Dear Committee Members,

RE: INQUIRY INTO THE ROLE OF DIET IN TYPE 2 DIABETES PREVENTION AND MANAGEMENT

I am a Singapore-trained family physician who is practicing as a general practitioner at East Victoria Park for the last four-and-a-half years. Like many GPs I see patients with diabetes almost daily, and I laud your esteemed committee for taking the initiative to conduct this inquiry regarding the role of diet in the prevention and management of type 2 diabetes, that I believe is long overdue.

There are a number of restrictive diets to manage or reverse diabetes. For 7 years I have been using a low-carbohydrate diet to manage and reverse type 2 diabetes in my diabetic patients since I became aware of its use by doctors in Sweden. I have been especially motivated by the success of this diet in the UK, and have been following the works of Dr. David Unwin, a GP who has had a lot success with his patients in Liverpool, in the UK. In fact, due to the lack of resources in Australia, I have had to rely on Dr. Unwin's handouts when informing my diabetic patients to make healthier choices in regard to their diet.

Statistics from the United States show that the ‘Standard of Care’ management strategies achieve a reversal (remission) rate of only 0.14% falling to 0.007% after five years¹.

Similarly in my experience, reversal of type 2 diabetes is a rare occurrence with the current standard of care in Australia. And so it is not odd that it is almost unknown here that type 2 diabetes can be reversed using the low carbohydrate diet.

People with type 2 diabetes that are able to get their HbA1c below 6.0 % without taking any diabetes medication are said to have reversed or resolved their diabetes. This also known as putting diabetes into remission².

With time and dedication, type 2 diabetes can be reversed without taking medication, and the results can be very worthwhile. Critics worry that low-carbohydrate diets are too difficult. But studies show that 83 percent of patients stayed with it³.
Here are my further thoughts with regard to your committee’s inquiry organised under its terms of reference:

a. The cost of type 2 diabetes to the community

According to the Department of Health, in Western Australia alone, there are more than 112,000 people now diagnosed with diabetes. And for every person diagnosed, it is estimated that there is another person who is not diagnosed
d. In addition, the Baker Heart and Diabetes Institute estimates that the total annual cost for Australians with type 2 diabetes is up to $6 billion – this includes healthcare costs, the cost of carers, and Commonwealth government subsidies.

The average annual healthcare cost per person with diabetes is $4,025 if there are no associated complications. However this can rise to as much as $9,645 in people with both microvascular and macrovascular complications such as chronic kidney disease, diabetic foot disease, diabetic eye disease, gum disease and erectile dysfunction.

It is imperative that people with type 2 diabetes have their blood sugar levels well controlled, and preferably as normal as possible, to prevent complications and to keep them out of the hospital. Our hospitals are an important but costly resource that should not be used where prevention can be facilitated earlier by our medical system.

With appropriate use of the low-carbohydrate diet, type 2 diabetes can be reversed without the need for medication. This will increase both savings for patient and the government.

b. The adequacy of prevention and intervention programs

In my opinion, there are inadequate prevention and intervention programs in WA. Many reputable resources such as Diabetes WA, Department of Health websites, and Dietitians Association of Australia (DAA) are still advocating outdated low-fat, high-grains, high-carbohydrate diets.

In fact, the DAA website advises the consumption of whole grains such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley to manage one’s weight (see appendix 1). Consumption of these foods are some of the reasons why people put on excessive weight, which then increases one’s risk of type 2 diabetes.

While many people are surprised by their diagnosis of diabetes, it should not be the case as we can see the progression to diabetes that results from poor metabolic health.

The lead up to diabetes often includes obesity, insulin resistance and non-alcoholic fatty liver disease (NAFLD or fatty liver) years before a diagnosis of diabetes is made.

In my clinical experience, these conditions are related and, are also ameliorated by a low carbohydrate diet. It is reasonable that a diet that reverses type 2 diabetes, also reverses the conditions that lead up to it.
Intervention programs are not any better than the dietary advice given to prevent it. In fact intervention advice is often based on the same Australian Dietary Guidelines which the NHMRC states are not to be relied upon for Australians with a medical condition. Type 2 diabetics are advised to consume low-fat, high-carbohydrate meals to ‘feed’ their glucose-lowering medications in order to prevent hypoglycaemia. This is why I have taken it upon myself to treat these diabetics without any help from the above-mentioned resources.

