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Chair

Mr. Bill Casey

Standing Committee on Health

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• (0845)

[English]

The Chair (Mr. Bill Casey (Cumberland—Colchester, Lib.)): I'll call our meeting to order.

Welcome, everybody, to meeting number 117 of the Standing Committee on Health. Today we're continuing our study on diabetes strategies in Canada and abroad.

We have three 10-minute opening statements. First of all, from Fraser Health is Deljit Bains, Leader, South Asian Health Institute. We will have 10 minutes from Reliq Health Technologies and Dr. Richard Sztramko, Chief Medical Officer. And as an individual by teleconference from Albuquerque, New Mexico we will have Dr. Bruce Verchere, Professor, Departments of Surgery, Pathology and Laboratory Medicine, University of British Columbia.

I would also like to welcome back Marilee Nowgesic, from the Canadian Indigenous Nurses Association. She won't be making an opening statement. She was here earlier, and we welcome her back. We look forward to her comments.

We'll start with Fraser Health.

Ms. Deljit Bains (Leader, South Asian Health Institute, Fraser Health): Thank you, Mr. Chair, and members of the committee.

I'd like to begin by thanking you for undertaking this important study and I'm especially grateful to Ms. Sidhu for bringing this issue forward. Today I'll be speaking about the Fraser Health Authority South Asian Health Institute and their work engaging the South Asian community to prevent diabetes.

The South Asian Health Institute, SAHI, was established in 2013 to better understand the health needs of the South Asian population in the Fraser Health region, which is home to over 250,000 South Asian residents or 15% of its population. Fraser Health's "South Asian Health Report" found that one of five of these residents do not speak English. The median age is 39 and 79% are immigrants. Twenty two per cent of them have lived in Canada for 10 years or less.

Chronic conditions are higher among the South Asians in Fraser Health. For example, the diabetes rate is three times higher and at least 10 years younger than in the rest of the population. Diabetes and heart disease risk are present for South Asians at a lower BMI threshold than for Caucasian populations and diet is a key contributing risk factor.

South Asians, particularly those born in Canada, report higher fast food and sugary beverage consumption than the overall Fraser Health population. The SAHI Sehat program, which is an innovative health promotion program, was created in response to the higher incidence of chronic disease in the South Asian population.

The outcome is based on health literacy; do people really understand what they're reading and being informed about? It's based on community engagement; people need to feel connected and to believe that you want to help them. And it's based on partnership development; we realize that working with our community partners is important in assisting the population to become more aware of how they can manage their health.

Initially, we defined our problem as how might we enable South Asians in a behavioural change movement to take charge of their own health and quickly realized that we needed to move from telling them what to do to engaging them. We redefined our problem to how might we engage local South Asians in a behavioural change movement to take charge of their own health.

We started to use a client-centred design approach. We flipped the traditional approach, which is built around the health system, and instead put the person at the centre of all of our activities. We created the Apnee Sehat Design Lab, which is a place to develop, test and evaluate new ways to change behaviour.

The first step is to figure out what people care about, engage them where they are, on their schedule, in their language and through their culture. We also became more focused. The team worked with community partners on one health intervention at a time, testing and refining it before scaling it across the region.

We found that whenever we spoke with people, they constantly asked about what to eat and what not to eat. They were interested in food and nutrition. The outputs of the design activities were new materials, nudges such as positive reinforcement, tools and activities. These outputs generated the lab outcomes, which were education and changes in behaviour. We were able to scale our work across the region and people were engaged.

We developed four simultaneous campaigns focused on sugar. Sehat Cooks works with local gurdwaras and temples to assist them in reducing the amount of sugar that is used in the food that is being served. Some examples include reviewing the recipes in the kitchen, looking at the portion sizes and types of donation requests. We created food models of common South Asian sweets and displayed tubes of the amount of sugar in each. We provided healthier options by way of taste tests and provided information through our health booths.

Through our observations, we found that people were eating 56% carbs on their food trays, of which 21% were sweets. We provided information in English, Punjabi and Hindi. We developed our information in a language they can understand, which we found was extremely important. Our whole team spoke the language. We helped them to understand not only about what not to eat but more importantly, what they could eat. We made the information simple and easy to understand.

Our team worked with temple kitchen volunteers who cooked the food. We engaged congregation members through our podium talks and health booths and we worked with temple leaders. In four main sites we saw a reduction in the amount of sugar in their food; it was reduced by an average of 25%. Some of these sites serve 300 to 400 people per day during the week and a few thousand on weekends.

We did this through our taste tests for the leadership and volunteers, our food models and by working alongside the people in the gurdwaras at times making rotis and most importantly by speaking the language and making information culturally relevant.

● (0850)

Sehat works as a collaboration with local businesses to help reduce sugar consumption at work. Through our service design approach, we created road maps where employees were provided information on health care options at various restaurants around their business. We educated them on the importance of drinking more water and reducing sugary beverages and worked with the employer to produce healthy snack bowls such as fruit instead of sugary snacks that staff often eat. After the interventions were introduced, some employees joined a gym, others brought healthier lunches from home and some started going for walks at lunch time.

Sehat at schools is the collaboration with private south Asian schools, including the students, parents and teachers, to develop educational tools in order to engage students to adopt healthier behaviours. Parents told us that the children didn't want healthy lunches and that they needed recipes and ideas on how to make healthier options tastier.

Teachers told us that their concerns were that the students were bringing unhealthy lunches to school and that they were concerned about the lack of understanding of the importance of healthier eating.

Students told us that they didn't like the lunches that their parents made for them, while others felt they were eating healthy. We are currently working with the student leadership to develop educational tools for them to be the schools' champions for healthy eating.

We are also working with school administration on developing a health tab on their website with information on healthy eating.

On Sehat media, we created a culturally relevant social media post in a language that south Asians could understand. Our posts are reached by upwards of 125,000 people. As you can see, we are moving towards a multi-model, multi-setting approach so that consistent messages and supports are received across settings and family members. Our target is the family and not just the individual.

Concerning our results to date, we are in 12 places of worship and two private schools with over 15,000 interactions. We have distributed over 37,000 culturally relevant resources. We have created 90 culturally relevant education resources in two different languages and have conducted 187 health promotion booths.

