

Diabetes & Obesity

RESEARCH REVIEW™

Making Education Easy

Issue 152 – 2021

In this issue:

- Liver and CV outcomes after bariatric surgery in nonalcoholic steatohepatitis
- Neighbourhood food environment impacts on diabetes risk
- Sulfonylurea and insulin deintensification after severe hypoglycaemia in older diabetics
- BP lowering reduces new-onset type 2 diabetes risk
- Diabetic retinopathy and reduced vision in Indigenous Australians
- Impact of colour-coded and warning nutrition labelling
- Flash glucose monitoring in diabetics
- Kidney function decline and urinary albumin excretion with dapagliflozin in CKD
- Factors associated with overweight and obesity in adolescents
- COVID-19's impacts on type 2 diabetes self-management and service experiences
- Real-world screening for diabetes in early pregnancy

Abbreviations used in this issue

ACE = angiotensin converting enzyme
ARB = angiotensin-II receptor blocker
BP = blood pressure
CKD = chronic kidney disease
CV = cardiovascular
GFR = glomerular filtration rate
HbA_{1c} = glycosylated haemoglobin
HR = hazard ratio
OGTT = oral glucose tolerance test
RCT = randomised controlled trial
SGLT = sodium glucose cotransporter

Welcome to issue 152 of Diabetes and Obesity Research Review.

This issue includes research from the US reporting on the impact that neighbourhood food environments have on type 2 diabetes risk across a variety of community types, and we also have a systematic review of evidence for the impact that colour-coded labels and warnings can have on consumers' food purchase choices. The issue also includes two papers from our trans-Tasman neighbours, both of which have a particular focus on Aboriginal peoples and provide us with lessons that can be translated to our shores: one reported on the prevalence and severity of diabetic retinopathy and presenting vision level, and the other, which concludes our diabetes and obesity research for the year, evaluated the feasibility of routine HbA_{1c} level screening for hyperglycaemia in pregnancy.

We look forward to receiving your comments any time, even over the holiday season, as we will be back with our next issue in January.

Best regards,

Professor Jeremy Krebs

jeremykrebs@researchreview.co.nz

Association of bariatric surgery with major adverse liver and cardiovascular outcomes in patients with biopsy-proven nonalcoholic steatohepatitis

Authors: Aminian A et al.

Summary: The SPLENDOR study examined long-term relationships between Roux-en-Y gastric bypass or sleeve gastrectomy (n=650) versus nonsurgical care (n=508) and incident major adverse liver outcomes and major adverse CV events in obese individuals with fibrotic noncirrhotic nonalcoholic steatohepatitis. Over a median 7 years of follow-up, five bariatric surgery patients and 40 nonsurgical patients experienced major adverse liver outcomes, while 39 and 60 patients experienced major adverse CV events. The 10-year cumulative incidence of major adverse liver outcomes was lower in the bariatric surgery versus nonsurgical group (2.3% vs. 9.6%; adjusted HR 0.12 [95% CI 0.02, 0.63]), as was the 10-year cumulative incidence of major adverse CV events (8.5% vs. 15.7%; 0.30 [0.12, 0.72]). In the first year after surgery, four patients died from surgical complications, including two from gastrointestinal leak and two from respiratory failure.

Comment: Fatty liver disease is one of the important but rather silent and insidious complications of obesity – until it's too late and cirrhosis and liver failure have ensued. Other than weight loss, to date there have been no effective drug treatments to reverse or delay the progression of fatty liver disease. This paper reported the outcomes for both liver and CV endpoints in a group of people with obesity who underwent bariatric surgery, and compared them with a matched control group who did not have surgery. It is important to note that this was not an RCT. The outcomes are very dramatic, with important differences in the incidences of both end-stage liver disease and CV disease between groups. Historically there has been caution in selection of patients with liver disease for surgery, but this paper supports a surgical approach in reducing morbidity and mortality in those with fatty liver disease.

Reference: JAMA 2021;326:2031–42

[Abstract](#)

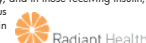
MERRY CHRISTMAS & A HEALTHY, HAPPY 2022!
FROM THE TEAM AT RESEARCH REVIEW

NZ HAS A OBESITY PROBLEM AFFECTING AROUND 1 IN 3 ADULTS.¹
OVERWEIGHT & OBESITY CONSTITUTE THE 5TH LEADING RISK FOR GLOBAL DEATHS.²

