EDUCATION AND HEALTH STANDING COMMITTEE

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

TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
WEDNESDAY, 12 SEPTEMBER 2018

Members

Ms J.M. Freeman (Chair)
Mr W.R. Marmion (Deputy Chair)
Ms J. Farrer
Mr R.S. Love
Ms S.E. Winton

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Hearing commenced at 10.34 am

Professor TIMOTHY DAVIS
Co-Lead, Diabetes and Endocrine Health Network, Department of Health, examined:

Mr MARK SHAH
Co-Lead, Diabetes and Endocrine Health Network, Department of Health examined:

The CHAIR: On behalf of the committee, I would like to thank you for agreeing to appear today to provide evidence in relation to the committee's inquiry into the role of diet in type 2 diabetes prevention management. My name is Janine Freeman; I am the Chair of the Education and Health Standing Committee. This is Bill Marmion, who you have met; Josie Farrer; Shane Love; and Sabine Winton. It is important that you understand that any deliberate misleading of this committee may be regarded as contempt of Parliament. Your evidence is protected by parliamentary privilege. However, this privilege does not apply to anything you might say outside of today's proceedings. That is usually when the issues are very controversial.

Before we begin, do you have any questions of us about your attendance today or anything else? Would you like to make any opening statement or should we just go straight into questions? If you have got an opening statement, you are more than welcome to make it.

Prof. DAVIS: Can I ask the reason for the inquiry? Is that reasonable?

The CHAIR: Yes, you can.

Mr W.R. MARMION: A very good question!

The CHAIR: I went to the preventive health seminar, conference, summit, for the day and did not get an opportunity to hear Jane Martin because I had something else on and so she came here and presented to us here about sugar and all the issues around sugar. But that is such a broad, entirely big subject. We were interested in looking at the issues around some of the major health issues that lead to chronic health issues later on in life. Then we had Michael Mosley come and give evidence to us, and that was very enlightening. One of the questions we asked him, as a committee, was if there was something that we could inquire into, what would he suggest, and he said, "Look, you really should have a look at diet and diabetes." That seemed like an appropriate thing to be looking at. As you can see, we are looking at it specifically; we are trying to keep to that area. From the point of view of Josie Farrer, who is the member for Kimberley, we are quite interested in looking at it also from the perspective of how we can give some recommendations to government around diet and diabetes for Aboriginal communities. Does that answer your question?

Prof. DAVIS: Yes, that is very useful.

The CHAIR: It was really about how big is the question of how we look at chronic health issues and diet in our community. We are not able to do that, so how do we make a reasonable contribution to the debate.

Mr W.R. MARMION: Can I add that we have an opportunity to make recommendations and findings from what we hear and what is presented to us. The government can choose to take them on board or not, but we are in a powerful position to say, "Look, here's some opportunities to improve the system." That is my role; that is what I want to achieve out of this—if we can get some great ideas from people on how we can improve the system so that people can avoid getting to that area of

having diabetes type 2. What can we do? What policies can a government in Western Australia have to improve the system?

The CHAIR: So, lots of reports in the past. I do not know if you know child and parent health centres that are attached to schools now. If you are aware of them, they came out of an education and health committee report.

What about you? What does the Diabetes and Endocrine Health Network do? What is the role and the value of it and can you give some examples of the organisations that are involved in the network to give us a bit of an environmental context?

Mr SHAH: We are both clinical representatives. We try to do our best to link different parts of the health system together, whether it is public health systems or private entities or non-profit agencies, in the area of diabetes and endocrinology. It is not just about diabetes; it is about endocrinology as well, but diabetes makes up the vast majority of the issues about diabetes and endocrinology. In the past, we looked at the services that have been provided to the community and we developed a model of care almost near the beginning when the health network was established. At the time, that was the way that the department would look at health issues to try to put in a model of care on how it would apply best to the community. Since that model of care, the standards were developed, with Tim leading that development, to try and have more of a strategic way to look at diabetes in the community both from a prevention point of view through to various stages at which diabetes can affect a person, whether it is complex diabetes or more complex or serious—that sort of level—and how it affects children and also how it affects women who are pregnant. That is one of the major works that was done in the past.

The CHAIR: That is "The Western Australia Framework for Action on Diabetes and Diabetes Service Standards 2014".

Mr SHAH: Yes.