Some of our insights put the patient, the person or the client first. You need to meet the needs of the client. Community engagement is changing the way the system works. The health system is not set up to engage clients' evenings and weekends for community engagement. This is a 24-7, 365-day per year partnership. Change takes time. In some sites we were there every week for up to eight months before they started to make changes. We needed to create trust and build a relationship. One size does not fit all. Diversity within a population means that biases can exist even among population members.

Impact requires focus, and change requires readiness. The initial program design was too broad and overwhelmed people. Only after focusing on reducing consumption of added sugar did the project make gains.

Practice service design means learning to observe and ask good questions, make work visible, create and share prototypes early and often, build evaluation into daily practice, conduct client-centred design research and define the real problem to be solved.

We challenge assumptions and conventions. When traditional ways don't work, stop using them. Engagement requires trust. People can only be open to those who have demonstrated through action that they are part of the community.

Culture and authenticity matter. Everything must be culturally appropriate and relevant, including team members, materials, activities, language, food and customs. This also enables the project to identify and address unhealthy traditional beliefs and practices.

We develop external partnerships. We found that the lab needed to be able to collaborate openly with service providers such as primary care, non-profits, government, media and sponsors and to access shared resources from those partners to achieve sustainability. No one person or group has the answer to today's emerging complex problems. Open collaboration is the most effective way to resolve such challenges. Partnership building was a critical success factor, a contrast to the previous approach. Specific interventions may vary, but the approach is promising with other underserved populations at increased risk for diabetes.

On the design for engagement, the south Asian population is not homogeneous. Engaging clients proved to be more complex than indicated by existing data. The intention of designing activities and experiences, big and small, was to maximize engagement with the target audience.

Determine what and why before how. You need to know what problems you are solving and why it matters to the clients before starting to design a solution. We often start with a solution without knowing the actual need to be met.

The Fraser Health population and public health program is applying a health promotion approach by identifying meaningful solutions to support physical, mental and social health and well-being.

● (0855)

To help people and communities improve their health, our healthy living team works within Fraser Health and with local municipalities and community groups to help vulnerable groups and neighbourhoods to improve their healthy living initiatives. The team consists of a variety of health care professionals, with expertise in tobacco reduction, healthy eating, food security and physical activity.

We also have a team specifically dedicated to healthy built environments. Built environments refer to human-made or modified physical surroundings in which people live, work and play. The healthy built environment team works with municipalities and other partners to ensure that the health lens is incorporated into a planning process.

A third program under healthy communities is a comprehensive school health program focused specifically on the school setting. Nearly all Fraser Health communities have implemented the Live 5-2-1-0 initiatives. Live 5-2-0-1 initiatives have included workshops, community forums and community practice, and resource material has been developed.

Comprehensive school health is an approach based on the understanding that healthy students are better learners, and better educated students are healthier. This framework is used across Canada, including in B.C. by the ministries of health and education and the Healthy Schools B.C. initiative.

The Chair: Ms. Bains, could you go to your conclusion or your recommendations? We're running out of time here. Thanks.

Ms. Deljit Bains: Sure.

Clearly a lot of focus is on taking care of people with diabetes, with little effort on prevention. Many people feel that health education will not change people's behaviour, so oftentimes people

are put on medications. Our ways of living in society have changed over the years and we need to take some bold population steps to reduce the incidence of diabetes.

We are pressed to be targeted to treat rather than provide people access to decreased sugar and allow them to adopt healthy behaviours. For example, we tell people to exercise and they usually don't because we don't have the structures in place. People will make changes if we make the healthy choice the easy choice.

There is a need to continue to adapt evidence-based actions that improve access to and availability of healthy food. We should enhance policies that support healthy eating and healthy food environments and increase access to healthy living and wellness resources and supports to promote food literacy.

Health does not speak languages. It's the same across all communities. Diabetes is an issue that needs to be dealt with.

Thank you.

The Chair: Thank you very much.

Now we go to Reliq Health Technologies.

Dr. Sztramko, perhaps you could tell us where the name Reliq comes from.

Dr. Richard Sztramko (Chief Medical Officer, Reliq Health Technologies): I'm not sure exactly where the name Reliq comes from. I came on board afterwards.

Thank you very much, members of the committee, for having me here today. I appreciate being part of this conversation on diabetes management in Canada.

I'm a front-line practitioner. I practise internal medicine and geriatric medicine. I deal with patients day to day. I'm an assistant professor at McMaster University. I work at Hamilton Health Sciences.

Part of my reason for getting involved in technology companies is based on my day-to-day struggles with patients I see, and the limitations of the tools we have at our disposal. I've been involved in the technology space for the last six years, building customized electronic medical records, as well as physician and nursing communication tools, and successfully commercializing them. I have a passion for improving the health care of our population, and I think a great way to do that is through technology—not technologies in isolation, but the appropriate technologies for appropriate populations.

Reliq is a publicly traded Canadian company. We're based in Hamilton as well as Vancouver. We're traded on the TSX Venture Exchange market. We've been successful commercially, so we've had a lot of business in the United States dealing with Medicare and medicated populations, with diabetes and hypertension there, and we're expanding to Australia as well. Our leadership team is very qualified in capital markets and has built multiple ventures successfully in the global marketplace.

My job, however, is taking the success and the resources we gain and translating them into patient results. Really, that's my passion. I think it's great when you can leverage large numbers of resources to actually build quality health care technology and impact patient change.

We've been one of the most successful companies on the TSX Venture Exchange in the last 12 months.

The core of our technology is remote patient monitoring. What that means is, instead of patients being in isolation, checking their blood glucose at home, coming up with a very detailed diary, which is very work-intensive for them, and showing up to their patient appointment once a month or once every three months, we give them a glucometer that attaches directly to the cloud. Every time they're able to test their blood glucose, a nurse or a physician on the other end, through a patient portal, can have access to their readings in real time.

This also applies to the symptoms they're experiencing. It allows for two-way communication.

For instance, instead of saying, "Hey, my blood glucose levels have been elevated for the past three months. I'm now going to show up to my physician's office, and they're going to do something about it," your blood glucose is elevated on Monday, so I change your medications. Your blood glucose is elevated on Thursday, so I increase your medications. The time to control diabetes improves. It's the same thing if they're having markedly abnormal values. If your blood sugars are 22, that's very bad. If they're running that way for several days, we can intervene and say, "Hey, what's wrong with this patient, and what can we do to help them?"