CONSIDER DUROMINE™ TO HELP YOUR PATIENTS ACHIEVE THEIR WEIGHT LOSS GOALS AND IMPROVE THEIR HEALTH.³

References: 1. New Zealand Ministry of Health. Obesity statistics. Available from: <https://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/obesity-statistics>. 2. Kim GW, et al. Anti-Obesity Pharmacotherapy: New Drugs and Emerging Targets. Clin Pharmacol Ther. 2014; 95(1): 53–66. 3. Duromine Data Sheet January 2018. **DUROMINE™** IS A CS CONTROLLED DRUG. **DUROMINE™** IS AN UNFUNDED MEDICINE. A PRESCRIPTION CHARGE WILL APPLY. PLEASE REVIEW FULL DATA SHEET BEFORE PRESCRIBING AVAILABLE AT WWW.MEDSAFE.GOV.TZ OR PHONE Freephone 0508 375394. Minimum Data Sheet Information (phentermine). **DUROMINE™ Indications:** For the management of obesity as a short-term adjunct in a medically monitored weight loss programme based on exercise, diet and behaviour modification in obese patients with a body mass index (BMI) of 30 kg/m² or greater. **DUROMINE™** may appropriately be initiated in overweight patients with a lower BMI when risk of morbidity from other medical conditions is increased. **Dosage and Administration:** The usual starting dose in adults and children over 12 years is 30 mg once daily at breakfast. Continuous or inter-mittent maintenance dose is 15 mg to 30 mg once daily depending on responsiveness. Patients require medical review after a defined course of treatment, which should not exceed three months. Available in 15 mg and 30 mg capsules. **Contraindications:** Pulmonary artery hypertension, heart valve abnormalities, heart murmurs, moderate to severe hypertension, cerebrovascular disease, severe cardiac disease including arrhythmias, advanced arteriosclerosis, hypersensitivity to sympathomimetic drugs, hyperthyroidism, psychiatric illnesses, glaucoma, drug/alcohol abuse or dependence, concomitant MAOIs or within 14 days of MAOI use. **Precautions:** Short term monotherapy only. Coadministration of drug products for weight loss is not recommended. There have been no reported cases of valvular heart disease occurring with phentermine alone. Use with caution in mild hypertension, established coronary artery disease, epilepsy, and in those receiving insulin, oral hypoglycaemic agents or psychotropic agents. **Adverse Effects:** The most common are palpitations, tachycardia, elevation of blood pressure and precordial pain. Others included restlessness, insomnia, nausea, and dry mouth. Psychotic episodes, hallucinations and serious cardiovascular or cerebrovascular events are rare. Full Data Sheet and Consumer Medicine Information is available from Medsafe at www.medsafe.govt.nz. iNova Pharmaceuticals (Australia) Pty Limited, Level 10, 12 Help Street, Chatswood NSW 2067, Australia. Distributed in New Zealand by Radiant Health Ltd, c/o Supply Chain Solutions, 74 Westney Road, Airport Oaks, Auckland. For all product enquiries: New Zealand Toll Free: 0508 375 394. TAPS NA 12719. NZ2021-02-0010. February 2021.

DUROMINE™
PHENTERMINE



For more information, please go to www.medsafe.govt.nz

www.researchreview.co.nz

a RESEARCH REVIEW™ publication




Jardiance®
(empagliflozin)

FULLY FUNDED
with Special Authority criteria*
February 1st, 2021

NEW. For your patients with type 2 diabetes[†]

THE POWER TO ACCOMPLISH MORE
Above and beyond glycaemic control^{†,‡}

Click below to download your JARDIANCE resources

PRESCRIBING GUIDE **PATIENT BOOKLET**

Longitudinal analysis of neighborhood food environment and diabetes risk in the Veterans Administration Diabetes Risk Cohort

Authors: Kanchi R et al.

Summary: The association between neighbourhood food environment and incident type 2 diabetes risk was explored for high-density urban, low-density urban, suburban and rural communities in this research of over 4 million US veterans without type 2 diabetes at baseline. Positive but modest associations were evident between the relative density of fast-food restaurants and increased type 2 diabetes risk across all community types (adjusted HRs 1.01 [95% CI 1.00, 1.02], 1.01 [1.01, 1.01], 1.02 [1.01, 1.03] and 1.01 [1.01, 1.02] for high-density urban, low-density urban, suburban and rural communities, respectively). There were also associations between relative density of supermarkets and decreased type 2 diabetes risk in suburban and rural communities (respective adjusted HRs 0.97 [95% CI 0.96, 0.99] and 0.99 [0.98, 0.99]).

Comment: Diet and associated quality and quantity of food is an important modifiable risk factor for type 2 diabetes. In general, fast food has a higher energy density, and previous research has shown associations between energy density of food and obesity and type 2 diabetes. What this study examined is the association between neighbourhood food environment and the incidence of type 2 diabetes in the US. There was a small effect seen when food environment was measured by counts of fast-food outlets. However, the association is likely more nuanced than is immediately obvious from these data. In NZ, deprivation is a very strong risk factor for type 2 diabetes and interacts with ethnicity. Poorer neighbourhoods often have more fast-food outlets and fewer supermarkets. It is therefore very likely that a count of fast-food outlets is a surrogate, and probably very crude, marker of deprivation. Achieving equitable access to nutritious food is really what we need to aim for.

Reference: *JAMA Netw Open* 2021;4:e2130789
[Abstract](#)

CLICK HERE
to read previous issues of
Diabetes & Obesity Research Review

Independent Content: The selection of articles and writing of summaries and commentary in this publication is completely independent of the advertisers/sponsors and their products.

Privacy Policy: Research Review will record your email details on a secure database and will not release them to anyone without your prior approval. Research Review and you have the right to inspect, update or delete your details at any time.

Disclaimer: This publication is not intended as a replacement for regular medical education but to assist in the process. The reviews are a summarised interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits.

Research Review publications are intended for New Zealand health professionals.

