The University of Auckland, The University of Waikato & NZSSD

PRESENTS

PACIFIC DIABETES MANAGEMENT COURSE

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

New Zealand Society for the Study of Diabetes
NZSSD

with support & facilitation from Aotearoa Diabetes Collective

Your session will start shortly

Welcome to the 2025

Pacific Diabetes Management Course

Housekeeping

- Please stay on **mute** during the webinar
- You can ask questions anytime during the webinar using the **Q+A function**
  - Any question is fine and will be answered at the end of the session
  - You can **upvote** questions that you want answered first
  - You can also ask questions verbally at the end of the session – please use the hand function if able
- **Confidentiality is a must** – These sessions will be recorded and available in a public format
- **Respect** one another
  - This is a collaborative, non-judgemental learning environment for everyone

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PACIFIC DIABETES MANAGEMENT COURSE

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Webinar 1.

Lifestyle interventions, Metformin + Vildagliptin

Lifestyle management

- Cornerstone of management of type 2 diabetes + remains important at all times

- Should ideally develop a personalised weight management plan if overweight
  - 5% sustained total body weight loss results in improvements in all metabolic parameters
  - 10-15% sustained total body weight loss typically required to achieve ‘remission’ of T2D

- Consists of 4 key areas of management:
  - Healthy eating
  - Physical activity
  - Healthy sleep
  - Education + support

- **Refer to structured education programmes and/or lifestyle intervention if available**

Other key areas of lifestyle management

- Smoking cessation + alcohol reduction
- Screening for depression + diabetes distress
  - Screening tools such as PHQ2 + DDS2 can be useful
- Contraception
- Ensuring flu/COVID vaccinations + malignancy screening up to date

Healthy eating

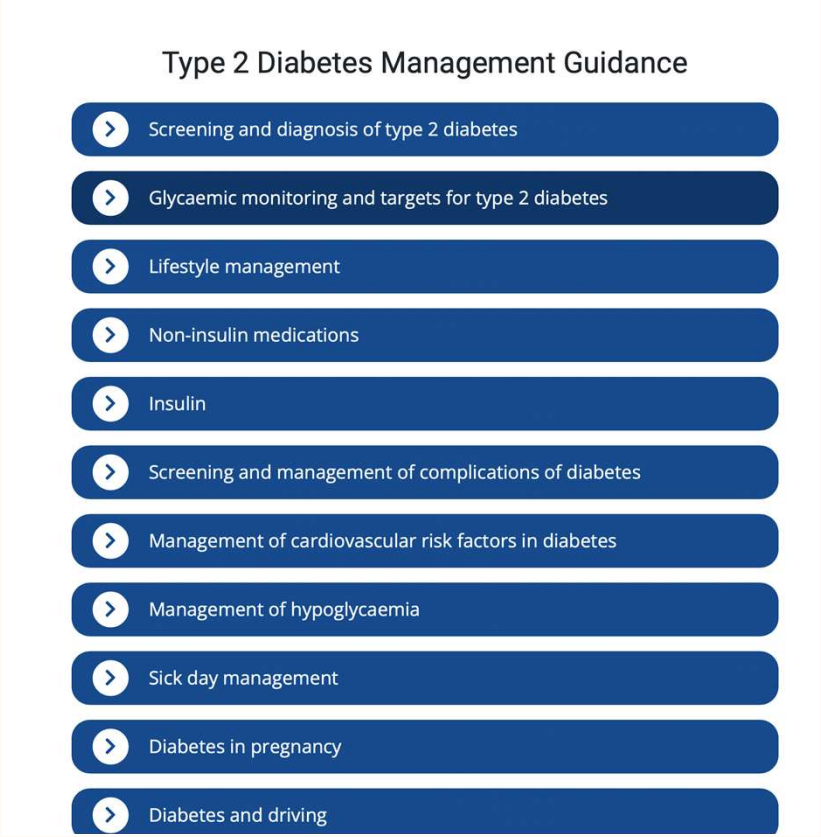
Healthy eating

- Nutritional education from a registered dietitian is recommended at diagnosis and then:
  - Annually
  - When starting bolus or premixed insulin
  - At any time that is required

- If a dietitian is not available, then Dietitian NZ resources are useful for:
  - Food guide for healthy eating in people with diabetes to ensure adequate nutrients
  - Low glycaemic index carbohydrates – likely best spread out over day if on insulin and/or sulfonylureas
  - Reducing sugary intake in drinks & saturated + trans fats
  - Dietary fibre intake > 30 g per day
  - Healthy plate models to aid portion sizes etc.