The other aspect of the technology is not just the remote monitoring of biometric data—to be clear, we do this not only for diabetes, but also for chronic obstructive pulmonary disease, heart failure and wound care management. It's also designed to increase the engagement of the patient on the other end. They have two-way communication with their health care provider through text message, through educational materials and through telemedicine visits. To find out what these problems are that the patient's experiencing, why not hop on a phone call with them, make sure they're taking their medications, help them with dietary advice and move things along?

We've had success outside of Canada, but our target populations in Canada are indigenous populations. We received a grant through the Ontario Centres of Excellence to do a pilot project in Sioux Lookout, through the Meno Ya Win Health Centre. It's been amazing to see the uptake of the health care providers, administrators and patients there. We've onboarded 50 patients initially, and we're looking to onboard another 50 patients there.

As you can imagine, it's a remote location. Sioux Lookout is three hours north of Thunder Bay, and the populations they serve are between 400 and 3,000 people spread out over thousands of square kilometres. The patients with diabetes we're trying to serve in these locations have to fly in for their management. You and I go to an appointment and we drive 10 minutes down the street. Not only do they have to fly in to their appointment, they have to stay overnight.

● (0900)

Occasionally they are not able to stay overnight in Sioux Lookout and have to drive another hour and a half to another town to stay in a hotel, wake up at 4:30 in the morning, and then drive back to Sioux Lookout to have their appointment. If they miss their appointment, they are on the hook and have to pay for their flight themselves, or their band is responsible for paying for their flight. This is very problematic as you can imagine.

With our technology, we're able to monitor them remotely in the communities where they live, and provide the care we've outlined for them.

We're very happy with the engagement we've received to date. We will have 100 patients on the platform within the next month, and I will be flying up in the next month or so to see how things are going up there. We're very excited about this opportunity.

In the meantime, Reliq has donated all of our staff time to accomplish this. This is a project of passion for us. I think it's a great opportunity when companies can be successful and leverage the benefits of global markets to impact health care outcomes locally. We would like to reproduce this across Canada.

The other thing we understand, and I really appreciate what my colleagues are saying here, is the person-centred nature of what we do. We're not imagining that we're just going to take technology and dump it on people and expect it to work. It takes engagement at all levels and understanding what the patient is struggling with and also what the health care providers are struggling with in their communities.

If you don't understand it, and if you don't understand the human nature side of it and the human resources side of it, then you will have no hope of just dumping technology on somebody and expecting it to work. It just won't happen.

If we leverage the capital market side of things, our keen understanding of human nature, the patient populations we're dealing with, and the experienced technology team we have, I think we will be able to accomplish miraculous things.

I've been struggling to implement health care solutions, information technology solutions. It's a struggle trying to engage nurses who are burned out or physicians who are burned out or already tired and have a lot on their plates. Seeing how engaged this community is provides me with hope that we will be able to replicate this across Canada. They are so engaged. They are on calls, very excited to roll things out. To be able to put 50 patients on our platform in just under a month is a remarkable uptake to me. There are lots of problems we will be able to solve.

I'm very thankful for being able to talk here today. I'm very happy that we have been able to share the commercial success we have, but I am also looking for your input or ideas or advice on how we can take our technology across Canada and reproduce these results.

We're very evidence-based. We want to document that we're providing value to people. The only way to do that is in sequential rollouts with larger and larger populations and by undergoing a learning process. We don't have everything figured out perfectly; you need to learn the nuances of each community you go into. I'm very happy to be here today and to be able to share our success with you and also gain insights from you through the conversations we will be having.

Thank you very much.

• (0905)

The Chair: Thank you very much. It sounds very interesting.

Now we go to Dr. Bruce Verchere, by telephone.

Do we have Dr. Verchere?

We need some of your technology, Dr. Sztramko, for burned-out nurses and doctors, and maybe burned-out politicians too.

Would that technology be applicable to other diseases, the testing and follow-up?

Dr. Richard Sztramko: Yes. For example, in heart failure the problem is that you start retaining a lot of fluid, and the fluid gets in your lungs, and you gain weight. If your baseline weight when you're at a normal fluid state is 110 pounds and all of a sudden you're going up to 115 pounds, we have a weigh scale that connects to the Internet and the cloud. If that's abnormal, why is your weight elevated? We need to increase the medications that get rid of the water you have in heart failure, lung diseases, etc.

• (0910)

The Chair: Hello, Dr. Verchere.

Welcome. You have a 10-minute opening statement for us, I hope.

Dr. Bruce Verchere (Professor, Departments of Surgery, Pathology and Laboratory Medicine, University of British Columbia, As an Individual): Yes, I do.

Thank you very much to the committee members for this opportunity to speak, and my apologies for not being there in person.

I'm a professor and laboratory-based diabetes researcher at UBC and at the BC Children's Hospital. I'm head of the diabetes research program at the Research Institute of BC Children's Hospital and director of the BC Diabetes Research Network.

Today I speak to you as an individual, but one who is representative of many diabetes researchers across the country.

My research has been funded for 20 years by the federal government through the Canadian Institutes of Health Research, CIHR, as well as other organizations, such as JDRC, Diabetes Canada and the Stem Cell Network, and I am deeply appreciative of the support of my work.

Today I would like to speak to you about the potential for research in diabetes to slow, reverse and hopefully cure this disease one day;

to provide hope for people living with diabetes; and to inform practice guidelines and government strategy.

This committee has heard from others in previous meetings about the devastating impact of diabetes on the health and well-being of millions of Canadians. Briefly, diabetes is a chronic and currently incurable disease in which a lifetime of high blood sugars can lead to devastating complications, including blindness, kidney failure, amputations and heart disease, potentially cutting years off one's life. As well, the cost to our health care system is in the billions of dollars annually and rising.

Canada has one of the highest incidence rates of type 1 diabetes worldwide. This is the autoimmune form of the disease that often strikes children and adolescents but that occurs in adults as well. It is increasing in prevalence for reasons we don't understand and we need research to answer. At the BC Children's Hospital a new child is diagnosed with diabetes every few days.

Type 2 diabetes, the metabolic form of the disease that's associated with obesity and aging, is also on the rise, and disturbingly is now being seen in youth.

Close to 11 million people have diabetes or pre-diabetes across Canada, and as you know, the disease disproportionately impacts certain vulnerable populations, including indigenous peoples and those of Asian and South Asian descent.