[†]38% RRR in CV death in patients with established CV disease (CAD, PAD, MI or stroke) and T2D (HR=0.62; p<0.001).[‡] *JARDIANCE is a funded medicine. Restrictions apply: Pharmaceutical Schedule, Hospital Medicines List. [†]In adult patients with insufficiently controlled type 2 diabetes and CAD, PAD, or a history of MI or stroke. [‡]The absolute risk for CV death was reduced from 5.9% in patients receiving standard of care plus placebo to 3.7% in patients receiving standard of care plus JARDIANCE® (p<0.001).^{1,2}

1. JARDIANCE® Data Sheet 2019 2. Zinman B et al. N Engl J Med. 2015;373(22):2117-2128

JARDIANCE® empagliflozin 10mg, 25mg film coated tablets Before prescribing, please review full Data Sheet which is available on request from Boehringer Ingelheim or from <http://www.medsafe.govt.nz/profs/datasheet/dsform.asp>
INDICATION: *Glycaemic control:* Treatment of type 2 diabetes mellitus (T2DM) to improve glycaemic control in adults as: *Monotherapy:* When diet and exercise alone do not provide adequate glycaemic control in patients for whom use of metformin is considered inappropriate due to intolerance; *Add-on combination therapy:* With other glucose-lowering medicinal products including insulin, when these, together with diet and exercise, do not provide adequate glycaemic control. *Prevention of cardiovascular (CV) death:* In patients with T2DM and established CV disease to reduce the risk of CV death. To prevent CV deaths, JARDIANCE® should be used in conjunction with other measures to reduce CV risk in line with the current standard of care. **DOSAGE AND ADMINISTRATION:** Recommended starting dose is 10mg once daily taken with or without food. Dose can be increased to 25mg once daily. No dose adjustment is necessary for patients based on age, patients with eGFR ≥30mL/min/1.73m² or hepatic impairment. When JARDIANCE® is used in combination with a sulfonylurea (SU) or with insulin, a lower dose of the sulfonylurea or insulin may be considered. **CONTRAINDICATIONS:** Hypersensitivity to empagliflozin or any of the excipients; patients with CKD stage 4 or 5 (severely impaired renal function including patients receiving dialysis; eGFR <30mL/min/1.73m² or CrCl <30mL/min). **WARNINGS AND PRECAUTIONS:** Patients with type 1 diabetes; diabetic ketoacidosis; necrotising fasciitis of the perineum (Fournier's gangrene); discontinue when eGFR is below 30mL/min/1.73m²; assess renal function before treatment and regularly thereafter; patients for whom a drop in BP could pose a risk (e.g. those with known CV disease, on anti-hypertensive therapy with a history of hypotension, or aged ≥75 years); urinary tract infections (UTIs); rare hereditary conditions of galactose intolerance, e.g. galactosaemia; pregnancy; lactation; children (<18 years). **INTERACTIONS:** Diuretics; insulin and SU; interference with 1,5-anhydroglucitol assay. **ADVERSE REACTIONS:** *Very common:* hypoglycaemia (when used with combination with SU or insulin). *Common:* hypoglycaemia (combination with metformin; pioglitazone with or without metformin; metformin and linagliptin); vaginal moniliasis, vulvovaginitis, balanitis and other genital infections; UTIs (including pyelonephritis and urosepsis); pruritus; allergic skin reactions (e.g. rash, urticaria); increased urination; thirst; serum lipids increased; volume depletion (patients aged ≥75 years). For other adverse reactions, see full Data Sheet. **ACTIONS:** Empagliflozin is a reversible, highly potent and selective competitive inhibitor of sodium-glucose co-transporter 2 (SGLT2), which is responsible for glucose absorption in the kidney. It improves glycaemic control in patients with type 2 diabetes by reducing renal glucose reabsorption through SGLT2. Through inhibition of SGLT2, excessive glucose is excreted in urine. **PRESCRIPTION MEDICINE.** JARDIANCE® is a funded medicine - Restrictions apply: Pharmaceutical Schedule, Hospital Medicines List. BOEHRINGER INGELHEIM (NZ) Ltd. Level 3, 2 Osterley Way, Manukau Auckland 2104. TAPS MR7142/PC-NZ-100168 BOE000370



Boehringer Ingelheim (NZ) Ltd.
PO Box 76216 Manukau City,
Auckland 2241. Phone 0800 802 461



Eli Lilly and Company (NZ) Ltd.
PO Box 109197 Newmarket,
Auckland 1149. Phone 0800 500 056
NZBN 9429039560643

For more information, please go to www.medsafe.govt.nz



Saxenda®
liraglutide (rys)

*I have the will to train
three times a week.
But I still need help to lose
weight and keep it off.*

MICHAEL; Age: 38 BMI: 34
Patient portrayal



Visit **SAXENDACARE.CO.NZ** to learn more.
Click below to download your Saxenda® resources.

PRESCRIBING GUIDE

PATIENT BOOKLET

Saxenda® is an unfunded prescription medicine. Doctor's fees and pharmacy charges may apply. Please review Data Sheet before prescribing. The Data Sheet can be accessed at www.novonordisk.co.nz