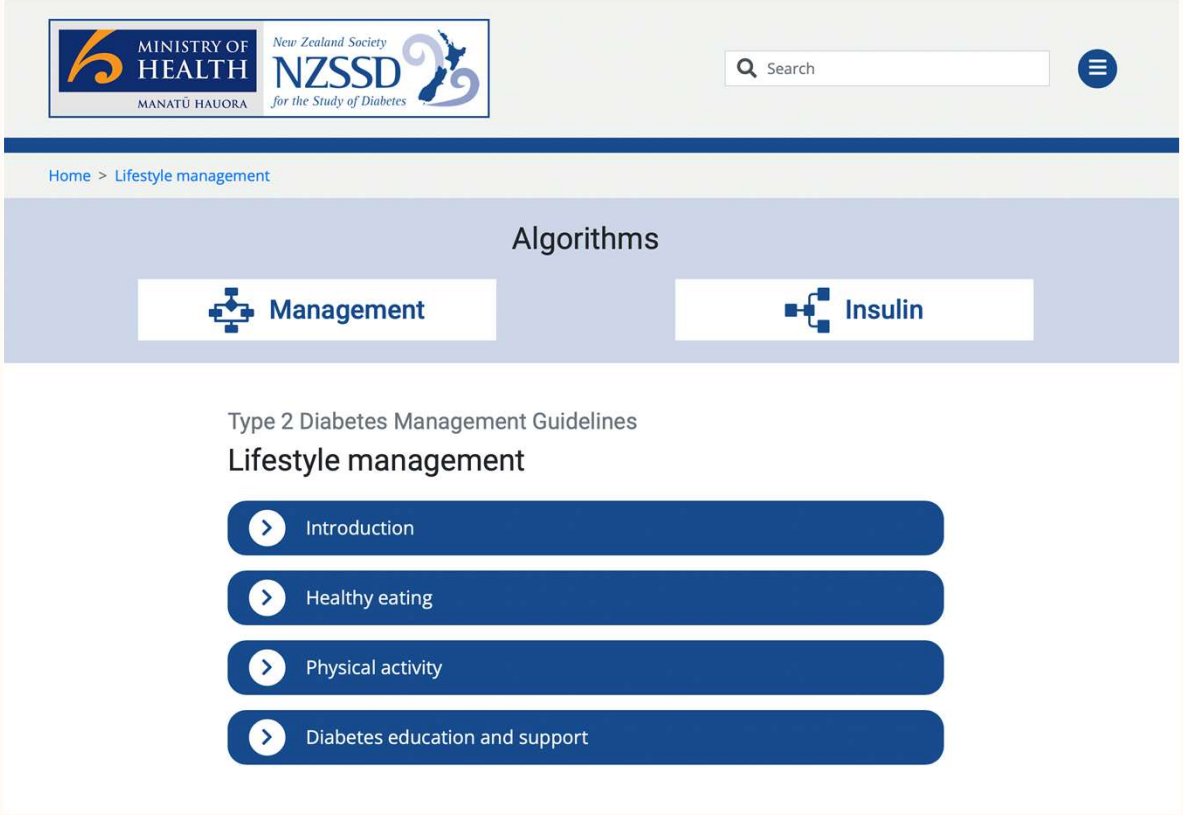
Resources embedded in NZSSD guidance

- www.t2dm.nzssd.org.nz
- www.dm-mohsamoa.nzssd.org.nz



Resources embedded in NZSSD guidance

- www.t2dm.nzssd.org.nz

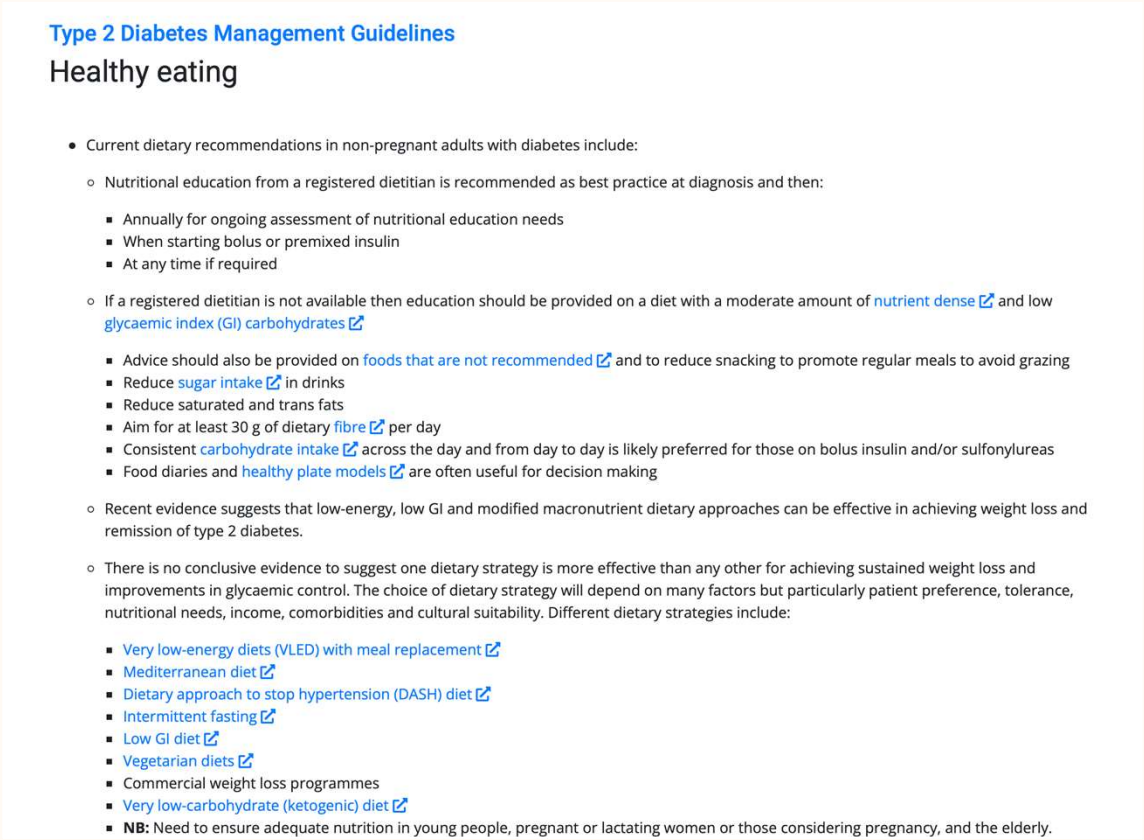


Resources embedded in NZSSD guidance

T2D Management Guidance

- Healthy eating

- www.t2dm.nzssd.org.nz



Type 2 Diabetes Management Guidelines

Healthy eating

- Current dietary recommendations in non-pregnant adults with diabetes include:
  - Nutritional education from a registered dietitian is recommended as best practice at diagnosis and then:
    - Annually for ongoing assessment of nutritional education needs
    - When starting bolus or premixed insulin
    - At any time if required
  - If a registered dietitian is not available then education should be provided on a diet with a moderate amount of nutrient dense and low glycaemic index (GI) carbohydrates
    - Advice should also be provided on foods that are not recommended and to reduce snacking to promote regular meals to avoid grazing
    - Reduce sugar intake in drinks
    - Reduce saturated and trans fats
    - Aim for at least 30 g of dietary fibre per day
    - Consistent carbohydrate intake across the day and from day to day is likely preferred for those on bolus insulin and/or sulfonylureas
    - Food diaries and healthy plate models are often useful for decision making