Another aspect of the burden of diabetes is that the disease carries with it increased risk of a number of other conditions. For example, the risk of pancreatic cancer is approximately double in persons with diabetes. Persons with diabetes are also at greatly increased risk for mental health issues, including anxiety and depression. We need research to better understand the link between diabetes and these debilitating and very serious conditions.

This morning I'd like to send a few simple messages to the committee regarding diabetes research in Canada, its history, its value and importance, and its promise.

First, you should know that Canadian research in diabetes is outstanding and world-leading and has a truly remarkable history.

As we approach the 100th anniversary of the discovery of insulin by Fred Banting and colleagues at the University of Toronto in 1921, it's important to point out that Canadian researchers have played pivotal roles in the development of a number of other therapies in worldwide use for the treatment of diabetes. These include not just insulin, of course, but also newer classes of drugs used in type 2 diabetes known as DPP-4 inhibitors and GLP-1 analogues.

In addition, the Edmonton Protocol for clinical transplantation of islets, the clusters of insulin-producing cells in the pancreas called beta cells, is recognized worldwide, and has made replacement of insulin-producing beta cells by transplantation a clinical reality, albeit one that's not yet widely available and needs further research. Canadian diabetes researchers are now playing a leading role in research that aims to develop insulin-producing cells from stem cells that would be suitable for transplantation into persons with type 1 diabetes.

Today, diabetes research is going on across the country in laboratories and hospitals from genes and cells through to clinical trials in population health and health services research.

● (0915)

A few examples of some of the extraordinary Canadian diabetes research going on include: research into the development of nanomedicine therapies that target the immune system, which may lead to new treatments for type 1 diabetes; understanding how community design impacts the prevalence of obesity in type 2 diabetes; and research into—[*Technical difficulty*]

The Chair: We're just going to suspend for a couple of minutes until we reconnect with the teleconference.

● (0915)

(Pause)

● (0915)

Dr. Bruce Verchere: Sorry for that. I'll just pick up, hopefully, where I cut out, just to say that there's really some remarkable diabetes research going on across the country and that Canada is truly uniquely poised to continue its world-leading role in diabetes research and make new discoveries and contributions that stand to change the lives of persons living with, or at risk for, the disease. Government support of research is critical if this is to happen. It can take years for discoveries to lead to therapies. About 50 years ago, there was a Canadian discovery of gut hormones that stimulate insulin secretion, and the research in this field that followed led to new classes of diabetes drugs, but these only came into clinical use in the last decade.

Increasing fundamental support across pillars and across research disciplines through the tri-council funding, particularly CIHR, ensures that the best diabetes research is funded across the country and that diabetes research capacity in Canada remains strong. When research capacity is strong, this government support of diabetes research in Canada is enhanced, for example, through Canadian participation in international teams and magnified by additional support from international organizations such as JDRF and the U.S. National Institutes of Health, and nationally from Diabetes Canada.

I would point out that some countries, notably the U.S. and Australia, have set aside special funding for diabetes research. As an example, in the U.S., special statutory funding of \$150 million per year is set aside for type 1 diabetes research, and this has been transformative. I've acted as an external reviewer for these funding initiatives in these countries and have witnessed the remarkable impact on diabetes research and the progress that has been made as a result.

In Canada, special funding initiatives that target diabetes research have arisen from CIHR institutes such as the Institute of Nutrition,

Metabolism and Diabetes, and in partnership with other funders such as the one announced last year between CIHR and JDRF, totalling \$30 million towards clinical research in type 1 diabetes.

I believe there is great potential in such initiatives and partnerships for impactful Canadian diabetes research and discovery, and I encourage government to continue to pursue them, while recognizing that continuing to increase the base support in CIHR's open competitions is critical to maintain diabetes research capacity.

Finally, research plays a critical role in shaping Canada's clinical practice guidelines. These are the evidence-based guidelines that are written by diabetes clinical practitioners across the country. They're published by Diabetes Canada. They guide diabetes clinical practice and are recognized worldwide. I believe research should also be an important component of any national diabetes strategy. Indeed, government support of diabetes research was a key recommendation of Diabetes Canada's "Diabetes 360°" framework, an initiative that I support and that has received support from diabetes researchers across the country.

In conclusion, as the 100th anniversary of the discovery of insulin approaches, Canada can and should continue to be at the forefront and as a world leader in diabetes research, bringing discovery to improve clinical practice, lessening the burden of disease for Canadians and developing potentially curative new therapies. I encourage government to consider increasing its investment in diabetes research through continued and increased support of CIHR, through partnerships, and through new diabetes research initiatives.

Thanks very much for taking the time this morning to allow me to speak to you. I'd be happy to answer any questions you may have. Particularly where I dropped off the call, if there are things that were missed, I can address those.

● (0920)

The Chair: Thank you very much.

Now we'll go to our seven-minute round of questions, starting with Ms. Sidhu.

Ms. Sonia Sidhu (Brampton South, Lib.): Thank you, Chair; and thank you to all the panellists for being here and sharing great testimony with us.

I have 18 years of experience in the health care field. As a diabetes educator, research coordinator and cardiology technologist, I know all the barriers and challenges we have, which Ms. Bains earlier explained.

Ms. Bains, you said you collaborate with the local schools to co-design culturally relevant healthy-eating activities for teachers and families. How will that have an impact on South Asians when the second-largest South Asian population is there, and one out of five people cannot speak English, and the median age is 39?

When I was in B.C. and I did the consultation in the summer, I met you. The question came out that when you are doing the classes, sometimes the kids can teach their parents. Therefore, will collaboration with the local schools to teach healthy eating have more impact?

Ms. Deljit Bains: When we started doing focus groups with the schools—we did separate focus groups with the parents, kids and teachers—we found that children actually have a pretty big voice in the homes. Traditionally, in South Asian families, grandmothers would make the food and the families would just eat whatever the grandmothers made. Now, we're finding the culture has shifted to where kids are having a bigger voice and they're having a bigger impact on the food that's made at home.

We feel that by including the family unit, the parents and the children collectively will start to get children to think differently. When children are in elementary school especially, they start to adopt healthier behaviours than they do at a later age. By a later age, they've already created their own habits.

Ms. Sonia Sidhu: Thank you.