SAXENDA® (liraglutide (rys) 6 mg/mL). Indication: As an adjunct to a reduced-calorie diet and increased physical activity for weight management in adult patients with an initial Body Mass Index of ≥ 30 kg/m² (obese) or ≥ 27 kg/m² to <30 kg/m² (overweight) in the presence of at least one weight related comorbidity, such as dysglycaemia (pre-diabetes and type 2 diabetes mellitus), hypertension, dyslipidaemia or obstructive sleep apnoea. Treatment should be discontinued after 12 weeks on the 3.0 mg/day dose if a patient has not lost at least 5% of their initial body weight. **Dose/administration:** Administered subcutaneously once daily at any time, independent of meals; starting dose 0.6 mg/day; increase to 3.0 mg/day in increments of 0.6 mg per week. If escalation to the next dose is not tolerated for two consecutive weeks, consider discontinuing treatment. Daily doses higher than 3.0 mg are not recommended. Must not be administered intravenously or intramuscularly. **Contraindications:** Hypersensitivity to liraglutide or any of its excipients. **Warnings/Precautions:** Not for use in patients: with obesity secondary to endocrinological or eating disorders or to treatment with medicinal products that may cause weight gain; children (<18 years); with a history of pancreatitis, severe renal impairment including end-stage renal disease, hepatic impairment or insufficiency, inflammatory bowel disease or diabetic gastroparesis; ≥ 75 years. Must not used as a substitute for insulin. Should not be used: with insulin; in combination with other prescription, over-the-counter or complementary medicines intended for weight loss. Use with caution in patients: 65-74 years; with thyroid disease; on other drugs that increase heart rate. Advise patients of the potential risk of dehydration in relation to gastrointestinal side effects and to take precautions to avoid fluid depletion. If pancreatitis is suspected, treatment should be discontinued and appropriate management initiated. If acute pancreatitis is confirmed, Saxenda® should not be restarted. A higher rate of cholelithiasis and cholecystitis has been observed in patients treated with Saxenda® - patients should be informed of the characteristic symptoms. Cholelithiasis and cholecystitis may lead to hospitalisation and cholecystectomy. Saxenda® should be discontinued for patients who experience a sustained increase in resting heart rate. Reducing the dose of concomitantly administered insulin secretagogues to reduce the risk of hypoglycaemia should be considered. Pregnancy Category B3. Not for use during pregnancy or breastfeeding. **Undesirable effects:** Very Common: nausea, vomiting, diarrhoea, constipation, headache. Common: dyspepsia, abdominal pain upper, abdominal distension, eructation, flatulence, gastroesophageal reflux disease, dry mouth, gastritis, hypoglycaemia, injection site reactions, fatigue, asthenia, dizziness, dysgeusia, cholelithiasis, insomnia, increased lipase, increased amylase. (April 2021)

Novo Nordisk Pharmaceuticals Ltd., Auckland, New Zealand. NovoCare® Customer Care Center (NZ) 0800 733 737. www.novonordisk.co.nz.
® Registered trademark of Novo Nordisk A/S. ANZ21SX00022. TAPS BG1054.
Prepared: August 2021.



Deintensification of treatment with sulfonylurea and insulin after severe hypoglycemia among older adults with diabetes

Authors: Alexopoulos A-S et al.

Summary: These researchers evaluated sulfonylurea and insulin deintensification following an emergency department visit or hospitalisation for hypoglycaemia in a retrospective cohort of 76,278 US Medicare beneficiaries aged ≥ 65 years. There were 32,074 such emergency department visits or hospitalisations among sulfonylurea only recipients, 60,350 among insulin only recipients, and 13,869 among those receiving both a sulfonylurea and insulin, for whom the respective deintensification rates were 44.2%, 24.0% and 48.1%, respectively. There were also significant trends for treatment deintensification rates to increase between 2007 and 2017 for all three groups. Deintensification was less likely for patients of lower socioeconomic status, irrespective of hypoglycaemic regimen, whereas frailty, CKD, history of falls and depression were each significantly associated with an increased likelihood of deintensification.

Comment: Although our treatment guidelines strongly advocate for individualisation of therapy, which includes a consideration for risk of hypoglycaemia, there is also strong underlying pressure for achieving tight glycaemic control. As a result, people with type 2 diabetes often end up on multiple drugs, including insulin. Prior to the availability of the newer agents this year, most people would be prescribed a sulfonylurea as second line and then insulin. Often these are combined, which increases the risk of hypoglycaemia. Sometimes it is easy to forget that the evidence for tight control relates to the long-term micro- and macrovascular risk, which becomes less relevant in the elderly, particularly when other comorbidities mean that life expectancy is relatively short. Then the greater risk is of falls and/or the cognitive effects of hypoglycaemia. This paper reports on deintensification of therapy in this group in the US, and concludes that there is room for improvement. It would be very good to know how well we are doing in NZ. I suspect we would find similar results.

Reference: *JAMA Netw Open* 2021;4:e2132215

[Abstract](#)

Blood pressure lowering and risk of new-onset type 2 diabetes

Authors: Nazarzadeh M et al., on behalf of the Blood Pressure Lowering Treatment Trialists' Collaboration

Summary: The role of BP lowering in the prevention of diabetes was explored in a one-stage meta-analysis of individual participant data from 19 RCTs ($n=145,939$) and an individual participant data network meta-analysis of 22 trials. There were 9883 study participants diagnosed with new-onset type 2 diabetes over a median 4.5 years of follow-up. Across all trials, each 5mm Hg reduction in systolic BP was associated with a reduced risk of type 2 diabetes (HR 0.89 [95% CI 0.84, 0.95]). Analyses of the five major antihypertensive drug classes revealed that compared with placebo, the risk of type 2 diabetes was reduced by ACE inhibitors and ARBs (respective relative risks 0.84 [95% 0.76, 0.93] and 0.84 [0.76, 0.92]), whereas calcium channel blockers had no significant impact (1.02 [0.92, 1.13]) and β -blocker and thiazide diuretic use both increased the risk (1.48 [1.27, 1.72] and 1.20 [1.07, 1.35]).