The Royal College of General Practitioners in the UK has already introduced an e-learning module to train GPs on how to offer a low carbohydrate diet to their diabetic patients. GPs here do not have access to a similar Australian resource.

c. The use of restrictive diets to eliminate the need for type 2 diabetes medication

I have had great success using the low-carbohydrate, high healthy-fat diets in reducing the dependence of my diabetic patients on expensive medication.

My diabetic patients are extremely happy with this approach as they save money and suffer no adverse effects from diabetic medication.

Contrary to popular belief, this diet is sustainable.

In fact, I have a patient who used take 80 units of insulin daily. He was not aware of the excessive amount of hidden sugar that he was consuming. I introduced him to the low-carbohydrate diet and today, he is no longer on insulin or any diabetes medication. He achieved this by just restricting his intake of carbohydrates. He always says to me that if he only knew many years earlier that diabetes could have be reversed, he could have saved a lot of money.

On another note, I find this method more successful than any other method as it is easy to put into practice and adhere to. People want to be empowered with this knowledge. They want to be in control of how they manage their diabetes.

d. Regulatory measures to encourage healthy eating

The current Australian Dietary Guidelines are out of date. The general one-size-fits-all advice of the low-fat, high-carbohydrate diet does absolutely nothing to prevent diabetes or treat diabetes (see appendix 2). Diabetics are still being advised to have breakfast cereals and whole grain bread for breakfast. Using Dr. Unwin’s handout (see appendix 3), members of your committee will be surprised to discover how much sugar these foods contain.

Alarmingly, Diabetes Matters, the magazine published by Diabetes WA even has a recipe that has almost 6 teaspoons of sugar per serving (see appendix 4).

e. Social and cultural factors affecting healthy eating

Many people are not aware of the amount of sugar they consume. The ‘Low GI’ logo and the ‘Health Star Rating’ system are very misleading for the consumer.
In addition, how are Australians expected to control or prevent diabetes when a breakfast cereal that has 7 teaspoons of sugar per serving is rated 4 stars by the Health Star Rating system (see appendix 5)?

One serving of brown rice (70g) that has been deemed as ‘low GI’ has an effect on the blood sugar levels that is equivalent to 10 teaspoons of sugar! (see appendix 6)

We could lower everyone’s risk of diabetes if only we encouraged people to eat more real, unprocessed, low-carbohydrate foods such as meats, seafood, nuts, leafy vegetables and berries. The consumption of healthy fats such as olive oil, avocados and salmon are equally important.

f. Behavioural aspects of healthy eating and effective diabetes self-management

Unfortunately, people with type 2 diabetes lack the knowledge of the important role of diet in managing their condition. They have been led to believe that being diagnosed with type 2 diabetes means a lifetime of medication and inevitable complications. This a gloomy scenario that makes people adopt a defeatist attitude when dealing with diabetes.

I sincerely believe that the key to preventing, treating, and subsequently reversing diabetes is the knowledge that food is thy medicine.

Type 2 diabetics need to know that it is not just sugar that is detrimental to their health. They need to also understand the effects of refined carbohydrates and apparently ‘good’ carbohydrates (i.e. grains and fruit like banana) on their blood sugar levels. A typical breakfast for most diabetics consists of 4 Weetabix biscuits, and a banana with low fat milk. This meal alone contains almost 17 teaspoons of sugar!

In summary, diabetes can be managed via expensive medication, invasive bariatric surgery and dietary means via a low-carbohydrate diet.

We have to accept the fact that many people want to effectively manage their type 2 diabetes without the use of medication. Unfortunately, they lack the knowledge to do so. Many diabetics in Australia are depending on low-carbohydrate advice from doctors overseas, via the Internet.

They feel vindicated when a GP like myself understands what they are doing and help them to achieve their goals. Many patients come to seek my help as their GPs have dismissed the role of low-carbohydrate diets in managing type 2 diabetes. For many GPs, medication is still the way to go as far as treating type 2 diabetes goes.

My patients feel a sense of hope when I tell them that type 2 diabetes is reversible without medication or surgery.

I commend you for taking the steps to hold this inquiry. I ask you to consider timely action to offer better dietary therapy to West Australians than is offered by the status quo. Time is of the essence for people with diabetes because research indicates that the longer a patient has had type 2 diabetes, the worse the likelihood that they will effectively reverse their condition8.
For these reasons the time has come for us to empower Australians with the knowledge that type 2 diabetes can be successfully prevented and reversed by consuming a diet low in all forms of unnecessary carbohydrates.