My next question is for Dr. Sztramko. You explained it's the same model of telemetry as how they control it at the CHF clinic...how to the control weight and then they can adjust the medication. That is a great model.

Earlier, I went to TGH. They developed the Bant app. That type of app can manage diabetes.

How will it impact the patient's health?

Dr. Richard Sztramko: I'm unfamiliar with the Bant app specifically, but we do have the ability to monitor blood glucose continuously, as well as intermittently, through the checking.

One big thing is letting the patients know when their blood sugars are too low. Sometimes they feel it and sometimes they don't, so having safety alerts to trigger when they're too high or too low.

A lot of times when you have a chronic disease, you feel like you're struggling with it alone with no feedback. Providing feedback to people, allowing them to set goals.... Then having the human touch on the other end is important as well, like connecting with nursing staff or physicians to help improve their self-efficacy.

Ms. Sonia Sidhu: The same technology...I heard Alexa....

When 300,000 seniors have...chronic diabetes factored with that. Do you think it will help the seniors to remind them to take their diabetes medications, and manage the sugar?

Dr. Richard Sztramko: Absolutely.

Part of the integration on our platform connects with pill distribution technology. Many people use manual blister packs. We're able to connect to technologies that will allow people to trigger alerts when they've actually gone into their blister packs to take their

medications, as well as trigger reminders on their phones to help them take their medications.

To your point with Alexa and voice activated systems, certainly seniors struggle with visual problems as well as hearing and manual dexterity problems—not being able to use their hands through arthritis, etc. It's very helpful to have all of the integration across the platform.

• (0925)

Ms. Sonia Sidhu: Thank you.

My next question is for Dr. Verchere. Canada gave insulin to the world. Now UBC is using a mouse model to assess specific therapy for type 1 diabetes, which uses an injection of a viral vector to find out if gene therapy can cure diabetes.

Diabetes Canada has brought forward a strategy that calls on the Government of Canada to invest \$150 million over seven years to implement the Diabetes 360° framework.

How could increased funding in the field of diabetes research help reduce some of the knowledge gaps and lead to better outcomes for patients with type 1 and type 2 diabetes?

Dr. Bruce Verchere: Right now, it's such an exciting time in diabetes research because we're on the cutting edge of these new technologies that have arisen. For example, you mentioned gene therapy, which is the ability to edit genes. This is now being done in cells and in mice, as you said, and in some instances, it is moving towards clinical trial, though not yet in diabetes, but for example, also in cell therapy, which I touched on briefly in my opening words.

However, there are still great gaps, in terms of applying these technologies to new therapies. Taking a step back, in both type 1 and type 2 diabetes, we still have gaps in our basic understanding of the ideology of these diseases and what goes wrong with the immune system, for example. In the pancreas in type 1 diabetes, why does the immune system attack itself and destroy the insulin-producing beta cells?

As we move forward with these new technologies, I greatly believe that funding the whole gamut of research, from understanding mechanisms from genes and cells, right through to clinical trials—both of which government and the funding agencies, JDRF and Diabetes Canada, are funding—is critically important. To really develop new therapies, we still need to know what the molecular targets are in the cell. For that, there are still big gaps in our understanding, as we say, of the path of physiology of the disease.

My sense is that really funding the best research across that whole pathway, from genes and cells through the mouse models and through to clinical trials, is going to be critically important.

Ms. Sonia Sidhu: Thank you.

The Chair: Welcome back, Mr. Kmiec. You have seven minutes.

Mr. Tom Kmiec (Calgary Shepard, CPC): Thank you, Mr. Chair.

I'll start with Mr. Sztramko. With the technology that you're talking about, on the patient side, are you able to track how much time that it takes them to manage their condition? With a lot of technology, it seems to reduce the time it takes them to care for themselves, but at the same time, it's like a service that you're providing. Are you able to tell how much time they are taking for dosage and for the different tasks required to manage their diabetes?

Dr. Richard Sztramko: Not all of the tasks, but many of them. For instance, we are looking to integrate insulin pens and having the exact doses that are being administered to the patient and to track those.

Regarding the communication time with the health care providers, we can certainly track that.

We do have the ability to track activity, so if they're exercising and things like that. We integrate with Fitbits and other activity trackers, if they're exercising.

At this point in time, the things we might not track as well would be how much time they're spending cooking, or how much time they're spending shopping for healthy food and things like that, or how much time they're spending researching on their own.

I'd say that the majority of things we are able to track. There are just certain things that will always fall through the cracks.

Mr. Tom Kmiec: Can you give me an estimate of how much it would cost an individual to take on this type of technology, adopt it and make use of it?

Dr. Richard Sztramko: Right now in Canada, we're just focused on proving that it actually works for people. We have provided in-kind service to people, while we study it.

In the United States, it's between \$25 and \$50 per patient, per month, which is quite cheap, when you think about it. Hospitalization for chronic disease management can cost between \$10,000 and \$14,000. Paying \$25 to \$50 per patient, per month actually generates substantial savings for the system on those levels. The illnesses are very expensive, as you're aware.

• (0930)

Mr. Tom Kmiec: The committee I usually sit on is the Standing Committee on Finance. With the disability tax credit last year, we had a situation where the CRA started mass denying people with type 1 and type 2 diabetes, especially T1Ds, their access to the disability tax credit.

Dr. Richard Sztramko: Yes.

Mr. Tom Kmiec: Have you given any thought as to whether you could integrate the services you have and track the time for the physician involved, so they are able to fill out the form for the DTC application? That's one of the areas where there are way more refusals happening right now than there ever have been before. It feels like this type of tracking would be a way to satisfy CRA's new requirements for the application for a DTC. We're talking about \$2,000 to \$4,000 per individual filer.

Dr. Richard Sztramko: No, that hasn't been on a road map. But that's a brilliant idea. It's something we'll definitely look into.

Mr. Tom Kmiec: Okay.

Madam Bains, the service you provide just seems amazing. I'll speak personally. My in-laws are Singaporeans. So I'll talk about unhealthy eating. I've experienced all of it. All the Malay food is not what I would drum up as the healthiest food. It's most delicious, but not the healthiest.

During the provision of the service that is culturally specific in the language that is necessary, do you provide any information about the disability tax credit?

Ms. Deljit Bains: No, we don't.

Mr. Tom Kmiec: From your personal experience in the different communities that you serve, do they know about the disability tax credit?