Comment: This is a very interesting paper. We know how important BP is as a risk factor for CV and microvascular complications of diabetes and this drives targets for lower BP than we might accept in people without diabetes. However, this paper raises the intriguing possibility that BP itself is a risk for diabetes; or is it that specific antihypertensive agents have additional non-BP-related effects on glucose metabolism? The association between β -blockers and thiazide diuretics use and incident type 2 diabetes has been around for a while. However, what is striking from this paper is the contrast with ACE inhibitors and ARBs. Here, the overall finding was a reduction in risk of diabetes with reduction in BP, but in fact this was all driven by ACE inhibitors and ARBs when β -blockers and thiazide diuretics were again shown to increase the risk. This has important implications for hypertension management, particularly in those with prediabetes.

Reference: *Lancet* 2021;398:1803-10

[Abstract](#)



Prevalence of diabetic retinopathy and reduced vision among Indigenous Australians in the nurse-led iDEES study in a regional primary care clinic

Authors: Atkinson-Briggs S et al., on behalf of the Centre of Research Excellence in Diabetic Retinopathy Study Group

Summary: These researchers reported on the prevalence and severity of diabetic retinopathy and presenting vision level for a cohort of 135 Indigenous Australian adults attending an Indigenous primary care clinic; 130 had type 2 diabetes and 132 had gradable retinal images. The respective prevalences of mild nonproliferative, moderate-to-severe and sight-threatening retinopathy were 25%, 2.5% and 1.5%, and a third of the patients had subnormal presenting vision.

Comment: I include this paper to illustrate the value of thinking a bit outside of the traditional model of care. Although conducted in Australia, there are similarities between the rates of diabetes and outcomes between the indigenous populations of both Australia and NZ. This is particularly true when considering accessing care, where we know that there are many factors, both system and individual, that create barriers. Importantly, when these barriers are overcome we have data to confirm that outcomes are as good for Māori as non-Māori. This paper shows that a model that utilises nurse-led community-based outreach clinics with a comprehensive package of care was able to engage indigenous Australians. As we look to reshape our health system, these are the types of initiatives that are likely to be effective in NZ and should be explored and codeveloped with the communities they serve. It is essential that we make sure that such an approach is nationwide and does not further increase inequities by post code or other demographic.

Reference: *Intern Med J*; Published online Nov 15, 2021

[Abstract](#)

RACP MyCPD Program participants can claim **one credit per hour** (maximum of 60 credits per year in Category One – Educational Activities) for reading and evaluating Research Reviews. Please [CLICK HERE](#) to download CPD Information

Impact of color-coded and warning nutrition labelling schemes

Authors: Song J et al.

Summary: This systematic review of 101 RCTs and 55 non-RCTs with a network meta-analysis of data from 134 of the studies found that a traffic light food labelling system, nutrient warnings and health warnings all increased the likelihood that consumers would select more healthy products (respective odds ratios 1.5 [95% CI 1.2, 1.87], 3.61 [2.82, 4.63] and 1.65 [1.32, 2.06]), and Nutri-Scores, nutrient warnings and health warnings also appeared to reduce selection of less healthy products (0.66 [0.53, 0.82], 0.65 [0.54, 0.77] and 0.64 [0.53, 0.76]). Nutri-Scores and nutrient warnings were also associated with increased overall healthfulness, and traffic light labelling, Nutri-Scores and nutrient warnings were associated with reductions in the contents of energy, sodium and overall and saturated fat in purchased products.

Comment: There has been a lot of talk about the need for public health measures to be combined with individual interventions to address the obesity epidemic. Some of these public health measures could include interventions that require legislation, such as sugar taxes or food labelling. It feels like we have been talking about these for 20 years or more and still there is no action. I don't think anyone believes that any one single action will be the magic bullet, but doing nothing certainly won't. This paper highlights the benefit of front-of-label food information to influence consumers. The challenges have always been definition of 'healthy' and the power of the food industry lobby to derail the process of getting agreement on that. However, I include this paper to again raise the issue for discussion and promotion.

Reference: *PLoS Med* 2021;18:e1003765

[Abstract](#)

Glucose Awareness to Motivate and Enable Solutions (GAMES) in diabetes mellitus using flash glucose monitoring

Authors: Yeoh E et al.

Summary: The short and medium-term effects of intermittent flash glucose monitoring on HbA_{1c} level, glycaemic variability and lifestyle changes were reported for 42 patients with type 1 diabetes and 120 with type 2 diabetes participating in a global observational clinical programme, which provided the participants with two first-generation Libre[®] flash glucose monitoring sensors 3–4 months apart. After receiving the first sensor, mean HbA_{1c} level did not change significantly at 3–4 months in the type 1 diabetes group, but there was a significant reduction of 4 mmol/mol in the type 2 diabetes group (p=0.008), even though there were no significant changes in carbohydrate intake and exercise frequency or duration. HbA_{1c} level reductions were greatest in participants with baseline levels >86 mmol/mol (–12 and –11 mmol/mol for the type 1 and type 2 diabetes groups, respectively), and both groups also had improvements in Glucose Management Indicator score and percentage time-above-range when the first and second weeks of use of the same sensor were compared. Glycaemic parameters and certain measures of glycaemic variability were better with higher scan frequencies. While 85% of the participants felt that the device was useful, only 60% indicated a desire to use it for daily monitoring.