Prof. DAVIS: Maybe I can give some context because I have been longer in the job than Mark. When I came on board about five or six years ago, the first thing we did was a review of diabetes care in the state. That was commissioned through, I think, KPMG, and that laid the groundwork for us to develop what Mark has drawn attention to, and that is the standards of care, so that if you have diabetes in this state, what reasonably should you expect in terms of access to services, regularity of screening for complications and that sort of thing. They were approved by the minister a few years ago. The next step in that process was then to get some key performance indicators that could be used to assess services as to whether they were delivering those standards of care. We have got a bit stuck with those at the moment because they are difficult to put in place. That is the logical progression. I know that the national diabetes strategy really wants to do something similar and that is just getting going. I am going to a meeting in Canberra next month where the protagonists of that want to progress things at a federal level, and, obviously, what we do in this state would ideally interdigitate with what is done by the commonwealth. The other things that we have done since I have been there—the latest initiative is an obesity collaborative, because obviously obesity underlies not only types of diabetes, but a lot of other chronic conditions that impact adversely on people's lives, quality and duration of their lives. That is in an early stage, but we are having a meeting next month that the Minister for Health is opening, I believe, where we are trying to get ideas as to what we can do. Some of those might relate to what this committee is looking at, which is, perhaps, diet and dietary interventions. We cannot do everything as a network so we have to be selective in the sort of initiatives that we progress. We think about what we can do for the limited resources we have and that will have the most impact translationally, which is why we have selected things like the standard of care, key performance indicators. Obesity is the elephant in the room in

terms of a lot of chronic disease. There is no national strategy. We have no uniform approach to diet; we have no uniform approach to surgery. I sit—I do not know if this is relevant—on the Medical Services Advisory Committee in the federal Department of Health and we have an interest in how people are accessing bariatric surgery items, which are not well accessed in the public system. I think what we see with this obesity collaborative is we want to do a couple of things that have impacts on people in Western Australia, which, hopefully, would fit in with a national obesity plan. But I do not see any evidence of a national obesity initiative being developed in the near future, so I think that is one of the reasons why this obesity collaborative has had priority.

The CHAIR: Just taking you back, what is the length of time that you have been on the network?

Prof. DAVIS: About five or six years.

The CHAIR: In terms of the programs and strategies that are in place in terms of the standards in 2014, do those standards get reviewed or are they static and then you are moving onto the KPI aspect of the standards in terms of those?

Prof. DAVIS: We have not reviewed the standards. The standards were evidence-based as much as they could be. Most of them would still be contemporary. As I say, the whole idea was to use them to generate selective KPIs that could be used to benchmark services. But also for consumers so that consumers could use the standards to see what they are entitled to and what they need in terms of their diabetes care. As I said, Mark has got more to do with the KPI development than me so he is probably the best to comment.

The CHAIR: Just before we do, my understanding is that when you talk about consumers and finding out what they can have an expectation of is that there is quite a long waiting list for diabetes patients in terms of being able to access services. Is there a bottleneck because people do not know what they can access? Is there a way to be more patient-focused in how they access and do the standards help in that patient focus? Do patients have control over it through the standards or do the practitioners have control over it?

Prof. DAVIS: The patients do not. But another initiative at the network was something called the diabetes complex care collaborative, which is literally just finished. My department and university is actually doing a report right now that should be available in the next few weeks. This was an initiative based on a Queensland model where an endocrinologist has put in a primary care practice with GPs who are upskilled in dealing with the complex patients that would normally be referred to a hospital outpatient clinic and are managed close to home with the GP primarily involved and the endocrinologist being around to be onsite and to direct management. That program has been very successful. All the KPIs in that program, such as glucose control, blood pressure and cholesterol levels have all improved significantly. My wife is a health economist and has done the health economic analysis and it is cost saving.

The CHAIR: Is that in the document that is coming out?

Prof. DAVIS: It is. It is all in there. It was done in the south metro region. South metro health have decided not to continue it but we will still deliver the document to them. One of our plans is perhaps to present the findings to the south metro board so they are aware of this health department initiative done in their region that has delivered what we think to be quite useful results. One of the tangible outcomes is that waiting lists for outpatient clinics have fallen quite significantly.

The CHAIR: In south metro?

Prof. DAVIS: Yes.

The CHAIR: One of the comments that was made to us by Michael Mosley—I get that he has a bit of a controversial status in the medical environment—was that when you see your GP, your primary provider, they do not have that level of training and capacity around diet and diabetes. Was that part of the project that you are talking about that you are releasing, if you put an endocrinologist into a practice and you are working in that local area that that gives that greater understanding of diet and treatment for diabetes?

Prof. DAVIS: Partly, because part of the delivery was having a diabetes nurse educator collocated, and that was mainly so that things such as the initiation of insulin were quicker and more convenient for the patient, but also so that the educator could deal with the broader issues to do with diabetes. A lot of educators have quite significant dietary knowledge but they are not dieticians. There was not a specific diet component to that program. It was really just to see whether, as was successfully demonstrated in Brisbane in a low socioeconomic area in Inala in the suburbs of Brisbane where they had huge waiting lists at the PA hospital and the hospital invested in this program and were able to reduce their waiting list and improve outcomes for people with care delivered more appropriately near their homes. We were trying to reproduce that but in a Western Australian context because they are not quite the same.

