children.

2. What you need to know before you are given midazolam

You must not be given midazolam
- If you are allergic (hypersensitive) to midazolam or any of the other ingredients of the medicine (listed in section 6)
- You are allergic to other benzodiazepine medicines, such as diazepam or nitrazepam.

You have severe breathing problems and you are going to have Midazolam for conscious sedation.
You must not be given midazolam if any of the above applies to you. If you are not sure, talk to your doctor or nurse before you are given this medicine.

Warnings and precautions
Talk to your doctor or nurse before you are given Midazolam if:
- You are over 60 years of age.

• You have a long term illness (such as breathing problems or kidney, liver or heart problems). You are debilitated (have an illness that makes you feel very weak, run down and short of energy).
• You have a condition called 'sleep apnoea syndrome' (where your breathing stops when you are asleep), so you may be closely monitored.
• You have myasthenia gravis (a neuromuscular disease causing muscle weakness).
• You regularly drink large amounts of alcohol or you have had problems with alcohol use in the past. Alcohol can increase the effects of Midazolam, possibly leading to severe sedation that could result in coma or death.
• You regularly take recreational drugs (drugs taken for other than medical use) or you have had problems with drug use in the past. You are pregnant or think you may be pregnant (see 'Pregnancy and breast-feeding').

Children
If your child is going to be given this medicine:

It is particularly important to tell your doctor or nurse if your child has cardiovascular disease (heart problems). Your child will be carefully monitored and the dose will be adjusted specially.
Children must be carefully monitored. For infants and babies under 6 months this will include monitoring of breathing and oxygen levels.
Talk to the doctor or nurse if any of the above applies to your child.

Other medicines and Midazolam Please tell your doctor or nurse if you are taking, have recently taken or might start taking any other medicines. This includes medicines obtained without a prescription and herbal medicines.

This is extremely important, as using more than one medicine at the same time can strengthen or weaken the effect of the medicines involved.

In particular, tell your doctor or nurse if you are taking any of the following medicines:
- tranquilisers (for anxiety or to help you sleep)
- hypnotics (medicines to make you sleep)
- sedatives (to make you feel calm or sleepy)
- antidepressants (medicines for depression)
- narcotic analgesics (very strong pain killers)
- antihistamines (used to treat allergies)
- medicines to treat fungal infections (ketoconazole, voriconazole, fluconazole, itraconazole, posaconazole)
- macrolide antibiotics (such as erythromycin or clarithromycin)
- diltiazem (used to treat high blood pressure)
- medicines for HIV (protease inhibitors such as saquinavir)
- medicines for hepatitis C (protease inhibitors such as boceprevir and telaprevir)
- atorvastatin (used to treat high cholesterol)
- rifampicin (used to treat mycobacterial infections such as tuberculosis) ticagrelor (used to prevent heart attack)
- the herbal medicine St. John's Wort.

If any of the above apply to you, or if you are not sure, talk to your doctor or nurse before you are given midazolam.

Operations
If you are going to have an anaesthetic for an operation or for dental treatment (including inhaled anaesthetics that you breathe in), it is important to tell your doctor or dentist that you have been given midazolam.

Midazolam with alcohol
Do not drink alcohol if you have been given Midazolam. This is because alcohol can increase the sedative effect of Midazolam and may cause problems with your breathing.
Pregnancy and breast-feeding:

- Tell your doctor if you are pregnant, think you may be pregnant or are planning to have a baby. Your doctor will decide if this medicine is suitable for you.
- Do not breast-feed for 24 hours after being given Midazolam. This is because Midazolam may pass into your breast milk.

Driving and using machines:
This medicine may make you sleepy, dizzy, forgetful or affect your concentration and co-ordination.
This may affect your performance at skilled tasks such as driving or using machines. Do not drive or use machinery until completely recovered. Your doctor should advise you when you can start these again.

Do not drive while taking this medicine until you know how it affects you.

Talk to your doctor or pharmacist if you are not sure whether it is safe for you to drive while taking this medicine.

Lack of sleep or alcohol consumption may further impair your alertness.
You should always be taken home by a responsible adult after your treatment.

Important information about some of the ingredients of midazolam solution for injection
Midazolam is essentially 'sodium free' as it contains less than 1 mmol sodium (23 mg) per ampoule (small glass bottle).

3. How midazolam is given

Midazolam should be given only by experienced healthcare professionals (doctor or nurse). It should be given in a place (hospital, clinic or surgery) equipped to monitor and support the patient's breathing, heart and circulation (cardiovascular function) and recognise the signs of and manage the expected side effects of anaesthesia.