  - Recent evidence suggests that low-energy, low GI and modified macronutrient dietary approaches can be effective in achieving weight loss and remission of type 2 diabetes.
  - There is no conclusive evidence to suggest one dietary strategy is more effective than any other for achieving sustained weight loss and improvements in glycaemic control. The choice of dietary strategy will depend on many factors but particularly patient preference, tolerance, nutritional needs, income, comorbidities and cultural suitability. Different dietary strategies include:
    - Very low-energy diets (VLED) with meal replacement
    - Mediterranean diet
    - Dietary approach to stop hypertension (DASH) diet
    - Intermittent fasting
    - Low GI diet
    - Vegetarian diets
    - Commercial weight loss programmes
    - Very low-carbohydrate (ketogenic) diet
    - **NB:** Need to ensure adequate nutrition in young people, pregnant or lactating women or those considering pregnancy, and the elderly.

Resources embedded in NZSSD guidance

Food Guide for People with Diabetes

Healthy eating helps you to:

- control your blood glucose levels
- control your weight
- reduce the chances of developing complications from diabetes

Carbohydrates

Carbohydrates are found in many foods which we commonly eat, such as breads, cereals, grains, legumes, starchy vegetables, and fruit.

When you eat carbohydrates, they are broken down into glucose (sugar) in the body and enter the bloodstream. This is why you measure your **blood glucose levels**.

