



# INJECTABLE TREATMENTS FOR TYPE 2 DIABETES

## WHAT IS TYPE 2 DIABETES?

**Insulin** is a hormone produced by the pancreas that helps a type of sugar, called **glucose**, from food enter cells in the body so it can be used as energy or stored for later use. People with type 2 diabetes have **high** sugar in their blood because their pancreas does not **produce** enough insulin, or their cells do not **respond** to insulin properly (insulin resistance).

The most **common** symptoms include blurred vision, feeling thirsty all the time and needing to urinate often, especially at night.<sup>1</sup> Many people with diabetes have no symptoms. Overtime, high blood sugar levels can **damage** the nerves and blood vessels, leading to **serious** complications such as:<sup>1,2</sup>

### POSSIBLE HEALTH COMPLICATIONS OF TYPE 2 DIABETES

#### Eye problems

Leading to vision loss and blindness



#### Heart disease and stroke



#### Kidney disease

Kidney's ability to filter waste weakens over time



#### Nerve damage

Causing tingling, numbness, burning or pain in the toes or fingers



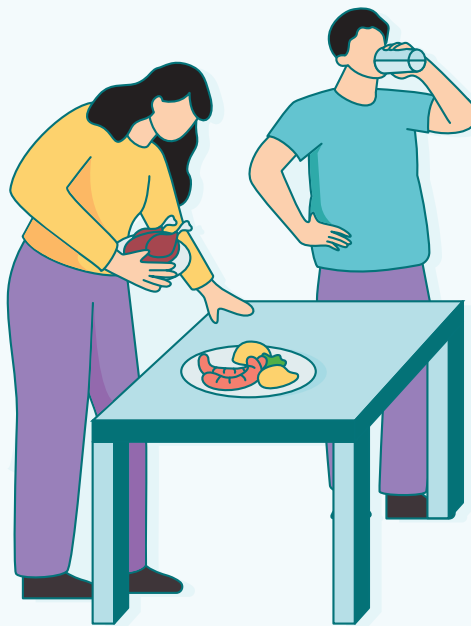
#### Skin problems

Skin infections caused by fungi and bacteria



#### Reduced blood flow to legs and feet

Causing ulcers that heal slowly and infection which can increase the risk of amputation



However, with the right treatment and care, people with type 2 diabetes can live a healthy life and complications can be **avoided**.

## HOW IS TYPE 2 DIABETES TREATED?

Type 2 diabetes can be managed by following a healthy lifestyle including a **healthy diet** and **regular exercise**. Glucose-lowering drugs are often needed to keep blood sugar levels in the optimal range. Your doctor will assess your blood sugar level, treatment preferences and any other health conditions that you may have, and advise which treatment is suitable for you.

Most patients who need glucose-lowering drugs start with **oral** drugs. There are many types available and they work in different ways. If a patient's blood sugar level is still higher than their target despite treatment, doctors may prescribe a different drug or **add on** other glucose-lowering drugs to the existing treatment including **injectable** insulin or non-insulin drugs.

### MANAGING TYPE 2 DIABETES

Practise a **healthy lifestyle** by:



Exercising regularly



Eating healthily



Quitting smoking (if you smoke)



Drinking less alcohol

**Oral** diabetes drugs such as metformin.



**Injectable diabetes** drugs such as:

#### INSULIN




- **Rapid-acting insulin** (lowers blood sugar quickly, with effects lasting between 3-4 hours)
- **Short-acting insulin** (starts working after 30-60 minutes and effects last for 5-8 hours)
- **Long-acting insulin** (starts working after a few hours, but effects can last for a day or more)

#### NON-INSULIN INJECTABLES

- Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) (**dulaglutide**, **liraglutide** and **semaglutide**)

## MYTHS ABOUT INJECTABLE DRUGS FOR DIABETES

MYTHS	FACTS <sup>3</sup>
 <p><b>Needing injections means I am a failure</b></p>	Needing injectable drugs does <b>not</b> mean you have not tried your best to improve your lifestyle or take your treatment as prescribed. Some people need injectable drugs because over time their bodies can no longer produce enough insulin to meet their needs.
<p><b>Injections are addictive</b></p>	You cannot get addicted to injectable drugs used to treat diabetes. If you are concerned about being seen using a needle and syringe in public, you can ask your doctor if your treatment is available as an injection <b>pen</b> .
<p><b>Injections will restrict my life</b></p>	Some think that having to take injectable drugs will mean you can no longer be independent, or able to live alone, travel, or eat out. This is not true. With planning, you should be able to live life to the fullest. Talk to your doctor if you have any concerns.