[10.50 am]

The CHAIR: In terms of diabetes nurse practitioners—is that the right terminology?

Mr SHAH: Nurse practitioners. Tim was referring to diabetes educators.

The CHAIR: Sorry, diabetes educators. The diabetes educators can assist with what level of insulin and stuff but they cannot prescribe the insulin, can they?

Prof. DAVIS: Nurse practitioners can.

The CHAIR: Nurse practitioners can but diabetes educators cannot prescribe the insulin. The doctor will prescribe the insulin but the diabetes educator might know what level is necessary.

Prof. DAVIS: I have literally just come from my private practice this morning and I initiated somebody on insulin.

The CHAIR: Okay. That is good. Can you tell us about that because none of us have diabetes so none of us know?

Prof. DAVIS: Okay. The patient is a young man who has had a history of pancreatitis but has a strong family history of type 2 diabetes so he has got two risk factors. He is on three oral medications and he is still not doing well in terms of his blood glucose so he needs insulin and he understands that. So today we made the decision for him to go onto insulin. He will go to Fremantle Hospital, which still has a diabetes education unit, and the educator will initiate the dose that I have recommended on my referral. Hopefully, he will be seen promptly in the next few weeks because his sugars are quite high. She will adjust the dose according to his response, and if she is worried, she will contact me and say either it is not working or we have gone too far and he has gone low or something. So there will be communication between me as the prescriber and initiator of the insulin and the nurse educator who is doing the day-to-day education and adjustment. I will see the patient again in a few months to see how they are going.

The CHAIR: But a nurse practitioner can prescribe.

Mr SHAH: A nurse practitioner can.

The CHAIR: Mark, did you want to add anything to all of that?

Mr SHAH: I want to add that the other component is the dietary component as well. There probably is less access for people to see the dietician, and often that is generated via a care plan that the GP may have initiated. In that care plan, I am not sure of the exact number of—I think it is five appointments with a diabetes educator or a dietician or a podiatrist, I think it is.

The CHAIR: Under Medicare?

Mr SHAH: Under Medicare; that is right. They may not necessarily get appropriate access to a qualified practising dietician.

Ms S.E. WINTON: How long is the wait time?

Mr SHAH: That I would not know the detail.

Ms S.E. WINTON: If they need to access it, you have no ideas how long they might have to wait to see a dietician?

Mr SHAH: It may depend on their ability to pay because there may be an out-of-pocket cost for that. I am not sure of the Medicare rebate.

Mr W.R. MARMION: Just on this particular example, Tim, this guy is now going onto insulin. Prior to that, were things done, like diet or whatever, to try to get the situation so he did not have to go on insulin?

Prof. DAVIS: Yes, he has already been to the educator. Most public hospital education services—child health is a good example—are multidisciplinary, so there are nurse educators and practitioners, there are dieticians, there are psychologists, there are endocrinologists. The whole idea is that it is a one-stop-shop for trying to sort out people's lifestyle, pharmacotherapy and then any other issues. We even have a social worker attached to our unit in case there are issues to do with access to safety net and that sort of thing. Ideally, public hospital diabetes units should be truly multidisciplinary and deliver a package of care that takes care of everything. I think Mark is absolutely right that in primary care where you have got a GP who is trying to coordinate things, it is much more difficult. There is the care plan, which is five allied health consultations per year, which should be Medicare rebated, but which may, depending on which practitioner you end up going to see, attract a gap payment. A lot of the people with diabetes that I look after use most of those for podiatry because they worry about their feet. Not many of them would use them for dietician access. Often the patients will see the dietician early on in their diagnosis and think that that is it and that they should not go back and revisit it. We can discuss whether that is right or wrong. Dietician involvement is not a regular thing whereas nurse practitioner and diabetic nurse educator involvement is because when people, for example, progress to insulin, the educator or nurse practitioner gets involved and is intimately involved. Young people going onto complex insulin, especially pump therapy, require people like Mark to be intimately involved.

Mr W.R. MARMION: Just on that, in terms of the people you see, have you got examples where people have got on a plan early and it has worked and you have stopped them having to go onto insulin?