Almost 40% of those eligible for it don't actually make an application for the DTC.

Ms. Deljit Bains: Being a health authority, it's not something that I and our program would probably be telling people.

Actually, we haven't even thought about it. People haven't asked us about it. It would be really interesting to find out if people actually knew it existed.

Mr. Tom Kmiec: Okay.

The average saving is \$2,000 to \$4,000 depending on the income that a person has. It's a pretty substantial amount of money.

Right now the cut-off is you have to qualify for 14 hours a week of managing your condition. This would be for the more serious T1D conditions and people with type 2 diabetes, which are pretty serious conditions.

In your experience, is that a substantial amount of the population that you serve?

Ms. Deljit Bains: The amount that...?

Mr. Tom Kmiec: I mean during the week in terms of managing their condition.

Ms. Deljit Bains: Fourteen, yes; it seems like a lot.

Mr. Tom Kmiec: Fourteen hours a week is pretty standard for them.

I don't mean government support, but if there was an opportunity to match the health service provision you have with.... You almost need a tax person to say, "This is also something that you qualify for. Have you ever thought about asking your physician to apply?" Do you think the communities that you serve would be interested in knowing about this?

You're already inundated with tons of information. Tax is probably the last thing anybody wants to talk about, yet they have an opportunity to save \$2,000 to \$4,000 depending on their taxable income.

Ms. Deljit Bains: I think that if people know there is an advantage for them to save money on their taxes, absolutely, that would be very important for people to know.

Mr. Tom Kmiec: There would be uptake.

Ms. Deljit Bains: Especially people who are newer immigrants don't understand a lot of the Canadian systems, whether it be the medical, the education or tax system. I think for sure they would be interested in that.

Mr. Tom Kmiec: I'm going to ask Marilee.

I didn't get the advantage of hearing your opening statement before. I just want to ask about the communities that you serve. Over the past two years now, do a lot of the community members, the ones who use the services, the population that you serve, take advantage of the disability tax credit in any way? Or is it just something that they either don't qualify for or have never heard of?

Ms. Marilee Nowgesic (Executive Director, Canadian Indigenous Nurses Association): More times the answer is going to be it's something they never heard of. It's not an intense read that a lot of the first nations or Inuit communities will look into. Now that I'm hearing it from you, I think that may be something we may want to address.

We already have health care professionals who are burdened by having to fill out form after form after form, then charging that back to the clients. I'm more fearful of one more form, although it benefits the patient. It could be helpful.

• (0935)

Mr. Tom Kmiec: I have bad news. It's a really complex form. It's several pages long, and it's easy to get tripped up in it. From personal experience having had my physician fill it out for one of my kids, it is not an easy thing to do.

But it's something that you think community members, if they knew more about it, would want to take up.

Ms. Marilee Nowgesic: Of course. With anything in the diabetes strategy or any diabetes type of initiative, if there's going to be an outcome that benefits the patients or the community, then of course it's something that we're going to look into for their benefit.

Where we know the incident rates of type 2 diabetes especially in first nations and Inuit communities are high, I think we have to be a little more vigilant into looking at how we're going to make that work for our people.

Mr. Tom Kmiec: Thank you.

The Chair: That's an interesting point of view.

Mr. Davies.

Mr. Don Davies (Vancouver Kingsway, NDP): Thank you, Mr. Chair.

Thanks to all the witnesses for being here.

Dr. Verchere, I'd like to begin with you.

You mentioned that Canada has one of the highest rates of type 1 diabetes in the world and that it's on the rise. I think you mentioned that we don't really understand why.

Are there any theories, or is there a leading theory that's being explored in this regard?

Dr. Bruce Verchere: That's an excellent question.

It seems that type 1 diabetes prevalence is highest in countries in sort of temperate climates in northern hemispheres. You also see it very high in Scandinavian countries and in Sardinia, interestingly. Canada is, I think, seventh worldwide.

The increasing prevalence of type 1 diabetes is going along with other autoimmune diseases, as well, that tend to be on the rise. There are a number of theories for that. Our genetics haven't changed that much over the years, so it's thought that it's maybe some environmental trigger like a virus or something that could initiate the autoimmune response.

In the case of autoimmune disease and type 1 diabetes specifically, one of the hypotheses out there is a hygiene hypothesis, and that we now grow up, our kids grow up in an environment that is much cleaner than the ones we grew up in as kids. I'm speaking about us older folks who played in the sandbox and got a bit dirtier. There may be something that goes on with sort of the gain setting of the immune system, the sensitivity.

What goes wrong in autoimmune disease is the recognition of self. The immune system fails to realize that the insulin-producing beta cells are its own cells and it attacks them as though they're an infection, a bug or a virally infected cell. One hypothesis is that in this cleaner environment we grow up in now, because of better antibiotics and the like, more antiseptic procedures and general cleanliness, we are more prone to the development of autoimmune disease when it's triggered by whatever that trigger may be.

Mr. Don Davies: You mentioned a number of countries and different experiences, Sardinia and some tropical countries. I'm wondering, Dr. Verchere, about the current state of international collaboration in terms of research. A more specific question I would ask you is whether we have targeted research monies in Canada that are assisting Canadian researchers like you to engage in internationally collaborative research on diabetes.

Dr. Bruce Verchere: We're entrepreneurs and we apply for funds and to competitions wherever they may come up. We tend to create collaborative teams in the way that's most likely to allow us to move the research forward wherever that may be around the world.

For example, in the European Union, they have this European foundation that studied diabetes, so there are mechanisms within Europe for more collaborative international-type applications.

We are eligible, for example, through NIH in the U.S. We can apply with U.S. collaborators. So there are mechanisms whereby we can collaborate internationally. There are other broader programs like the Human Frontier Science Program, which doesn't specifically target diabetes research but targets biology in general. Those specifically require that there be investigators and labs from different participating and member countries. I think it's an excellent question, and I think it would be a really interesting and potentially impactful funding mechanism.

We have a lot to learn from what we share with those other countries. One of the things those countries do well—I'll use Finland as an example—is to track babies from birth, doing biomarker analysis and some genetic analysis and tracking them as they go through to assess their risk of diabetes, to try to understand what those triggers are. It's expensive, but I think it would be really valuable to do that sort of research to track Canadian kids from birth as they proceed and follow those who go on to develop diabetes and then look retrospectively to see what markers, what genes might have been there that would have given them risk or triggered the disease.