Dr Sanjeev Balakrishnan, MBBS, M.Med (Family Medicine), FRACGP
Park Medical Group
8 OCTOBER 2018
REFERENCES:

1. Incidence of Remission in Adults With Type 2 Diabetes: The Diabetes & Aging Study
   http://care.diabetesjournals.org/content/early/2014/09/12/dc14-0874


5. Diabetes: the silent pandemic and its impact on Australia


7. RCGP launches GP training on low carb diet for diabetes patients
   http://www.pulsetoday.co.uk/clinical/clinical-specialties/diabetes/rcgp-launches-gp-training-on-low-carb-diet-for-diabetes-patients/20037092.article

8. Remission of Human Type 2 Diabetes Requires Decrease in Liver and Pancreas Fat Content but Is Dependent upon Capacity for β Cell Recovery
   https://www.cell.com/cell-metabolism/fulltext/S1550-4131(18)30446-7
Weight Management

Keeping at your most comfortable weight means focusing on a healthy lifestyle, combining healthy foods with plenty of regular exercise.

The best way to get in all the nutrients you need is to eat a variety of foods from these five groups every day:

- Plenty of vegetables, including different types and colours, and legumes/beans
- Fruit
- Whole grains such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
- Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat
- And drink plenty of water.

And limit foods containing saturated fat, added sugars, added salt and alcohol.

For tailored advice on weight management, based on the most up-to-date evidence, find an Accredited Practising Dietitian near you.
Individual blood glucose targets should be discussed with your diabetes health professional team.

Good diabetes management can help reduce the risk of complications such as:

- Heart disease
- Kidney disease
- Stroke
- Eye problems
- Foot problems
- Circulation problems.

Diabetes and Diet

It is important that any dietary advice is tailored to your individual needs. An Accredited Practising Dietitian (APD) will consider personal health and lifestyle influences and help to separate the facts from the myths surrounding diet and diabetes.

Some common dietary myths that are not correct include:

- People with diabetes should eliminate all food containing carbohydrate
- People with diabetes need to avoid all sugar completely
- People with diabetes need to eat mostly foods high in protein and fat.

However, evidence shows that people living with diabetes may need to modify the following:

Dietary Fat

Both the type, and amount of fat that we eat is important. Foods containing unsaturated fats are a healthier choice than foods high in saturated fats. It may be important to reduce the amount of foods containing saturated fats in your diet and replace with sources of unsaturated fats.

Fibre

It may be helpful to increase the amount of fibre eaten each day. Fibre can make meals more filling and evidence suggests that soluble fibre (found in foods such as beans, fruit and oats) may help to control blood glucose levels. Try to choose high fibre breads and cereals, fruit and vegetables each day.

Carbohydrate

Foods containing carbohydrate include bread, rice, pasta, noodles, breakfast cereal, potato, corn,
<table>
<thead>
<tr>
<th>Food Item</th>
<th>Glycaemic Index</th>
<th>Serving Size</th>
<th>How does each food item affect blood glucose compared with one 4g teaspoon of table sugar?</th>
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<tr>
<td>Basmoti Rice</td>
<td>69</td>
<td>150g</td>
<td>10.1</td>
</tr>
<tr>
<td>White potato (Boiled)</td>
<td>96</td>
<td>150g</td>
<td>9.1</td>
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<tr>
<td>Pure Apple Juice</td>
<td>41</td>
<td>200ml</td>
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<tr>
<td>Cornflakes</td>
<td>93</td>
<td>30g</td>
<td>8.4</td>
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<tr>
<td>French Fries (Baked)</td>
<td>64</td>
<td>150g</td>
<td>7.5</td>
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<tr>
<td>Coco pops</td>
<td>77</td>
<td>30g</td>
<td>7.3</td>
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<tr>
<td>Spaghetti (White Boiled)</td>
<td>39</td>
<td>180g</td>
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<tr>
<td>Banana</td>
<td>62</td>
<td>120g</td>
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<tr>
<td>Wholegrain Barley Bread</td>
<td>85</td>
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<td>Bran Flakes</td>
<td>74</td>
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<tr>
<td>Sweetcorn (Boiled)</td>
<td>60</td>
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<tr>
<td>White Bread</td>
<td>71</td>
<td>30g</td>
<td>3.7</td>
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<tr>
<td>Wholemeal (Small Slice)</td>
<td>74</td>
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<tr>
<td>Broccoli</td>
<td>54</td>
<td>80g</td>
<td>0.2</td>
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<td>Eggs</td>
<td>0</td>
<td>60g</td>
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LEMON BERRY PUDDING CAKE