Prof. DAVIS: I do private practice as well as hospital practice and in both of those practices I try to get people to go on diets. I agree with Michael Mosley that the five plus two, which he no doubt talked to you about, works, and I note that the National Heart Foundation has incorporated the five plus two as one of the recommended dietary interventions. I think it works so I try to get my patients to do it but it is tough to motivate them. Surgery is always talked about as an option but access to surgery, as I have discussed, is often an issue and the expense is something that a lot of patients cannot face. It is, essentially, a mutilating procedure that has potential lifelong implications.

If people want to lose weight, there is lifestyle. Pharmacotherapy, unfortunately, has been very disappointing and not particularly effective with lots of potential side effects. I do not push therapies for overweight and obesity much in terms of pharmacotherapies. It is really lifestyle and surgery that make a difference.

The CHAIR: On ABC *Quantum* the other day—it seems like everyone is talking about diabetes at the moment—they did work with pre-diabetes and did small lifestyle diet changes with pre-diabetes. It was not two and one or anything like that in looking at that. Once someone is diagnosed with diabetes, the standards kick in and the treatments kick in, but from your knowledge, do we do much around that pre-diabetes, the danger-zone aspect, in primary health?

Mr SHAH: Diabetes WA do a lot of work in that area. They have just recently started a new initiative down in the Bunbury area called Let's Prevent, I think it is called—I am pretty sure that is the name—where they are trying to use a model where there is a level of coaching involved to identify people early, have some education and those sorts of things. In terms of prevention in general practice, it is difficult to know really how much that occurs. Obviously, it is really a conversation between the general practitioner and the person, but in terms of programs, there is the Let's Prevent one. And also there are some other programs, particularly for Aboriginal populations as well, in some of the outer areas. Some of those are focused on diabetes but also can extend to prevention as well. For example, often with types of diabetes, the family member may have diabetes but others in their family are at risk of developing diabetes, so sometimes the education supplied to the person with diabetes is actually applicable to other family members.

Prof. DAVIS: I think most GPs would do screening. They might even apply a risk tool like AUSDRISK, which is a clinical tool which predicts your likelihood of progressing to diabetes. When people hit various ages, maybe 50, a lot of GPs will start to screen for glucose intolerance. There is a bit of evidence out there that in the original AusDiab study they estimated that for every person with known diabetes, there was somebody with unknown diabetes walking around out there in the community. I think the latest data would suggest that is probably down to about a 25 per cent, not a 100 per cent, excess of diabetes undiagnosed. That is mainly because of improved screening in primary care. I think a lot of GPs are aware that if you are overweight, male, got a family history, from minority groups, Indigenous, then that increases your risk of diabetes and you should start screening for the disease before the disease becomes apparent and then recommend, you know—unfortunately, there are no drugs that are registered and approved in this country for treatment of pre-diabetes. There are studies showing that drugs like Metformin work, but that would be an off-label use in this country, so again we are constrained to lifestyle or, if people are really obese, surgery.

[11.00 am]

The CHAIR: Can you tell us about Metformin, which I have never heard of? That has obviously not been approved for use here, but it is approved for use in other countries, is it?

Prof. DAVIS: It is used in other countries, but the problem with pre-diabetes in a place like America is that it is a potentially huge problem. There would be hundreds of millions of people with pre-diabetes and if insurance companies then have to pay—even though Metformin is a relatively cheap drug, if they have to start paying for it, they would balk at that. I think it is partly a health economic issue that if you go looking for disease and then start treating it even with a cheap medication, the costs become quite significant. The argument would be that if you have pre-diabetes, the most effective way of stopping the progression to type 2 diabetes is lifestyle. There have been two comparative trials—two big trials—one in the US and one in Finland, where they have randomised people to intensive lifestyle and Metformin and found that lifestyle is better than

Metformin at preventing progression. Michael Mosley would have said this: you do not have to lose that much weight. Five per cent of your body weight would get —

The CHAIR: ABC *Quantum* said it in fact.

Prof. DAVIS: Yes, I saw the program and I know Sam.

Mr W.R. MARMION: Is it *Catalyst* or *Quantum*?

The CHAIR: *Catalyst*, sorry.

Prof. DAVIS: I saw the program and I know Sam Hocking, who was the endocrinologist on the program. Yes; the good thing about diet and pre-diabetes is that you do not have to lose that much weight to have quite a significant metabolic benefit. Unfortunately, diabetes is a progressive disease and so what you are doing through lifestyle and, indeed, even through bariatric surgery, they talk about remission, but often it is temporary. If you track people who have had their stomachs made into sleeves and they have become non-diabetic, if you track them for the next five, 10, 15 years, their glucose levels start to go up again, and that is because the underlying disease is a slowly progressive disease, unfortunately.

The CHAIR: So the biggest benefit is to prevent the disease in the first instance.

Prof. DAVIS: Yes.