• (0940)

Mr. Don Davies: Are there any gender considerations? We've heard a lot about differences in terms of cultures and ethnicity and the prevalence of diabetes. I don't know that we've heard a lot about particular differences in the prevalence of diabetes or different considerations from a gender perspective.

Do you have anything to share with us in that respect?

Dr. Bruce Verchere: That's a really important question. It's being recognized now at CIHR. When we submit grants and when we review grants, we are obligated—and I think it's a good thing—to address gender and sex differences.

In terms of diabetes, I'll speak about the two major forms separately. Type 1 diabetes is quite interesting. There isn't really any notable gender difference in the incidence of type 1 diabetes. There are some potential differences, but they're not large. In terms of severity of disease, it may be a bit greater in the age of onset, a bit more severe in girls in earlier onset than boys, but those are not huge differences.

Interestingly, most other autoimmune diseases, for example, scleroderma, have a higher incidence in women. That's not really true for type 1 diabetes, so the question of why that difference isn't there is very interesting. It may be insightful into the mechanism of the disease. In one of the animal models we use, called the non-obese diabetic mouse, a type 1 diabetes model, the incidence is much higher in females. Learning why that happens in mice but not in humans could be insightful in terms of disease mechanism.

In type 2 diabetes, it's also true that the incidence is pretty similar. We don't see big increases. Of course, women are susceptible to gestational diabetes in pregnancy, but usually, after delivery the diabetes resolves. It does increase their risk of diabetes in a successive pregnancy and their risk of developing type 2 diabetes later in life. As they approach menopause with normal aging, it is higher in women who have had gestational diabetes. That's an interesting association, and it again gives us some insight into the disease, but there aren't really profound differences in the incidence of type 2 diabetes between men and women.

Gender and sex considerations must be addressed in grant applications to CIHR now.

The Chair: Thank you very much.

Now we'll go to Mr. Ayoub.

[*Translation*]

Mr. Ramez Ayoub (Thérèse-De Blainville, Lib.): Thank you, Mr. Chair.

[*English*]

I will give a few minutes to ensure they get the translation on.

Dr. Bruce Verchere: I will need it—despite the French name.

[*Translation*]

Mr. Ramez Ayoub: Dr. Verchere, I would like to continue the discussion on research you were having with my colleague Mr. Davies.

The Canadian Diabetes Strategy is not new. For example, a strategy was developed in 1999. An amount of \$115 million was set aside over a five-year period. In 2005, there was a new strategy with a large investment—a \$70-million envelope—specifically concerning aboriginals.

I don't want to make this into a litany, but a number of initiatives have been launched and a lot of money spent to advance diabetes research. The Auditor General recently concluded that the Public Health Agency of Canada did not know “whether its activities have had an impact on the well-being of people who live with diabetes or who are at risk of developing the disease.”

What is your short-term vision of the research, considering all those investments? Where are we going?

What is the purpose of the research? Is it a matter of finding a treatment, a drug or a way to cure the disease once diabetes has been diagnosed?

When do think you will be able to find that treatment, if ever?

• (0945)

[*English*]

Dr. Bruce Verchere: Thank you for that excellent question, which I think is really fundamental to what we do. We certainly recognize that millions of dollars are invested in diabetes research. Science and discovery, by their nature, are sometimes frustratingly slow processes.

I'm not sure if I was cut off when I was making my opening statement, but I think one example in type 2 diabetes of these potentially game-changing drugs derived from gut hormones is from a discovery in Canada from many years ago in the 1960s and 1970s. Fifty years ago it was discovered that these gut hormones can stimulate insulin secretion, and it's only been in the last decade that these drugs have come into clinical use. From discovery to cure or to improved therapy is a long process. We're in it for the long haul. We still really need research to address the gaps in knowledge with regard to the basic mechanism of disease in both type 1 diabetes and type 2 diabetes.

I recognize that this is somewhat unsatisfying for people living with disease now—although it does provide hope—and for funders. At the same time as support goes on for that basic research into understanding disease mechanisms that have the potential to develop into therapies, there is also research that goes on and needs to be supported, research that has the potential to improve the lives of people right away. You heard from the other speakers about diabetes technologies, for example. There are better insulins now. There are insulin pumps. There is continuous glucose monitoring. There is movement towards the artificial pancreas, a closed-loop system in which insulin is released in response to algorithms that detect changes in blood glucose. These are incredibly transformative things that are happening now that are impacting the lives of people with diabetes. Also, there are new preventative-type strategic implementations, such as exercise and diet programs. These are things that are impacting the lives of people with diabetes now. They're not curing the disease, but they are reducing the burden of disease and are impactful. So, I think the—

[*Translation*]

Mr. Ramez Ayoub: I have to interrupt you.

[*English*]

I only have a few minutes, so I need to cut you off so that I can ask you a second question.

When we look at the numbers, they are dramatically increasing. From 2015 to the projection in 2025, 12% of the population is going to have diabetes. How can we measure the success of the research in the short term, and how can we have the funding put into the right place? I know that the solutions post-diagnosis are very high because the success is there. There are so many people involved, so the technology follows at some point, but just to make sure that we—

• (0950)

Dr. Bruce Verchere: We definitely need research on the outcome side to understand. Are we flattening that line as the incidence goes up and up? Are we reducing the burden of disease, or are we at least decreasing the rate at which it is increasing?

Outcomes-type research that gives us an idea of how well programs and therapies are impacting people is very important, I think. As I mentioned, I think that funding research towards where there are knowledge gaps to understanding disease mechanism is important, as are implementation strategies, health services research, and things that would give us an idea of what is impacting the lives of people with diabetes today.

In terms of funding, I think there is a combination of mechanisms. If the CIHR-based funding is strong and increasing, I think the top diabetes research ideas will bubble to the top and get funded, and that will lead to new discovery. Then, targeted initiatives and partnerships—for example, the \$30-million clinical trials partnership between JDRF and CIHR—allow us to look at the impact of potential new drugs on disease in clinical trials. I think there are innovative ways to fund in a targeted way with partners, but also to maintain that base funding so that the best diabetes research and research capacity will still be there.

Mr. Ramez Ayoub: Thank you.