Comment: The development of flash-glucose monitoring has provided a continuous glucose monitoring device that becomes more cost accessible for people with diabetes than previous technology. Although not funded (and they should be for some people – just saying), many people with type 1 or type 2 diabetes are paying for them themselves. Primary- and secondary-care services are also using them in a variety of ways to try to improve patient care and outcomes. This paper is a real-world observational study of the impact of intermittent use of a flash monitor on lifestyle behaviours, diet composition and glycaemic control. It shows utility of this for people with type 2 diabetes, particularly those with higher baseline HbA_{1c} levels. It was interesting that the vast majority of people saw benefit, but fewer were keen to use it regularly. These findings are consistent with my anecdotal observations in people with type 2 diabetes.

Reference: *Diabet Med*; Published online Oct 26, 2021

[Abstract](#)



PATIENTS TAKING CONTRAVE ACHIEVED SIGNIFICANT AND SUSTAINED WEIGHT LOSS WHILE ON THERAPY^{~1-4}

[~]At 56 weeks, compared to placebo (–8.1% vs –1.8%, p<0.0001), in patients with obesity or who are overweight with one or more weight related comorbidities,[†] in conjunction with a reduced-calorie diet and increased physical activity. †e.g. type 2 diabetes, dyslipidaemia, controlled hypertension.

References: 1. Contrace Data Sheet. 2. Billes SK et al. *Pharmacol Res* 2014;84:1–11. 3. Greenway FL et al. *Lancet* 2010;376(9741):595–605. 4. Hollander P et al. *Diabetes Care* 2013;36(12):4022–9.

Contrace[®]. Prescription Medicine. For the treatment of obesity to help weight reduction for people with BMI of ≥30kg/m² or people with weight related morbidities BMI of ≥27kg/m². Before prescribing Contrace[®] please review the datasheet for information on dosage, contraindications, precautions, interactions & adverse effects. <https://www.medsafe.govt.nz/profs/Datasheet/c/Contravetab.pdf>. Naltrexone 8mg/Bupropion 90mg per tablet.

© 2021 iNova Pharmaceuticals (Australia) Pty Limited. Level 10, 12 Help Street, Chatswood NSW 2067, Australia. Distributed in New Zealand by Radiant Health Ltd, c/- Supply Chain Solutions, 74 Westney Road, Airport Oaks, Auckland. Toll-free 0508 375 394. NZ-2021-04-0002. TAPS NA 12971. April 2021.

For more information, please go to www.medsafe.govt.nz

trulicity®
dulaglutide once-weekly injection



**New Zealand's only funded
GLP-1 RA is now available for
adults with type 2 diabetes.*¹⁻³**

*Special Authority Criteria Apply.²

**PLEASE REVIEW FULL DATA SHEET BEFORE PRESCRIBING.
FULL DATA SHEET CAN BE ACCESSED AT WWW.MEDSAFE.GOV.NZ
OR ON REQUEST BY CALLING 0800 500 056.**

TRULICITY® (dulaglutide 1.5mg/0.5mL solution for injection, pre-filled pen [autoinjector]). **PRESCRIPTION MEDICINE. TRULICITY is funded under the New Zealand Pharmaceutical Schedule from 1 September 2021. Special Authority Criteria apply. INDICATIONS** – TRULICITY is indicated for adult patients with Type 2 diabetes as 1) an adjunct to diet and exercise to improve glycaemic control; and 2) as an adjunct to standard of care therapy to reduce the risk of major adverse cardiovascular events in those with either established cardiovascular disease or multiple risk factors for cardiovascular disease. **CONTRAINDICATIONS** – Hypersensitivity to dulaglutide or any of the excipients. **PRECAUTIONS** – should not be used in patients with Type 1 diabetes mellitus or for the treatment of diabetic ketoacidosis; severe gastrointestinal disease – not recommended; acute pancreatitis – discontinue treatment if suspected; hypoglycaemia – combining treatment with sulfonylurea or insulin may increase risk; congestive heart failure – limited therapeutic experience; Use in Pregnancy Category B3. **ADVERSE EFFECTS Clinical Trials Experience** – Very Common ($\geq 10\%$) gastrointestinal disorders (nausea, vomiting and diarrhoea), hypoglycaemia (in combination with insulin non-/secretagogues and/or insulin); Common (≥ 1 and $< 10\%$) abdominal pain, decreased appetite, dyspepsia, fatigue, hypoglycaemia (as monotherapy), immunogenicity, atrial fibrillation. **DOSAGE AND ADMINISTRATION** – **Dosage:** Adults (≥ 18 years): 1.5 mg once weekly, at any time of day, independently of meals. Elderly Patients (≥ 65 years): dose adjustment not required. Children and adolescents (< 18 years): safety and effectiveness have not been established. Renal Impairment: no dose adjustment is required in mild, moderate or severe renal impairment; not recommended in end-stage renal disease. Hepatic Impairment: no dose adjustment required. **Administration:** subcutaneous injection in the abdomen, thigh or upper arm. Should not be administered intravenously or intramuscularly. Single-use in one patient only. Discard the pen once the injection is completed. Please review full Data Sheet before prescribing. Full Data Sheet is available on request from Eli Lilly. Eli Lilly and Company (NZ) Limited, PO Box 109 197, Newmarket, Auckland 1149. Phone 0800 500 056. Based on Data Sheet approved 12 August 2021.

Abbreviation: GLP-1 RA, Glucagon-like peptide-1 receptor agonist.