The CHAIR: I assume you do quite a bit of that in Perth Children's Hospital to try and work with preventing the disease, looking at pre-diabetes in children.

Mr SHAH: At PCH, there is a service called healthy weight service and it is for children up to the age of 16 with severe obesity. There is a criteria at which people can refer in—mostly general practitioners or paediatricians will refer—and that is a family-based group program mostly, but individual appointments are available as well, to understand the role of the diet, understand what is in the diet, and the ultimate goal is to maintain weight or lose weight. Sometimes it is very difficult for children because obviously they are growing and so their BMI is the outcome you need to look at. That is a service that is at Perth Children's Hospital. As a result of the screening process that occurs with children, some of them actually get diagnosed with diabetes through the screening process—it is undiagnosed diabetes at that point. One of the problems with that service is that it is really only for families in the metropolitan area, or the metropolitan and maybe the outer metropolitan area, so it does not apply to the whole state, and that is a resourcing issue. So, there is a gap there.

Ms S.E. WINTON: If the children go along to that, what is the kind of service that they get out of that? How often do they present? Do they go back to their GPs?

Mr SHAH: Yes, a good question. it is a multidisciplinary service that includes an endocrinologist, a paediatrician, a dietician, a nurse, a psychologist and social worker, and the children and the parents—both parents ideally; sometimes one, usually the mother—are invited to groups and they have often weekly appointments over a school term.

Mr W.R. MARMION: That would be a barrier, obviously, to roll out throughout the state to have that sort of level of service.

Mr SHAH: Precisely. That is one of the barriers—not the only barrier, but it is one of the barriers. The family is followed up over a period of 12 months. They run the program for a school term and then they get followed up to see the outcomes, and then they ultimately get discharged because it is a program and that is how it works.

Ms S.E. WINTON: Do you have numbers of how many children?

Mr SHAH: Off the top of my head, I do not have numbers, but there is a significant number of referrals that are serviced per year, upwards of 200.

Ms S.E. WINTON: Is there a waiting period for those, if they are referred to that service?

Mr SHAH: I do not believe there is. The children are seen in age groups, so there may be a small waiting period for certain age groups. I do not believe that there is. One of the most important things to point out about that service is that it really is for the very severely obese children. There are other children who are significantly overweight who do not meet the criteria, because otherwise we would be seeing a greater number of children.

Ms S.E. WINTON: Would it be beneficial to see more?

Mr SHAH: I can say to you that a program like that for children who are less obese that is rolled out across the state would be beneficial, perhaps.

The CHAIR: You cannot tell us the numbers now. One assumes that the numbers are tracked. Have we seen an increase in those numbers over the last 10 years?

Mr SHAH: I do not think the service has been running for 10 years. I think it started—actually, it might be close to 10. It had a different name to start with. It would be close to 10.

The CHAIR: It does not take long!

Mr SHAH: That is right. I think the numbers are reasonably consistent. There was an initial upward trend. I think the referrals are probably consistent.

The CHAIR: Okay. You were talking about the different sorts of socioeconomic, Indigenous—"minorities" I think was the word you used when you were talking about those people at risk. Can you just give us a bit of an understanding of the social and cultural factors? One of the terms of reference is looking at the different cultural groups or ethnic groups that are at greater risk of developing diabetes. Are you able to give us some understanding of whether there is an increased prevalence with particular people from CALD backgrounds?

Prof. DAVIS: There is pretty good evidence, obviously, that Indigenous people both in Australia and in other countries have high rates of type 2 diabetes. Perhaps a simplistic explanation is something called the thrifty gene hypothesis, which is when people were hunting and gathering and it was feast and famine, it was a genetic advantage to have genes that stored fat because you could then live off that when times were a bit rough in terms of food supply. Traditionally, Indigenous people have been lean, but have the capacity to store fat when food is around, whether it is Australian Aborigines or Inuits in Canada or whatever. When you put those populations in a sedentary western lifestyle where food is available all the time and they are not exercising as much, then they store fat and it has adverse metabolic consequences. A lot of those thrifty genes may not be in Europid populations, because they have been sort of selected out. Europids do not have the same risk. They still have a risk of type 2 diabetes, but the risk in Indigenous populations tends to be much greater. It is a rather simplistic explanation, but that is the best I can do. It is a complex genetic and environmental interaction.