It is important to include some carbohydrates at each meal as they are an important source of energy for your body. However, eating *too* much carbohydrate will increase your blood glucose above recommended levels.

Aim to eat a similar amount of carbohydrate at each meal. Your Dietitian will give you

KAI LELEI – EAT WELL

For Pasifika, health is how you feel, your strength, and your connection with family.
Here are six tips that can help you nourish your and your family's health and wellbeing:

KEEP UP YOUR VEGGIES AND FRUIT

"I started adding frozen veggies to leftovers for lunch to give my body more goodness.

AIM TO EAT BREAKFAST, LUNCH, AND DINNER TO KEEP YOU SATISFIED

"When I eat breakfast, I have much more energy for my day.

INCLUDE WATER AS YOUR FIRST CHOICE FOR HYDRATION

"Our family chooses to drink water with meals. It is safe and good for everyone.

LEARN AND RESPOND TO YOUR BODY'S HUNGRY AND FULL CUES

"Before I reach for seconds I ask myself - am I feeling full? Or am I still hungry?

LESS READY-TO-EAT PACKAGED FOODS AND TAKEAWAYS

"This winter we have been cooking more food at home, and have noticed we don't get sick as often.

IT'S EASIER TO EAT HEALTHY WHEN YOU PLAN YOUR MEALS

"Having a meal plan for the week and taking leftovers for lunch saves our family a lot of time and money.

THE CAUSE COLLECTIVE

Created by The Cause Collective in consultation with the Pacific community.

Te Kāwanatanga o Aotearoa New Zealand Government

Health New Zealand Te Whatu Ora

This resource is available from healthed.govt.nz or your local Authorised Provider. February 2024. **Code HE2654**

HOW WE MAKE OUR PASIFIKA MEALS HEALTHIER

Every food has a different job in your body. This is why it is important to eat a variety of foods every day for wellbeing.

Add Frozen Veggies

I make leftovers stretch by adding frozen veggies. And because the veggies have fibre they help to fill hungry teenagers.

Reduce Saturated Fat

We want to look after our hearts so we remove the fat from meat, drain the fat from corned beef, and water down coconut cream.

Make Meals Stretch

Our family adds a can of beans or lentils to mince dishes. It makes the meal much cheaper and go further.

Do some Meal Prep

On Sundays my daughter and I prepare food for everyone's lunchbox to make it easier during the week - we boil eggs, slice cheese and chop up veggies.

Keep Veggies' Goodness

I grew up eating mushy veggies but now we cook them for less time and enjoy having more crunch.

Replace the Salt

The doctor told me I needed to reduce salt to help my blood pressure stay in a healthy range. I now add extra flavour with lemon juice, spices and herbs.

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Health New Zealand Te Whatu Ora

This resource is available from healthed.govt.nz or your local Authorised Provider. May 2024. **Code HE2655**

COLOUR OUR MEALS WITH VEGGIES

Grilled fish, creamed spinach and vegetable chips

Seafood and vegetable soup with wholegrain bread

Pork mince chow mein and colourful vegetables

Chicken, corn and vegetable soup with cassava

Chicken, carrot and potato curry with broccoli, cauliflower and peas

Egg fried rice with mixed vegetables

Fish with palusami, sweetcorn and green banana

Beef chop suey with colourful vegetables

Roast pork, cabbage and mixed vegetables with roast cassava

Corn and mussel fritters with chopped salad and cassava

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Health New Zealand Te Whatu Ora

This resource is available from healthed.govt.nz or your local Authorised Provider. February 2024. **Code HE2694**

Dietary strategies in managing T2D

- Many dietary strategies have been used to treat T2D including:
  - Very low carbohydrate (ketogenic) diet
  - Intermittent fasting e.g. 5:2 diet, time restricted feeding, weekly water fasting etc.
  - Low GI diet
  - Mediterranean diet
  - Plant-based diets
  - Commercial weight loss programmes etc.