References: 1. Trulicity Data Sheet August 2021. 2. Pharmaceutical Schedule. Available at: <https://schedule.pharmac.govt.nz/ScheduleOnline.php>. Last Accessed September 2021. 3. Trulicity Product Detail. Medsafe. Available at: <https://www.medsafe.govt.nz/regulatory/ProductDetail.asp?ID=21737>. Last accessed September 2021.

Trulicity® is a registered trademark of Eli Lilly and Company (NZ) Limited, PO Box 109 197 Newmarket, Auckland 1149, New Zealand. NZBN 9429039560643. Telephone 0800 500 056. PP-DG-NZ-0039. TAPS BG1593. ELI4479 Date of preparation: September 2021.

Lilly

For more information, please go to www.medsafe.govt.nz

www.researchreview.co.nz

Effect of dapagliflozin on the rate of decline in kidney function in patients with chronic kidney disease with and without type 2 diabetes

Authors: Heerspink HJL et al., for the DAPA-CKD Trial Committees and Investigators

Summary: The DAPA-CKD trial investigated the long-term efficacy and safety of the SGLT-2 inhibitor dapagliflozin in patients with CKD, with or without type 2 diabetes. This secondary analysis of the trial investigated the effect of dapagliflozin on the rate of decline in kidney function in patients with CKD. It found that the effect of dapagliflozin on estimated GFR slope was more pronounced in those with diabetes (difference versus placebo, 1.18 mL/min/1.73m² per year [95% CI 0.79, 1.56]) than those without diabetes (0.46 mL/min/1.73m² per year [-0.10, 1.03]; p=0.04 for interaction). It also showed that the moderating effect of dapagliflozin on estimated GFR slope was positively correlated with baseline HbA_{1c} level and urinary albumin-to-creatinine ratio.

Reference: *Lancet Diabetes Endocrinol* 2021;9:743–54

[Abstract](#)

Effect of dapagliflozin on urinary albumin excretion in patients with chronic kidney disease with and without type 2 diabetes

Authors: Jongs N et al., for the DAPA-CKD Trial Committees and Investigators

Summary: This secondary analysis of the DAPA-CKD trial assessed the effects of dapagliflozin on albuminuria in patients with CKD with and without type 2 diabetes. Relative to placebo, treatment with dapagliflozin resulted in a geometric mean percentage change in urinary albumin-to-creatinine ratio during follow-up of -35.1 percentage points in patients with type 2 diabetes and -14.8 percentage points in patients without type 2 diabetes (p<0.0001 for interaction). Larger reductions in urinary albumin-to-creatinine ratio at day 14 with dapagliflozin were significantly associated with attenuated estimated GFR decline during subsequent follow-up.

Reference: *Lancet Diabetes Endocrinol* 2021;9:755–66

[Abstract](#)

Comment: We are continuing to learn more about the role of the SGLT-2 inhibitors, particularly the impact on cardiorenal disease. Many studies have now been published to demonstrate the effectiveness of this class of drug on reduction in HbA_{1c} level, and in patients with established CV disease, a reduction in events and mortality, and dramatic benefits in heart failure particularly. Furthermore, in those with established diabetic nephropathy, SGLT-2 inhibitors have been shown to reduce albuminuria, progression to end-stage renal disease and need for dialysis. These studies have been very consistent across the various agents within this class, and underpin the place of SGLT-2 inhibitors as second-line agents after metformin in the management of type 2 diabetes for those with established, or high risk of CV disease or nephropathy. What is now beginning to emerge is that these cardiorenal benefits may be in part independent of the effects on glycaemic control. That raises the question whether they could be used in people with CV disease or renal disease who do not have type 2 diabetes. Evidence for this is accumulating for CV disease, especially for heart failure. The study reported in these two separate papers is of the effect of dapagliflozin on renal outcomes in those with and those without type 2 diabetes who have established CKD, including some degree of albuminuria. There was a clear overall benefit in all renal parameters. This benefit was greatest in those with type 2 diabetes, but the significant improvements in those without diabetes strongly support a nonglycaemic mechanism being involved. It is likely that over time we will see a broader use of SGLT-2 inhibitors than just limited to type 2 diabetes, which we have now.

New Zealand Research Review subscribers can claim CPD/CME points for time spent reading our reviews from a wide range of local medical and nursing colleges. Find out more on our [CPD page](#).



This Research Review has been endorsed by The Royal New Zealand College of General Practitioners (RNZCGP) and has been approved for up to 1 CME credit for the General Practice Educational Programme (GPEP) and Continuing Professional Development (CPD) purposes. You can record your CME credits in your [RNZCGP Dashboard](#)



Time spent reading this publication has been approved for CNE by The College of Nurses Aotearoa (NZ) for RNs and NPs. For more information on how to claim CNE hours please [CLICK HERE](#).

Association of dietary intake, physical activity, and sedentary behaviours with overweight and obesity among 282,213 adolescents in 89 low and middle income to high-income countries

Authors: Mahumud RA et al.