How much Midazolam is given
Your doctor will decide on a suitable dose for you. The dose you are given will depend on why you are being treated and the type of sedation needed. Your weight, age, your state of health, how you respond to Midazolam and whether other medicines are needed at the same time will also influence the dose that you are given.
If you need strong painkillers, you will be given these first and then be given Midazolam. Your doctor will decide on a suitable dose for you.
How Midazolam is given
Midazolam may be given to you in one of four different ways:

by slow injection into a vein (intravenous injection)
through a tube into one of your veins (intravenous infusion) by injection into a muscle (intramuscular injection)
into your back passage (rectum).You should always be taken home by a responsible adult after your treatment.

Children
- In infants and babies under 6 months of age midazolam is only recommended for sedation in intensive care units. The dose will be given gradually into a vein.
- Children 12 years and under will usually be given midazolam into a vein. When midazolam is used for premedication (to cause relaxation, calm and drowsiness before an anaesthetic) it may be given into the back passage (rectum).

If too much of midazolam is given
Your medicine will be given to you by a doctor or nurse.
If you are accidentally given too much Midazolam you may:

- Feel drowsy.
- Lose your co-ordination (ataxia) and reflexes. Have problems with your speech (dysarthria). Have involuntary eye movements (nystagmus). Develop low blood pressure (hypotension).
- Stop breathing (apnoea) and suffer cardiorespiratory depression (slowed or stopped breathing and heart beat) and coma.

Stopping treatment with Midazolam
If you receive long term treatment with Midazolam (are given the medicine for a long time) you may:

Become tolerant to Midazolam. The medicine becomes less effective and does not work as well for you.
Become dependent upon this medicine and get withdrawal symptoms (see below).

Your doctor will reduce your dose gradually to avoid these effects happening to you.
The following effects have been seen with Midazolam use, particularly in children and the elderly; restlessness, agitation, irritability, involuntary movements, hyperactivity, hostility, delusion, anger, aggressiveness, anxiety, nightmares, hallucinations (seeing and possibly hearing things that are not really there), psychoses (losing contact with reality), inappropriate behaviour, excitement and assault (these are also known as paradoxical reactions, which are outcomes that are opposite to the effects normally expected for the drug). If you experience these, your doctor will consider stopping Midazolam treatment.

Withdrawal symptoms:
Benzodiazepine medicines, like Midazolam, may make you dependent if used for a long time (for instance in intensive care). This means that if you stop treatment suddenly, or lower the dose too quickly, you may get withdrawal symptoms. The symptoms can include:

- headache diarrhoea muscle pain
- feeling very worried (anxious), tense, restless, confused or bad-tempered (irritable) problems with sleeping
- mood changes
- hallucinations (seeing and possibly hearing things that are not there) fits (convulsions).

In severe cases of withdrawal, the following can occur: a feeling of losing contact with reality, numbness and tingling of the extremities (e.g. hands and feet), feeling sensitive to light, noise and touch.

4. Possible side effects

Like all medicines this medicine can cause side effects, although not everybody gets them. The following side effects have been reported with this medicine (frequency not known).

Stop having midazolam and see a doctor straight away if you notice any of the following side effects. They can be life-threatening and you may need urgent medical treatment:

- Anaphylactic shock (a life-threatening allergic reaction). Signs may include a sudden rash, itching or lumpy rash (hives) and swelling of the face, lips, tongue or other parts of the body. You may also have shortness of breath, wheezing or trouble breathing, or a pale skin, a weak and rapid pulse, or feeling of loss of consciousness. Additionally, you may experience chest pain, which can be a sign of a potentially serious allergic reaction called Kounis syndrome.
- Heart attack (cardiac arrest). Signs may include chest pain which may spread to your neck and shoulders and down your left arm.
- Breathing problems or complications (sometimes causing the breathing to stop).
- Choking and sudden blockage of the airway (laryngospasm).

Life-threatening side effects are more likely to occur in adults over 60 years of age and those who already have breathing difficulties or heart problems, particularly if the injection is given too fast or at a high dose.

Other possible side effects:

Immune System problems:

- General allergic reactions (skin reactions, heart and blood system reactions, wheezing)

Effects on behaviour:

- restlessness, agitation, irritability nervousness, anxiety;
- hostility, anger or aggression excitement;
- hyperactivity changes in libido;
- inappropriate behaviour.

Mental and Nervous system problems:

- confusion, disorientation emotional and mood disturbances involuntary movements nightmares, abnormal dreams;
- hallucinations (seeing and possibly hearing things that are not really there) psychoses (losing contact with reality);
- drowsiness and prolonged sedation reduced alertness;
- headache dizziness;
- difficulty co-ordinating muscles;
- fits (convulsions) in premature infants and new-born babies;
- temporary memory loss. How long this lasts depends on how much Midazolam you were given. You may experience this after your treatment. In isolated cases this has been prolonged (lasted for a long time);
- drug dependence, abuse.