[11.10 am]

We do know, for example, that migrants have an increased risk of diabetes. If you look at people from southern Europe here in Australia, they have higher rates of diabetes than their counterparts in their countries of origin. There have been some quite interesting studies of, for example, Japanese people migrating to the States. They also have very high rates of type 2 diabetes compared to Indigenous Japanese. Migrants and Indigenous peoples are the main minority groups in our society who are at risk. They are captured in tools like AUSDRISK. Ethnic racial background is a variable that

leads to your individual risk of the chance of developing diabetes in the future, as well as things like your age, family history and things like that. The genetics of type 2 diabetes is really complex. There are various sorts of diabetes. Some of them are single gene and relatively easy to pick up and diagnose with a genetic test. Common type 2 diabetes is, unfortunately, polygenic, so there are about 60 to 100 genes that have been variously associated with type 2 diabetes. Their effect sizes are very small, so you need to have a number of them to get the disease. At the moment, I could do a panel on everyone here and we could look for genes associated with type 2 diabetes, but the predictive value of that expensive genetic test might not be any more than me just asking you what your family history is.

The CHAIR: Or what I eat.

Prof. DAVIS: Yes.

The CHAIR: What I eat would be just as important, wouldn't it?

Mr W.R. MARMION: We hid the sausage rolls!

The CHAIR: We hid the sausage rolls.

Prof. DAVIS: Genetics is an evolving field. In a polygenic disease that presents relatively late in life like diabetes, there has not been much success in using genetic profiling as a prediction tool. You are much better off just using, at the moment, the simple predictors. As I say, the ethnic and racial groups that are at risk are captured in those calculators.

Mr W.R. MARMION: Can I just ask about the south metro program you talked about earlier? It is not being continued.

Prof. DAVIS: No.

Mr W.R. MARMION: I look forward to getting the report if we can get a copy of the report. From what you were saying, it sounds like you have done the health economics around it and it sounds like it is a good program. Can you say why it is not being continued?

Prof. DAVIS: No.

Mr W.R. MARMION: Okay.

The CHAIR: Was that the Fremantle diabetes study? You talked about the Busselton diabetes study, did you not? You talked about a Bunbury one on diabetes.

Mr SHAH: That was pre-diabetes.

The CHAIR: Yes, but is that the same as the Fremantle diabetes study and the Busselton diabetes study, or was that the complex care clinic that you mean?

Prof. DAVIS: That is the DCCC. The Fremantle diabetes study is mine. That has been going for about 25 years.

The CHAIR: Twenty-five years? Tell us about it.

Prof. DAVIS: It was started in 1993. It is a natural history study, so all it does is to follow people and see what happens; it does not intervene. It has had quite a lot of NHMRC funding over the years and it has produced about 150 publications. It basically tracks people and looks at every aspect of diabetes. Unfortunately, diabetes is a truly multisystem disease—there is not a tissue in the body that is not adversely affected by high blood glucose. In a sense, it is a research goldmine, because everything we look at, there are implications for people with diabetes. So skeletal health, lung health, brain health—everything that matters to people as they age is affected. A lot of the research we have done is to look at how diabetes adversely affects people. We have also done some health

economics and published that. One of the issues here is the cost. We have got some cost data. It is probably a little bit dated now. One of the plans for next year is to redo the costing of what type 2 diabetes costs Australia. We look at things like complications, cost and how people are managed. The DCCC was a completely different thing. My department was asked to do the evaluation, so that is what we have done. We are just in the process of finishing it off. That was a network initiative through the health department. We got some funding to employ an endocrinologist and an educator and put them out there to train the local GPs, so they all get a diploma through the University of Queensland in complex diabetes management. They see the patients and manage them, but the endocrinologist then discusses each case. They do not necessarily have to see each patient. Their management is done on site, including things like insulin initiation, which would normally mean the patient had to come into hospital. The patients like it, the GPs like it, the endocrinologist we had liked it, and it has delivered results. There is an alternative model, and that is to put an endocrinologist in a local primary healthcare clinic where he just operates like a normal specialist, without the back-up teams and so on. As far as I am aware, that program has not been evaluated, but that is the model that they have gone with.

The CHAIR: I walk into pharmacies now and every pharmacist says, "Diabetes—come and talk to us about your diet." There has been a lot of publicity around diets. Do you think that there are diets that can reverse diabetes, or do you think there is a capacity? Pre-diabetes obviously is lifestyle, and you try and come out of that pre-diabetes area, but once you have diabetes, is it always medical treatment and pharmacological treatment or is there a way to reverse it?