- No conclusive evidence to suggest any of these dietary strategies any better than any other

- **But only Mediterranean + plant-based diets shown to ↓ HbA1c, weight + CV risk at 2yrs**
  - Other diets appear safe + effective in short-term

Tips on the best approach

- Provide evidence-based advice but patient preference, tolerance + income etc. often governs approach

- Ensure adequate nutrition particularly in youth, pregnancy, breastfeeding + the elderly

- **Ensure patient safety with change in diets**
  - Do not use empagliflozin when carbohydrate intake < 130 g per day
  - Monitoring of glucose levels is essential for safety in patients on insulin and/or sulfonylureas
  - **Consider stopping prandial insulin + sulfonylureas** & **↓ basal insulin by up to 50% on days of fasting**
  - Consider reducing antihypertensives + diuretics + increasing allopurinol if significant weight loss

- **Consider VLED intervention in early type 2 diabetes and prediabetes**
  - Appears best dietary strategy in achieving 'remission' of T2D

📌 The **'best approach'** is likely whatever strategy **works!**

Physical activity

Physical activity

- **Current recommendations for physical activity in people with T2D are:**
  - 150 mins of ≥ moderate intensity aerobic exercise on ≥ 3 days per week with ≤ 2 days without exercise
  - Resistance exercise ≥ 2 days per week
  - Sitting for ≤ 30 mins
  - May need to reduce intensity and/or duration due to comorbidities e.g. heart disease, co-morbidities

- **Most people will not meet recommendations → aim for as much movement as possible**
  - 5-6 mins of brisk walking per day is associated with an additional 4 years of life
  - Moving briskly with everyday activities is associated with up to 50% reductions in CV events
  - Stretching alone significantly reduces glucose levels

Physical activity continued...

- **Ensure patient safety during exercise**
  - May need to reduce doses of insulin and/or sulfonylureas around exercise if the person has tight glycaemia
  - Ensure adequate footwear + carry treatment for hypoglycaemia

MOVE THE PASIFIKA WAY!

People think that exercise is just running on the treadmill or hitting the gym, but it is anything that gets your body moving!

Movement will strengthen your muscles, improve your mood and help you feel energised.

Aim to move your body every day.

Below are some ways that our people are feeling the benefits of movement.

"I love dancing with my community"

"Cleaning the house gives me a workout"

"I started walking and using public transport to get some steps in"

"I love to call my friends while walking"

"Gardening helps relax me, it doesn't feel like work"

Discuss the free Green Prescription and other exercise programmes in your area with your doctor.

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Health New Zealand Te Whatu Ora
This resource is available from healthed.govt.nz or your local Authorised Provider February 2024. Code HE2656

Healthy sleep

Healthy sleep

- **Sleep disorders** are common in T2D – associated with increases in glucose levels + weight
    - >50% of people with T2D have OSA → treatment of OSA significantly improves glucose levels
- **Optimal length of sleep** on glucose levels + body weight is **6-8 hours per night**
    - Weekend or 'catch-up' sleep does not fully reverse deleterious effects of insufficient sleep
- **Discuss** healthy sleep + sleep hygiene **with all with T2D**
- **Screen** for OSA + other sleep disorders where appropriate

Education & support

Education & support

- **Critical** in enabling **self-management** + getting people with diabetes to reach their **targets**
- Education should be **culturally appropriate** + ideally **involve the whole family**
- All patients should ideally have access to a **glucometer + testing strips**
- Provide **written information** on living well with diabetes including:
    - Diabetes + healthy food choices, Diabetes + physical activity + Staying well with diabetes
    - Sick day management
    - Management of hypoglycaemia & diabetes + driving if starting insulin and/or sulfonylureas

Education & support

- Consider best model of care within current resources to provide education
  - E.g. individual versus group education, separate nurse appointment, use of resources etc.

- Use local self-management programmes and other local services if available
  - Health coaches + health navigators
  - Social workers
  - Dietitians
  - Psychologists

