

Premixed/Biphasic Insulin

Medication Information Leaflet

What is this medication for?

Novomix/Mixtard is a premixed insulin. It is a mix of intermediate-acting and short-acting insulins. It is used to reduce high blood sugar levels in patient with diabetes mellitus. The short-acting insulin helps to bring down the high sugar level after a meal, while the intermediate-acting insulin helps to control your blood sugar levels throughout the day.

How should I take/use this medication?

Use Novomix/Mixtard as instructed by your doctor.

The medication should be injected into the fatty tissue that is between the skin and muscle layer.

- Inject Novomix immediately before meals
- Inject Mixtard 30 minutes before meals

Your medication should look like milk or look cloudy. Roll the flexpen or penfill in your palms to resuspend the insulin before using. If you see any white substance that remains at the bottom of the container after resuspending it, you should not use it.

For Novomix flexpen and Mixtard penfill, always check that there are at least 12 units of insulin left in the pen or penfill to allow resuspension. If there are less than 12 units left, please use a new insulin pen or penfill.

How to select an injection site

Insulin should be injected into the fatty tissue that is between the skin and muscle layer. You should rotate the injection site within the same area to prevent your body from forming lipodystrophy (a small lump or dent in the skin that forms when a person repeatedly injects in the same spot).

Do not inject insulin in the areas that are actively used during exercise.

Your abdomen or stomach area is the best site for injection as it provides the fastest and most consistent absorption of insulin.

How to inject insulin

1. Clean the skin before injecting the insulin
2. Lift a skin fold.
3. Insert the needle at 90 degrees, at a right angle to the skin.
4. During the injection, inject the insulin by pushing the plunger all the way down slowly with your index finger
 - If you are using an insulin pen, hold the needle and pen in place for 10 seconds before removing the needle and releasing the pinched skin
 - If you are using the insulin vial and syringe, there is no need to hold the needle in place for 10 seconds.
5. While removing the needle from your skin, make sure you keep the plunger pushed down. This will ensure you get the full dose. Do not rub or massage the injection site.
6. Throw the syringe or pen needle away properly in a container that cannot be punctured.

You may refer to this article for more details on insulin injection techniques.

What should I do if I forget to take/use this medication?

If you missed a dose before your meal, it can be given immediately after your meal.

If you forget to inject your insulin, your blood sugar may get too high, a condition known as hyperglycemia. Check your blood sugar with a home blood sugar meter (glucometer).

If your blood sugar remains high for too long, you might develop diabetic ketoacidosis. This is a complication of diabetes that is caused by an increase in the amount of ketones in your blood or urine, which causes your blood to become more acidic. Symptoms of diabetic ketoacidosis include:

- Increased urination
- Feeling thirsty
- Feeling sick, nauseous or vomiting
- Feeling drowsy or tired
- Having abdominal pain
- Having a flushed face
- Sweet fruity smell in your breath

You should see the doctor immediately if you have the above symptoms.

What precautions should I take?

Inform your healthcare professional if you:

- Are allergic to this medication or any of the other ingredients of this medication
- Drink alcohol often
- Are eating less than usual due to sickness/a changed diet as your dosage may need to be changed
- Are travelling across different time zones. You might need to adjust the number of meals and the dose of your insulin depending on where you travel to.
- Are pregnant or breastfeeding

If your doctor has informed you that you need to do a fasting blood test, do not inject insulin until after you have your blood taken and are ready to eat.

What are some common side-effects of this medication?

Like all medications, this medication may cause some possible side effects but not everyone experiences them. Consult your healthcare professional if any of the side effects becomes severe and bothersome.