Heart and circulation problems:

- low blood pressure
- slow heart rate
- redness of the face and neck (flushing), fainting or headache.

Breathing problems:

- shortness of breath;
- hiccup.

Stomach, gut and mouth problems:

- feeling sick or being sick
- constipation
- dry mouth.

Skin problems:

- rash
- hives (lumpy rash)
- itchiness.

Muscule problems:

- muscle spasms and muscle tremors (shaking of your muscles that you cannot control).

Injection site problems:

- redness
- swelling of the skin

- blood clots or pain at the injection site.

Injury:

- Patients taking benzodiazepine medicines are at risk of falling and breaking bones. This risk is increased in the elderly and those taking other sedatives (including alcohol).

- ***General:***tiredness (fatigue).

Elderly patients:

- life-threatening side effects are more likely to occur in adults over 60 years of age and those who already have breathing difficulties or heart problems, particularly when the injection is given too quickly or at a high dose.

Patients with severe kidney disease:

- patients with severe kidney disease are more likely to experience side effects.

If any of the side effects become serious or troublesome, or if you notice any side effects not listed in this leaflet, please tell your doctor or nurse.

Reporting of suspected adverse reactions

If you get any side effects, talk to your doctor or nurse. This includes any possible side effects not listed in this leaflet.

You can also report side effects directly via

HPRA Pharmacovigilance

Website: www.hpra.ie

By reporting side effects you can help provide more information on the safety of this medicine.

5. How to store midazolam

Your doctor or pharmacist is responsible for storing Midazolam. The storage details are as follows

- Keep this medicine out of the sight and reach of children.
- Do not use midazolam after the expiry date (EXP) which is stated on the carton and ampoule. The expiry date refers to the last day of that month.
- Keep ampoules (small glass bottle) in the outer carton in order to protect from light.
- Do not throw away any medicines via wastewater or household waste. Your healthcare professional will throw away any medicines that are no longer being used. These measures will help protect the environment.

6. Contents of the pack and other information

What midazolam contains:

The active ingredient is midazolam (as midazolam hydrochloride).

For 1 mg/ml

Each ml of solution for injection contains 1 mg of midazolam (as midazolam hydrochloride)

Presentations	5 ml
Amount of midazolam	5 mg

For 5 mg/ml

Each ml of solution for injection contains 5 mg of midazolam (as midazolam hydrochloride)

Presentations	1 ml	3 ml	10 ml

Amount of midazolam	5 mg	15 mg	50 mg

The other ingredients include water for injections, sodium chloride, sodium hydroxide (for pH adjustment) and concentrated hydrochloric acid (for pH adjustment).

What midazolam solution for injection looks like and contents of the pack:
Midazolam solution for injection is a clear colourless to pale yellow solution filled in a clear glass ampoule.

Midazolam solution for injection is available in pack of 10 X 5 ml ampoules for 1 mg/ml formulation.
Midazolam solution for injection is available in pack of 10 X 1ml, 10 X 3 ml, 10 X 10 ml and 1 X 10 ml ampoules for 5 mg/ml formulation.

The ampoule are available in blister/ tray pack.

Not all pack sizes may be marketed.

Manufacturing authorisation holder and manufacturer:
Manufacturing authorisation holder
Accord Healthcare Ireland Ltd,
Euro House
Euro Business Park
Little Island
Cork T45 K857
Ireland

Manufacturer

Accord Healthcare Polska Sp.z o.o.,
ul. Lutomierska 50,95-200 Pabianice, Poland

This medicinal product is authorized in the Member States of the EEA under the following names:

Name of the member state	**Name of the medicinal product**
Austria	Midazolam Accord 1 mg/ml, Injektionslösung oder Infusionslösung
	Midazolam Accord 5 mg/ml, Injektionslösung oder Infusionslösung
Belgium	Midazolam Accord Healthcare 1 mg/ml, solution pour injection ou perfusion/ oplossing voor injectie of infusie/ Lösung zur Injektion oder Infusion
	Midazolam Accord Healthcare 5 mg/ml, solution pour injection ou perfusion/ oplossing voor injectie of infusie/ Lösung zur Injektion oder Infusion
Cyprus	Midazolam Accord 1 mg/ml, ενέσιμο διάλυμα ή διάλυμα για έγχυση
	Midazolam Accord 5 mg/ml, ενέσιμο διάλυμα ή διάλυμα για έγχυση
Czech Republic	Midazolam Accord 1 mg/ml, injekční roztok nebo infuzi
	Midazolam Accord 5 mg/ml, injekční roztok nebo infuzi
Germany	Midazolam Accord 1 mg/ml Injektionslösung oder Infusionslösung
	Midazolam Accord 5 mg/ml Injektionslösung oder Infusionslösung
Denmark	Midazolam Accord 1 mg/ml, injektions og infusionsvæske, opløsning
	Midazolam Accord 5 mg/ml, injektions og infusionsvæske, opløsning
Estonia	Midazolam Accord 1 mg/ml, injekcinis ar infuzinis tirpalas
	Midazolam Accord 5 mg/ml, injekcinis ar infuzinis tirpalas
Greece	Midazolam Accord 1 mg/ml, ενέσιμο διάλυμα ή διάλυμα για έγχυση
	Midazolam Accord 5 mg/ml, ενέσιμο διάλυμα ή διάλυμα για έγχυση
Spain	Midazolam Accord 1 mg/ml, para inyección o infusión
	Midazolam Accord 5 mg/ml, para inyección o infusión