- Integrate care with traditional Pacifc medicine if family wish

- Screen for depression + diabetes distress → consider treatment as required

Glucose lowering therapies in Aotearoa New Zealand

Glucose lowering therapies in Aotearoa New Zealand

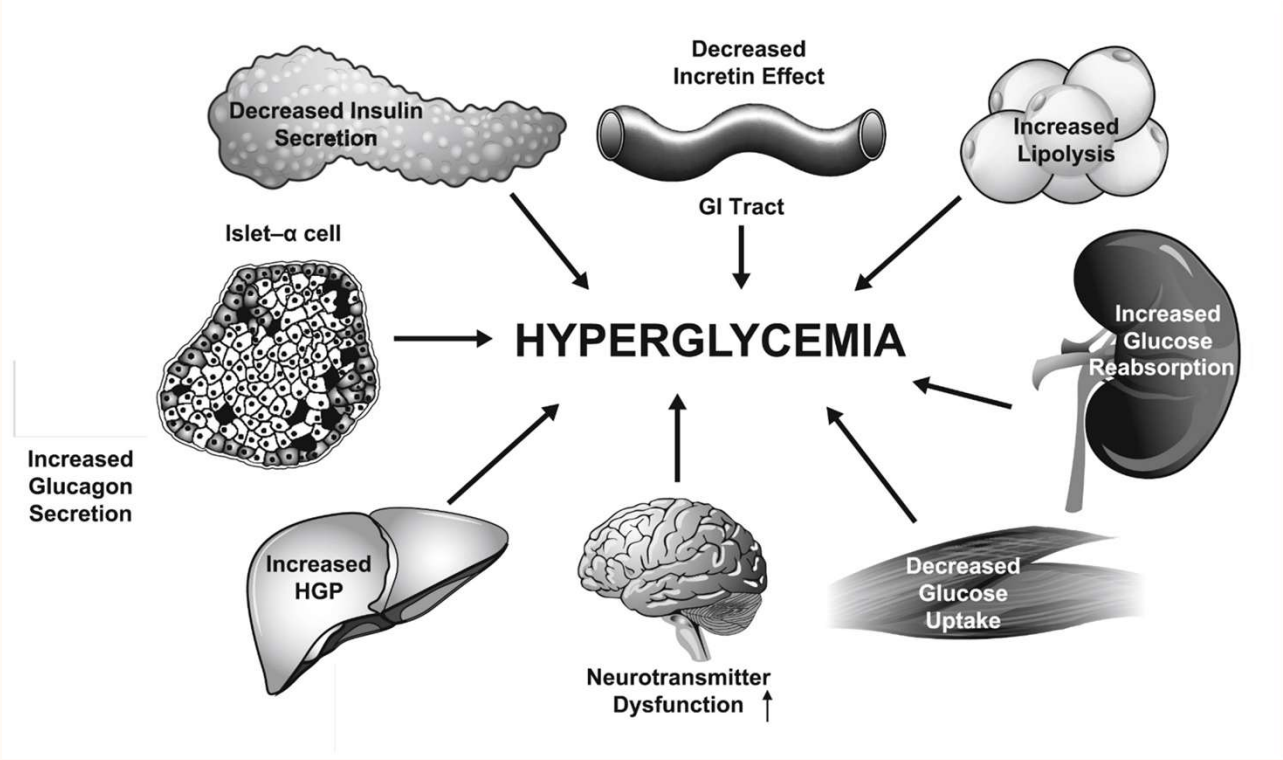
Oral

- **Metformin**
- *Empagliflozin (Jardiance)*
- **Vildagliptin (Galvus)**
- Pioglitazone (Vexazone)
- Acarbose (Accarb)
- *Sulfonylureas (Glipizide/Gliclazide)*

Injectable

- *GLP1Ra*
  - *Dulaglutide (Trulicity) - weekly*
  - *Liraglutide (Victoza) – daily*
  - *Semaglutide (Wegovy) - weekly*
- *Insulin*
  - *Basal insulin*
  - *Prandial insulin*
    - *Bolus insulin*
    - *Premixed or co-formulated insulin*
  - *Correction insulin*

The ‘ominous octet’



Thrasher. Am J Card 2017

Metformin

Metformin

- Biguanide that reduces hepatic glucose output + insulin resistance

- Typically leads to 1-2 kg weight loss + **reduces CV disease independently of glucose levels**
  - Reduces progression of T2D & likely reduces solid cancers + prolongs survival

- Maximal mean decrease in HbA1c ~ 15 mmol/mol + **does not cause hypoglycaemia alone**

- **1st line management with lifestyle management** for all patients with T2D + prediabetes
  - Start together at diagnosis but still beneficial to introduce at any time
  - Add another agent if HbA1c > 64 mmol/mol at diagnosis OR if HbA1c above target at 3 months

Metformin

- **GI adverse effects usually preventable if start low + slow – even in those who are 'intolerant'**
  - Start at 250 – 500 mg once or twice daily with food
  - Can increase at least weekly to 2g per day or maximal tolerated dose
  - **Galvumet + Jardiamet seem to be much better tolerated than metformin alone**
  - Extended release or liquid metformin not available but **pharmacies can make metformin suspension**

- **No benefit in doses > 2 g per day** + need to reduce doses with declining renal function
  - eGFR 30 – 45 mL/min → maximal dose 1000 mg per day
  - eGFR 15 – 29 mL/min → maximal dose 500 mg per day
  - eGFR < 15 mL/min → need to stop metformin

Metformin

- Risk of lactic acidosis likely negligible
  - But still safer to **not use in end-stage liver, renal or heart failure**

- Risk of contrast-induced renal injury with metformin also likely negligible
  - Guidance still recommends withholding metformin if eGFR < 30 mL/min

- Only need to monitor vitamin B_{12} levels **if symptomatic of B_{12} deficiency** e.g. neuropathy

- Metformin + insulin are the only known safe glucose-lowering therapies in pregnancy + breastfeeding
  - **Beware that metformin** (and GLP1RA) **may induce ovulation so consider contraception**

Why do you start Metformin at diagnosis of T2D?