Prof. DAVIS: I think there was a very interesting study by a guy called Roy Taylor in Newcastle in the UK, where he got people relatively early on in diabetes, so their pancreases were still producing a reasonable amount of insulin, and he put them on very low calorie diets. He showed that what happens after bariatric surgery was reproduced by this very low calorie diet. They rapidly got better glucose control. A lot of them stopped the treatments they were taking and were getting fairly normal blood glucose levels. He did elegant imaging of the abdomen showing that fat disappeared from around the pancreas and around the heart. That is the bad visceral fat, so everything benefited. Most of those patients—they were highly selected; they had to agree to go in it—stayed in it long term and benefited long term. I understand that some of them are starting to need treatment again, even though they have the weight off, because, as I say, there is an underlying chronic progressive nature about this. So diets do work. They are really tough for people. Even a five plus two is. I try to get my patients to do five plus two and I would say the majority of them fail; they cannot stand the hunger on days when they are having less than 500 calories, which is only two days of the week. Those who do it lose weight and improve in terms of their glucose control. Some of them are able to come off treatment. Once people are on insulin it is difficult to get them off, even with surgery. I do not guarantee to the patients I refer for bariatric surgery who are on insulin that they will come off. I will say that they will reduce their dose. An arbitrary figure would be about 50 per cent of them come off insulin. The other 50 per cent do not, because the disease has progressed to the point where, even if you lose a lot of weight, their pancreases just cannot produce the insulin they need to keep the sugar normal. Does that answer your question?

The CHAIR: It does indeed. I understand you are also involved in a UK prospective diabetes study. Is that right?

Prof. DAVIS: I was, yes. That was one of the first randomised trials of how to treat type 2 diabetes. It started when I was a postgraduate student in the late 1970s in the UK. It has sort of finished now, because the interventions are now a bit dated, but it was the first to show that controlling glucose tightly did have useful benefits for people. One of the questions is: Should we bother? Should we get the blood glucose down in people with type 2 diabetes? Does it matter in the long term? Back

in the 70s, that was an unanswered question. But this study showed very definitely that it does matter and that all the trouble we go to to control people's sugar is worthwhile. So it was a landmark study in that sense.

Mr W.R. MARMION: Just while we are in England, are there any people in England that are leading edge in this area that we should see? Our committee is thinking of going to England. If you can recommend anyone, that would be useful to know.

[11.20 am]

Prof. DAVIS: Roy Taylor's group in Newcastle have a useful program. Off the top of my head, I cannot think of any other group. I have done work with the Oxford group, but they do not have a particular interest in diet and obesity. They have lots of other interests, but as far as I am aware, that is not one of their current special interest areas. I can let you know.

The CHAIR: And around Indigenous or other ethnic diabetes studies? Are you aware of people here?

Prof. DAVIS: Obviously not in the UK.

The CHAIR: Yes, not in the UK.

Prof. DAVIS: We have a cohort of Indigenous patients that we follow through the Fremantle study. It is small. There are quite big studies in Darwin. Josie may know about those. My contact there is an endocrinologist called Louise Maple-Brown, who runs some very nice collaborative projects, including one in diabetes in pregnancy in Indigenous women. There is quite a lot of activity up there in the top end on Indigenous. There is also Alex Brown, who is an Indigenous researcher based in Adelaide who does some very useful work in Alice Springs in conjunction with the Baker Heart and Diabetes Institute in Melbourne. So there are a few people around who specialise in diabetes in Indigenous groups in this country.

The CHAIR: And what about specialising in diabetes in culturally and linguistically diverse or ethnic communities?

Prof. DAVIS: Well, there was a study called the Melbourne collaborative study, which was specifically designed to look at how diabetes affected people, because of the high southern European proportion of people living in Victoria, especially in Melbourne. I am not sure if that is still going, but it was the first study to address that. It was not just diabetes; it was all health issues, I think, but a big part was diabetes. I am not sure whether that is still going. The AusDiab people did look at race and ethnicity as one of the things of interest in their cohort as well.

The CHAIR: We are going to wrap up, but just in finishing, is there one thing that you would like to see come out of this committee in terms of a recommendation around what policymakers could do in this space? I notice that we talked about the five allied health referrals. That is obviously federal and that is covered by Medicare.

Prof. DAVIS: Controversially?

The CHAIR: Yes.

Prof. DAVIS: Take on the food industry.

The CHAIR: Okay.

Mr SHAH: A typical area in my work is Aboriginal children, and non-Aboriginal children as well, with type 2 diabetes. A large proportion of those children are Aboriginal. One of the issues that we have is the cost and the availability of nutritious foods for people. These people do not just live in metropolitan Perth. Obviously, they live in outer metro areas and remote areas. I think wherever

people live—it is a general community issue—there is the tendency for disadvantaged people, low-income people, to eat junk food, because essentially it is a lot cheaper.

The CHAIR: So low-cost food.

Mr SHAH: Yes.

Mr R.S. LOVE: Do you have any evidence that there is any difference in the rate of obesity and diabetes between Aboriginal people in the metropolitan area and Aboriginal people in, say, the Kimberley?