Summary: The prevalences of overweight and obesity and associated lifestyle risk factors were reported for 282,213 school-going adolescents from low- to middle- and high-income countries in this research. Overall, the respective prevalences of overweight and obesity were 10.12%, and 4.96%, with the prevalence of overweight ranging from 2.40% in Sri Lanka to 29.08% in Niue, and obesity ranging from 0.40% in Sri Lanka to 34.66% in the Cook Islands. Overweight and obesity were significantly associated with fast-food intake (respective adjusted relative risk ratios 1.09 [95% CI 1.05, 1.12] and 1.32 [1.26, 1.38]), high carbonated soft drink consumption (1.19 [1.12, 1.24] and 1.28 [1.18, 1.38]), low physical activity level (1.11 [1.06, 1.17] and 1.20 [1.12, 1.28]) and high sedentary behaviour level (1.33 [1.27, 1.39] and 1.73 [1.63, 1.84]). Vegetable consumption ≥ 2 times per day versus no regular daily consumption was associated with 22% and 17% lower risks of overweight and obesity, respectively.

Comment: It has been well reported how rates of obesity are increasing worldwide, as have the well-established causal relationships between obesity and a range of comorbid disease. What has also been recognised is the concerning trend of increasing prevalence of obesity in adolescents and young adults. This left shift in population rates of obesity creates major public health challenges as we try to reduce the rates of diabetes and CV disease. This paper reports on the rates of overweight and obesity in adolescents across a range of countries with varying economic statuses. What struck me was the very wide range observed, particularly for obesity where it is as low as 0.4% in Sri Lanka but as high as 35% in the Cook Islands. It is notable that people from both of these countries have much higher rates of type 2 diabetes than Caucasians, indicating that whilst obesity is important, there are other factors at play.

Reference: *Int J Obes* 2021;45:2404–18
[Abstract](#)

Independent commentary by Professor Jeremy Krebs MBChB, FRACP, MD

Professor Krebs is an Endocrinologist with a particular interest in obesity and diabetes. He trained in Endocrinology at Wellington Hospital in New Zealand and then did his doctorate with the Medical Research Council - Human Nutrition Research unit in Cambridge England. He is a Professor with the University of Otago, and former Director of the Clinical Research Diploma at Victoria University - which he established. **FOR FULL BIO [CLICK HERE](#).**



At all stages of your medical career, the NZMA is your voice, advocating on the issues that affect you, your colleagues and the health of all New Zealanders. A strong membership means we can do more.

Join us today.
www.nzma.org.nz
or scan the code above



The effects of COVID-19 on self-management behaviours and service experiences in type 2 diabetes mellitus

Authors: Quirke-McFarlane S et al.

Summary: The impact COVID-19 had on adults with type 2 diabetes self-management behaviours and service experiences in the UK was evaluated with an 18-item cross-sectional survey. Of 150 respondents, 30% reported that they had changed their diabetes medication taking behaviour since the pandemic began, for a number of reasons. They also reported negative changes in physical activity levels and dietary behaviours. A high level of satisfaction was reported for telephone consultations, but a clear preference for face-to-face consultations was expressed.

Comment: COVID-19 is having dramatic effects on our health system in so many ways. Quite apart from the direct impact of those infected with COVID, there are the effects of disrupted services and changes in healthcare delivery. Furthermore, where there have been extended periods of lockdown and restrictions in access to sport and leisure facilities, there are the additional effects on lifestyle behaviours that further impact on disease risk factors or management. This survey from London highlights these issues. Although the response rate was rather low, it is probable that this would provide a more favourable impression, as nonresponders could be expected to have worse patterns. I was also struck by the preferences expressed for face-to-face consultations over virtual ones, which is what I have also observed here. Whilst it seems like a good idea and can be effective to use telephone or Zoom, many/most patients, and I suspect clinicians, prefer to be in person.

Reference: *Pract Diabetes* 2021;38:15–9b
[Abstract](#)

Real-world screening for diabetes in early pregnancy: improved screening uptake using universal glycated haemoglobin

Authors: Jamieson EL et al.

Summary: Early and routine OGTTs were compared with early HbA_{1c} level screening tests for diabetes in pregnancy in 600 women (233 Aboriginal) from 27 primary-care sites in rural or remote Western Australia; early HbA_{1c} tests were offered to all women presenting at <20 weeks' gestation, early OGTTs were requested on clinician discretion and routine OGTTs were offered at 24–28 weeks' gestation. The uptake rates for HbA_{1c} tests were 85.7% and 86.4% in Aboriginal and non-Aboriginal women, respectively, whereas completion rates for both early and routine OGTTs were lower in Aboriginal women compared with non-Aboriginal women (38.6% vs. 69.6% and 44.5% vs. 84.7%, respectively [$p < 0.001$ for both]). Aboriginal women who completed both early tests completed their HbA_{1c} test significantly earlier in their pregnancy than their OGTT (9.6 vs. 12.5 weeks' gestation [$p < 0.001$]).

Comment: In Australia, the Aboriginal indigenous population have a significantly higher rate of type 2 diabetes than other Australians. This is highly relevant for screening for diabetes during pregnancy – either undiagnosed type 2 diabetes or gestational diabetes. As in NZ, the standard screening is with an OGTT between 24–28 weeks' gestation; however, there are barriers to doing these and they are frequently not done. An alternative strategy is to screen with an HbA_{1c} level, which is a single test and does not require fasting. This study shows that uptake of HbA_{1c} level screening was better overall compared with OGTT, and especially for Aboriginal women. Similar issues exist in NZ for Māori and Pacific women, and we already have advice to use HbA_{1c} level in early pregnancy here for women at greater risk of diabetes. That approach is supported by these Australian data.

Reference: *Prim Care Diabetes* 2021;15:995–1001
[Abstract](#)

Kindly Supported by