Starting metformin at diagnosis

- **Reduces progression of T2D**
  - Ideally should be started in high-risk prediabetes
- **Reduces CV disease** + likely solid cancers independently of effect on glucose levels
- Aids **weight loss** + **does not cause hypoglycaemia**
- Reduces clinical inertia

Vildagliptin (Galvus)

Vildagliptin

- Inhibits the enzyme DPPIV prolonging the half-life of endogenous GLP1
  - Increases glucose-dependent insulin secretion → **does not cause hypoglycaemia alone**
  - Decreases glucagon secretion
  - Increases incretin effect → decreased gastric emptying + neurotransmitter dysfunction → decreased appetite

- Weight neutral + no known independent benefits on reducing CVD or renal disease
  - **Only agent known to date in combination with metformin to reduce progression to insulin**

- Normal dose is 50 mg twice daily either alone (Galvus) or in combination with metformin (Galvumet)
  - **Reduce dose of vildagliptin to 50 mg daily once eGFR < 50 mL/min**

Vildagliptin

- **Mean maximal reduction in HbA1c is only 5 – 10 mmol/mol**

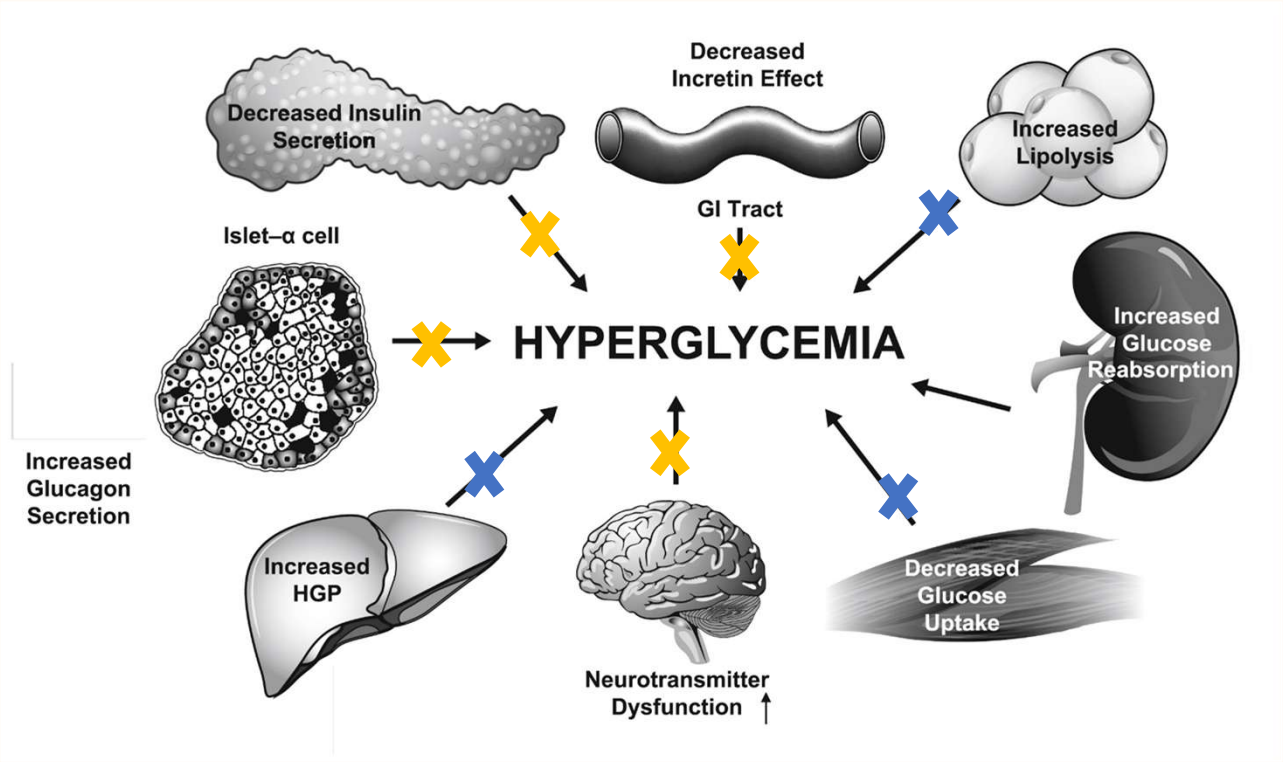
- **Generally very well tolerated** but adverse effects include:
  - Nausea, anorexia, vomiting + diarrhoea (much milder than GLP1Ra)
  - Nasopharyngitis
  - Hepatoxicity → consider stopping if ALT or AST > 2.5 x ULN without explanation (repeat LFTs with HbA1c)
  - Rare significant skin reactions e.g. bullous pemphigoid + Stevens Johnson Syndrome