### WHAT DOES THE EVIDENCE FROM CLINICAL STUDIES SAY?

ACE reviewed all available clinical evidence and received clinical advice from doctors about the use of injectable diabetes drugs. ACE also negotiated prices of dulaglutide and semaglutide with the companies.<sup>4</sup>

For patients whose blood sugar level is not controlled with oral drugs and need to add on injectable drugs, **dulaglutide**, **semaglutide** and **insulin glargine** (a long-acting insulin) injections are effective treatment options.

For patients on oral drugs **and** insulin who need further blood sugar control, adding **dulaglutide** or **semaglutide**, or **increasing the dose of insulin** are effective treatment options.

The **side effects** of dulaglutide, semaglutide and insulin are **different**. Please consult your doctor about the side effects of these drugs.



### SUBSIDISED INJECTABLE DIABETES DRUGS

#### SUBSIDISED

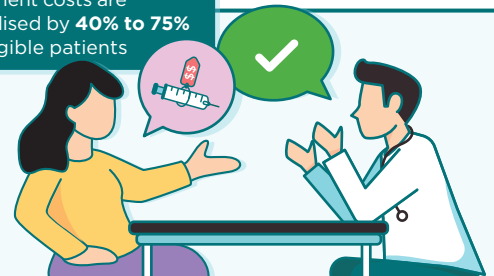
- ✓ Dulaglutide
- ✓ Insulin (different types are available<sup>5</sup>)

#### NOT SUBSIDISED

- ✗ Semaglutide
- ✗ Liraglutide

Semaglutide was not subsidised because its benefits do not justify its cost at the price offered by the company. At the request of the company, liraglutide injection was not considered for subsidy.

Treatment costs are subsidised by **40% to 75%** for eligible patients



### KEY MESSAGES

Insulin and non-insulin injectable drugs are available to treat type 2 diabetes. Many types of **insulin** are subsidised, making treatment more affordable. **Dulaglutide**, a non-insulin injectable drug is also subsidised as an add-on treatment for patients who are taking oral diabetes drugs with or without insulin.

The treatment that you need will depend on different factors such as your blood sugar level, treatment preferences and any other health conditions you may have. Talk to your **doctor** to **discuss** which treatment is suitable for you, and your concerns. You can also speak to a **medical social worker** if you need further financial assistance for any treatments, or you can reach out to **local patient support groups**<sup>6</sup> if you want to meet people with type 2 diabetes and share your experiences.

#### Sources

1. <https://www.healthhub.sg/programmes/87/diabetes-mellitus>
2. Ministry of Health, Singapore. *War on Diabetes, summary report 2016 - 2019*.
3. <https://diabetesjournals.org/clinical/article/25/1/39/1493/Insulin-Myths-and-Facts>
4. ACE Technology Guidance on *GLP-1 receptor agonist injections for treating type 2 diabetes mellitus*, 2022
5. <https://www.moh.gov.sg/cost-financing/healthcare-schemes-subsidies/subsidised-drug-list>
6. Diabetes Singapore



The Agency for Care Effectiveness (ACE) was established by the Ministry of Health (Singapore) to drive better decision-making in healthcare through health technology assessment (HTA), clinical guidance and education. It publishes guidances on diagnosing, treating, and preventing different medical conditions based on the latest research information available worldwide. This factsheet is not, and should not be regarded as, a substitute for professional or medical advice. Please seek the advice of a qualified healthcare professional about any medical condition. ©Agency for Care Effectiveness, Ministry of Health, Republic of Singapore. All rights reserved. Reproduction of this publication in whole or in part in any material form is prohibited without the prior written permission of the copyright holder.

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