This medication may cause low blood sugar (hypoglycemia). Symptoms of low blood sugar include:

- Weakness
- Dizziness
- Hunger
- Sweating
- Trembling
- Blurred vision
- Walking unsteadily
- Fast heartbeat

If you experience any of these low blood sugar symptoms, do the following immediately:

Step 1: Check your blood sugar with a home blood sugar meter (glucometer) if available. If your blood sugar level is less than 4 mmol/L, take 15 grams of fast-acting sugar. Examples of 15 grams of fast-acting sugar include:

- 3 glucose tablets or
- Half a glass of fruit juice (200ml) or
- Half a can of soft drink or sweetened drink (175ml) or
- 1 can of less sugar soft drink (330ml) or
- 3 teaspoons of sugar, honey or syrup

Step 2: Monitor yourself for 15 minutes. If you have a glucometer (home blood sugar meter), check your blood sugar level again after 15 minutes.

Step 3: If your blood sugar level is still less than 4 mmol/L or you still have symptoms of low blood sugar, you should take another 15 grams of fast-acting sugar as per Step 1.

If your symptoms do not go away, see a doctor or go to the hospital immediately.

Step 4: Take your meal or snack if your blood sugar level is 4 mmol/L and above after consuming the fast-acting sugar earlier on.

Low blood sugar may occur if you:

- Inject too much insulin
- Do not eat on time, miss your meals or change your diet

- Exercise or work too hard just before or after a meal
- Do not eat well due to an infection or illness (especially diarrhoea or vomiting)
- Drink alcohol on an empty stomach while injecting insulin
- Have kidney or liver problems which have worsened

Some patients may also experience mild pain, redness, bruising, swelling, a small lump or dent of the skin at the injection site.

- Do not reuse your needles, rotate injection sites within the recommended areas and use shorter needles (4mm or 6mm) to reduce the chances of developing such reactions.
- They also usually go away in a few days to a few weeks.
- See a doctor if you frequently experience this. Your injection technique may need to be reviewed.

What are some rare but serious side-effects that I need to seek medical advice immediately?

See a doctor or go to the hospital immediately if your blood sugar level is always low (less than 4 mmol/L) or you continue to experience symptoms of low blood sugar even after taking some sugar (see instructions above for management of low blood sugar).

What food or medication should I avoid when I take this medication?

Avoid taking alcohol with this medication as this may increase your risk of having low blood sugar.

How should I store this medication?

Store all unopened insulin in a refrigerator between 2 to 8 degrees Celsius. **Do not freeze.**

Do not keep insulin in a hot place (e.g. in a hot, closed vehicle, on top of a television set) or expose it to heat or sunlight. Do not use the insulin if this happens.

Once the insulin has been first used, do not refrigerate, but keep in a cool dry place. Refer to the table below to find out how long you can keep it after opening.

Type of Insulin	When to Throw
Novomix Flexpen	4 weeks after opening
Mixtard Injection Vial (Stored at 30 degree Celsius)	5 weeks after opening
Mixtard Penfill (Stored at 30 degree Celsius)	6 weeks after opening

Keep this medication out of reach of children. Throw away all expired medication.

How do I handle this medication safely?

Please refer to the product insert which can be found in the medication box, for instructions for use of your specific insulin pen or penfill. Insulin penfills are designed to be used with Novo Nordisk insulin delivery devices (such as NovoPen®).

How should I throw away this medication safely?

You may throw this injection away along with the used needles, into a metal tin or thick plastic container (eg. detergent bottles). You can also buy a container specially designed to throw sharp items, known as a sharps box, at pharmacies to prevent any injuries due to the needles.

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Disclaimers

Please take note that the above is not a complete list of all possible side effects. If you have any concerns about your medication or if you have other side effects that you think are caused by this medication, please consult your doctor or pharmacist.

If you take more than the recommended dose, please seek medical advice immediately. The information provided on this page does not replace information from your healthcare professional. Please consult your healthcare professional for more information.

This article is jointly developed by members of the National Medication Information workgroup, and supported by the Ministry of Health. The workgroup consists of cluster partners (National Healthcare Group, National University Health System and SingHealth), community pharmacies (Guardian, Unity and Watsons) and Pharmaceutical Society of Singapore. The content does not reflect drug availability and supply information in pharmacies and healthcare institutions. You are advised to check with the respective institutions for such information.

Please visit www.moh.gov.sg/knowyourmeds and www.ndf.gov.sg for more information on medication.

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