- Do not use in:
  - T1D, pregnancy, breastfeeding, < 18 years of age and/or unstable CHF as no safety data
  - Severe gastrointestinal disease, medullary thyroid cancer or pancreatitis without explanation
  - **Vildagliptin is redundant when on GLP1Ra** e.g. dulaglutide or liraglutide

The ‘ominous octet’

Metformin

Vildagliptin



Summary of glucose lowering therapies

	Metformin	Vildagliptin
Risk of hypoglycaemia	Rare	Rare
Mean maximal HbA1c ↓	15	5-10
Independent cardio-renal benefits	Yes	No
Effect on weight	↓	↔

What are the take home messages?

Take home messages

- **Lifestyle management + metformin** remain first line management in all stages of T2D

- **Weight loss if overweight is critical with lifestyle changes** encompassing:
  - Healthy eating + sleep
  - Physical activity
  - Education + support

- **The best dietary strategy is whatever works for the individual patient**!

- **Vildagliptin + other glucose lowering therapies are often required in managing T2D**
  - Hypoglycaemia will only occur with sulfonylureas and/or insulin

Upcoming webinars

1	**Lifestyle management, Metformin & Vildagliptin** Niue - Monday September 8th at 6pm Cook Islands - Monday September 8th at 7pm Aotearoa, NZ - Tuesday September 9th at 5pm	Zoom link
2	**Sulfonylureas & Insulin + Management of Hypoglycaemia** Niue - Monday September 15th at 6pm Cook Islands - Monday September 15th at 7pm Aotearoa, NZ - Tuesday September 16th at 5pm	Zoom link
3	**New Diabetes Medication, Technology & Management algorithm** Niue - Monday September 22nd at 6pm Cook Islands - Monday September 22nd at 7pm Aotearoa, NZ - Tuesday September 23rd at 5pm	Zoom link
4	**Glycaemic, Blood Pressure & Lipid Targets + Management** Niue - Monday September 29th at 6pm Cook Islands - Monday September 29th at 7pm Aotearoa, NZ - Tuesday September 30th at 5pm	Zoom link
5	**Diabetes and Sick Day Management, Driving & Pregnancy** Niue - Monday October 6th at 6pm Cook Islands - Monday October 6th at 7pm Aotearoa, NZ - Tuesday October 7th at 5pm	Zoom link
6	**Management of Complications Related to Diabetes** Niue - Monday October 13th at 6pm Cook Islands - Monday October 13th at 7pm Aotearoa, NZ - Tuesday October 14th at 5pm	Zoom link
7	**Inpatient Management of Diabetes** Niue - Monday October 20th at 6pm Cook Islands - Monday October 20th at 7pm Aotearoa, NZ - Tuesday October 21st at 5pm	Zoom link

Case: 70 yr old Tongan female

Presentation – new patient to clinic, latest HbA1c is 75, does not want to increase insulin due to weight gain but has multiple drug intolerances and declines referral to dietitian or diabetes clinic

- **Diabetes Hx:** Type 2 diabetes with multiple drug intolerances (pioglitazone & metformin cause nausea, empagliflozin causes urinary frequency, dulaglutide causes nausea, joint pains and thin hair)
- **Diabetes related comorbidities:** diabetic eye disease (moderate non-proliferative retinopathy and unilateral non-fovea macula oedema)
- **Diabetes related medications:** NovoMix 30 – 38 units bd
- **Other relevant medications:** candesartan 4mg od
- **Assessment:**
  - Measures – BMI 34; BP 150/70
  - Labs – HbA1c 75; LDL 3.9, eGFR 67; ACR normal

Question/s:

- What are the next steps to improve HbA1c?

Discussion