Finland	Midazolam Accord 1 mg/ml, injektio- tai infuusioneste/ Lösning för injektion och infusion
	Midazolam Accord 5 mg/ml, injektio- tai infuusioneste/ Lösning för injektion och infusion
Hungary	Midazolam Accord 1 mg/ml, oldatos injekció/ infúzió
	Midazolam Accord 5 mg/ml, oldatos injekció/ infúzió
Ireland	Midazolam 1 mg/ml, Solution for Injection or Infusion
	Midazolam 5 mg/ml, Solution for Injection or Infusion
Italy	Midazolam Accord 1 mg/ml, Soluzione per Iniezione o Infusione
	Midazolam Accord 5 mg/ml, Soluzione per Iniezione o Infusione
Latvia	Midazolam Accord 1 mg/ml, šķīdums injekcijām vai infūzijām
	Midazolam Accord 5 mg/ml, šķīdums injekcijām vai infūzijām
Malta	Midazolam 1 mg/ml, Solution for Injection or Infusion
	Midazolam 5 mg/ml, Solution for Injection or Infusion
The Netherlands	Midazolam Accord 1 mg/ml, oplossing voor injectie of infusie
	Midazolam Accord 5 mg/ml, oplossing voor injectie of infusie
Norway	Midazolam Accord 1 mg/ml, oppløsning til injeksjon og infusjon
	Midazolam Accord 5 mg/ml, oppløsning til injeksjon og infusjon
Poland	Midazolam Accord
Portugal	Midazolam Accord
Sweden	Midazolam Accord 1 mg/ml, Lösning för injektion och infusion
	Midazolam Accord 5 mg/ml, Lösning för injektion och infusion
Slovenia	Midazolam Accord 1 mg/ml, raztopina za injiciranje ali infundiranje
	Midazolam Accord 5 mg/ml, raztopina za injiciranje ali infundiranje
Slovak Republic	Midazolam Accord 1 mg/ml, injekčný alebo infúzny roztok
	Midazolam Accord 5 mg/ml, injekčný alebo infúzny roztok
United Kingdom	Midazolam 1 mg/ml, Solution for Injection or Infusion
	Midazolam 5 mg/ml, Solution for Injection or Infusion

This leaflet was last revised in 02-2024.

The following information is intended for medical or healthcare professionals only

Preparation of solution for infusion

Midazolam injection can be diluted with 0.9% sodium chloride solution, 5% or 10% glucose solution, or Ringer or Hartmann solution. In case of continous intravenous infusion, midazolam injection solution may be diluted in the range of 0.015 to 0.15 mg per ml with one of the solution mentioned above. These solutions remain stable for 24 hours at room temperature, and 3 days at 8°C. Midazolam injection must not be mixed with any solution other than those listed above. In particular, midazolam injection must not be diluted with 6% w/v dextran (with 0.9% sodium chloride) in glucose or mixed with alkaline injection injections. Midazolam precipitates in hydrogen carbonate.

The solution for injection should be examined visually before administration. Only solutions without visible particles should be used.

Shelf Life and storage

Midazolam Injection ampoules are intended for single use only.

Ampoule before opening

Store in the original package in order to protect from light

Ampoule after dilution

Chemical and physical in-use stability of the dilutions has been demonstrated for 24 hours at room temperature (15 – 25°C) or for 3 days at 8°C.

From the microbiological point of view, the dilutions should be used immediately.
If not used immediately, in-use storage times and conditions prior to use are at the responsibility of the user and would normally not be longer than 24 hours at +2 to +8 °C, unless dilution has taken place in controlled and validated aseptic conditions.
In case of continuous intravenous infusion, midazolam injection solution may be diluted in the range of 0.015 to 0.15 mg with one of the solution mentioned above.

Disposal of waste
Any unused product or waste material should be disposed of in accordance with local requirements.