Mr SHAH: In children, there is a much higher incidence, a twenty-fold incidence, of type 2 diabetes in Aboriginal children compared to non-Aboriginal children.

Mr R.S. LOVE: Yes, but I am not asking about that; I am asking about Aboriginal people living in the metropolitan area who have access to food. You are basing that on the basis of cost. There is a significant population of Aboriginal people in the metropolitan area. Is there any difference in the obesity rate or diabetes rate between the Kimberley or the Pilbara and the metropolitan area?

Mr SHAH: There is a higher rate of obesity in country and rural areas than the metro area. That is shown; that is known. The important point about the access to and cost of food is not only with regard perhaps to prevention—I am not necessarily saying that this is going to prevent it—but also for choices for people with established diabetes. They will get advice about eating healthily, but they will not have access to those foods, either because of their inability to afford that food or the availability of that food.

Prof. DAVIS: Presumably when you go to the UK you will be looking at the effect of their sugar tax.

The CHAIR: Sugar tax is a federal tax.

Prof. DAVIS: You cannot do these things locally here in WA?

The CHAIR: Certainly Jane Martin made some suggestions about what sort of things we could do around sugar, but we are not looking at that in particular. If we tease that out in the report, we certainly will make those recommendations to government if they are important. You are the first people we have even had a hearing with, so we are embarking on it.

Mr W.R. MARMION: On that point, what about adequate labelling? Because of this committee, every time I go now and buy something, I am trying to find the bloody sugar thing. It is so hard to find. I end up spending half an hour pulling out every iced coffee thing and then you realise they all have so much sugar in them. Then you decide you are not going to drink it. It would be a lot easier if they just had a big sticker like they do with smoking. It would be easier for the consumer.

The CHAIR: So the answer to that is that we will certainly have an eye to it, but it is a federal tax. We can certainly make recommendations to the minister about what position we think the government should take when they are around the table with all of the health ministers. There are a few countries in the world now that have a sugar tax. Are you a supporter of the sugar tax?

Prof. DAVIS: I am a supporter of the sugar tax. Bill's point about labelling is interesting. The trouble with food labelling is that if you then do sugar and fat and protein and calories, people get overwhelmed—there are multiple traffic lights and all the rest of it. It has to be simple and understandable. I actually think things like making nutrition education compulsory in schools would be a good idea, so that all schoolchildren are aware of the consequences of what they put in their mouths and things like that. That might be extreme; I do not know.

Ms S.E. WINTON: Do you think there is an addiction problem?

Prof. DAVIS: Sugar addiction? I am not sure you could put it like that.

Mr SHAH: I have no idea.

Prof. DAVIS: When you activate sweet receptors in the tongue, it certainly has a lot of interesting effects on brain function. It is out of my area, so I cannot comment.

The CHAIR: Thank you very much. We really appreciate it. You have sparked quite a lot of our interest in terms of how we are thinking about things as well. We appreciate you being here.

Mr SHAH: Can I just ask one other question, sorry? With the terms of reference, I know it is looking at type 2 diabetes, but is it addressing diabetes in pregnancy at all as a result of this? One of the things that we have seen is greater gestational diabetes, or diabetes that occurs in pregnancy. One of the reasons for that is the change of the cut-off for diagnosis, but the trend has been going on for many years.

The CHAIR: Is gestational diabetes type 2 diabetes?

Prof. DAVIS: No.

Mr SHAH: No.

The CHAIR: No. Then we are not looking at it.

Mr SHAH: But one out of every two people that get gestational diabetes go on to develop type 2 diabetes.

The CHAIR: Okay. So one out of every two people who have gestational diabetes will go on to develop it.

Mr R.S. LOVE: But there are a couple of other terms of reference, because they are at-risk adults.

Prof. DAVIS: They certainly are. And gestational diabetes would be in a risk calculator as well.

The CHAIR: Sorry, what is in scope has just been pointed out. Gestational diabetes is in scope.

Mr SHAH: It is a very important issue—extremely important. It is probably the most important issue.

Prof. DAVIS: Presumably you have got people from that sector who will be appearing before this hearing.

The CHAIR: We have got submissions out at the moment, so if you know of people that you think should write submissions, often we call people once they have written a submission to ask questions around their submissions. We wanted to kick off and get started and you were it. If you know people who you think have something to add, a written submission, however small, can lead to us certainly considering whether we would have hearings with them. Our time line is such that we will be working towards tabling a report early next year—March–April next year. We have given ourselves enough time to listen to the experts in the field and have something that is, I suppose, doable for policymakers. Thanks very much.

Hearing concluded at 11.30 am

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