Lemon Berry Pudding Cake
Prep: 20 mins  Cook: 3 hours  Serves: 6 (as an occasional dessert)

Ingredients
125g punnet blueberries and/or raspberries
110g (¼ cup) sugar, plus extra 1 tbsp
40g (¼ cup) plain flour
Zest of 1 lemon
60g light margarine
3 x 60g eggs, at room temperature, separated
250ml (1 cup) skim milk
3 tbsp fresh lemon juice

Method
1. Spray a small slow cooker with cooking spray. Sprinkle berries over base of slow cooker and sprinkle with 1 tbsp sugar.
2. Combine ¾ cup sugar, the flour and lemon zest in a medium bowl. Add margarine and egg yolks. Beat on low speed to combine. Add milk and lemon juice. Beat until well combined.
3. Wash and dry beaters. Using electric beaters whisk egg whites in a medium bowl until soft peaks form. Fold egg whites into batter until combined.
4. Carefully pour batter over the berries in the cooker, spreading out evenly. Cover and cook on high-heat setting for 2½-3 hours or until cooked. Set aside for 10 minutes before serving.

Nutrition Information per serve

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<tbody>
<tr>
<td>Energy</td>
<td>864kJ</td>
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<tr>
<td>Protein</td>
<td>6g</td>
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<td>Fat, total</td>
<td>7g</td>
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<td>– saturated</td>
<td>2g</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>30g</td>
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<tr>
<td>Sodium</td>
<td>103 mg</td>
</tr>
<tr>
<td>Fibre</td>
<td>1g</td>
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• Carb exchanges 2
• GI estimate medium
# NUTRITION INFORMATION

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Average Quantity per Serving</th>
<th>% Daily Intake*</th>
<th>Average Quantity per 100 g</th>
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<tbody>
<tr>
<td>Energy</td>
<td>1040 kJ (249 kcal)</td>
<td>12%</td>
<td>1490 kJ (356 kcal)</td>
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<td>Protein, total</td>
<td>5.7 g</td>
<td>11%</td>
<td>8.1 g</td>
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<tr>
<td>- gluten</td>
<td>0 mg</td>
<td></td>
<td>0 mg</td>
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<tr>
<td>Fat, total</td>
<td>2.1 g</td>
<td>3%</td>
<td>3.0 g</td>
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<td>- saturated</td>
<td>LESS THAN 1 g</td>
<td>2%</td>
<td>LESS THAN 1 g</td>
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<tr>
<td>- trans</td>
<td>0 g</td>
<td></td>
<td>0 g</td>
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<tr>
<td>- polyunsaturated</td>
<td>LESS THAN 1 g</td>
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<td>1.2 g</td>
</tr>
<tr>
<td>- monounsaturated</td>
<td>LESS THAN 1 g</td>
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<td>1.2 g</td>
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<tr>
<td>Carbohydrate</td>
<td>50.1 g</td>
<td>16%</td>
<td>71.6 g</td>
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<td>- sugars</td>
<td>LESS THAN 1 g</td>
<td>0.5%</td>
<td>LESS THAN 1 g</td>
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<td>Dietary fibre</td>
<td>2.4 g</td>
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<td>3.4 g</td>
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<td>Sodium</td>
<td>LESS THAN 5 mg</td>
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<tr>
<td>Potassium</td>
<td>160 mg</td>
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<tr>
<td>Thiamin</td>
<td>0.27 mg</td>
<td>(25% RDI^)</td>
<td>0.38 mg</td>
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<tr>
<td>Niacin</td>
<td>3.4 mg</td>
<td>(34% RDI^)</td>
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<tr>
<td>Magnesium</td>
<td>77 mg</td>
<td>(24% RDI^)</td>
<td>110 mg</td>
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^ Recommended Dietary Intake

* Percentage daily intakes are based on an average adult diet of 8700 kJ

Average GI = 54 when cooked