The Chair: Now we are going to our five-minute round. Because we have to do our drafting instructions for diabetes strategies and also M-132, I'm going to just allow five minutes for the Conservatives, five minutes for the Liberals and three minutes for the NDP. We're going to lose two questions.

We'll start with the Conservatives. I understand you're going to split your time.

Mr. Ben Lobb (Huron—Bruce, CPC): I'll ask two quick questions and then turn it over to Mr. Kmiec.

The Chair: Two and a half minutes goes pretty quickly.

Mr. Ben Lobb: It sure does.

Marilee, you're here today. We've seen you at committee many times before. We've heard Richard's comments about technology.

If it's a nice piece of technology and it's proven to work in other jurisdictions, what prevents it from moving into other communities in the north and helping more people out? Are there barriers there?

Ms. Marilee Nowgesic: There are going to be barriers because of the level of literacy and language, the ability of the people who are the end users to be able to use the device in a positive fashion.

Because you're also having to consider broadband width, is there a connectivity issue? Then if something goes wrong, they don't have an IT department that they can just run over to and get help to fix a problem.

On the whole idea regarding activity, I encourage my colleagues to go to a first nations community and try activity—10,000 steps on a reserve—and see how far you get before you get to 200.

Mr. Ben Lobb: Specifically though, are there issues dealing with the department or the band to provide the funding to allow projects like this to move forward?

Ms. Marilee Nowgesic: It's going to be whether non-insured health benefits recognize it as an approvable device. Then it's a matter of what the application procedure is for the client to be able to obtain the device, work through it, download it; understand that there are high-risk cost factors.

Mr. Ben Lobb: Richard, I know you guys are in remote parts of the south in very rural communities. How have you overcome the obstacles that Marilee has just mentioned there?

Dr. Richard Sztramko: I think it's the high-touch approach. I would never drop in on one of these communities and say, "This is what you should do." It's really coming into contact with people like Marilee or people who are in the communities themselves. There are nursing stations in some of these communities, so it's about educating the people who will manage those nursing stations, making sure the human resources are well trained. As I stated, you can't just dump technology on people. You have to understand how they're going to use it.

Also, not all patients with diabetes are the same, so it's about trying to figure out who can use it and who can't use it and segmenting the population, so that you're finding the appropriate people with the solution.

• (0955)

Mr. Tom Kmiec: How much time do I have, Mr. Chair?

The Chair: You have two and a half minutes.

Mr. Tom Kmiec: That's perfect. Thank you.

The reason I brought up the disability tax credit is that I have a private member's bill, C-399, that is supported by JDRF, Diabetes Canada and the Canadian Nurses Association that would make it simpler, especially for diabetics—that was my intention behind it—to qualify for this tax measure, so they could have that \$2,000 to \$4,000, roughly speaking, returned to them because they're already managing enough with the condition they have. Taxes should be the simpler part of it, I would hope, which I understand is almost like a pun.

Is making it simpler on the tax side and on physicians to apply on behalf of their patients an important part of any diabetes strategy? I have the pre-budget submissions of JDRF and Diabetes Canada with me as well. They focus a lot on the tax side of things, because lightening the load is really important.

Marilee, I see you nodding quite a bit.

Ms. Marilee Nowgesic: It's an interesting concept, one that both first nations and Inuit would be very new to. It's a matter of understanding how the application will be done by them. It's even a matter of how it's understood. Have they even filed before? Because they're at the community level, we know there are problems with getting forms done. Then regarding the physician being able to help the people in getting the application filled, physicians aren't always readily available at the community level, especially in remote and isolated communities, so it becomes problematic.

Mr. Tom Kmiec: Mr. Sztramko, we talked a little bit about the technology you have. I mentioned that it was an opportunity to keep the calculation of dosage in mind. In my private member's bill, I'm proposing it be included in the 14 hours, and the 14 hours be reduced to 10 to make it simpler on the physicians and on the patients to qualify for it. Is it something that your company could help with, or do you know of other companies that could monitor and track that particular portion so that patients would be able to qualify for DTC? The DTC actually opens access to provincial welfare programs, access to the RDSP, registered disability savings plans, which have matching up to something like \$60,000 to \$80,000 from federal and provincial sources. There is a lot of money that could go here that could help patients deal with their conditions in the long term.

There's the prevention side, which Ms. Bains, you're doing a lot of. But there is also the point where you have a condition now; it's about managing as best you can.

Dr. Richard Sztramko: I think it's a brilliant idea. Speaking as somebody who actually fills out the form, any time you can simplify or automate the process...it's essentially filling out the same information on 10 separate sheets. I'm very excited about this. I have not thought about this previously but we can certainly track that information.

Right now, in the United States, we have to track physician time and nursing time for chronic management codes. That's part of the platform we continue to build down there. I'm actually really excited about this concept. We could automate so much of the process from

the patient's health information, if they're okay with it, to help to fill out this form and get them coverage. I'm very excited about this idea.

The Chair: That's a good point. In my experience, when somebody becomes disabled, the first thing that happens is they go broke because they can't work, and that adds an extra burden, making their disability a lot worse, especially with diabetes.

Mr. McKinnon.

Mr. Ron McKinnon (Coquitlam—Port Coquitlam, Lib.): Thank you Chair.

I have one quick question for Ms. Nowgesic and then I'll pass the baton to Mr. Boissonnault, who has a most excellent question also.

Mr. Lobb and Mr. Kmiec spoke of some of the cultural barriers. I wonder if you could expand on the cultural and other barriers that indigenous individuals face in accessing care for pre-diabetes and diabetes.

Ms. Marilee Nowgesic: We know that it's going to be based on a couple of barriers, one of them being the colonial legacy of health care where indigenous people are experiencing poor impacts, poor access to health care, racism and blaming, a you-did-this-to-yourself type of attitude, instead of looking at some of the underlying conditions. The other is to take into context the cultural safety that is being provided to clients. How does the family understand their impact in relation to helping the person deal with their illness, rather than the stigma of telling them they did it to themselves?

Also, there's a problem with authority figures. The physician or nurse may be seen by the indigenous client as one who has a type of control over them, not realizing that all people actually have control over themselves. They also have to understand the environment that this person is having to live with. Are they looking to live off the land? They're not able to run to a Shoppers Drug Mart or to a grocery store to buy healthy foods or get the healthy quantities required.

It's a matter of looking at what we're dealing with here. Another cultural aspect is the fact that we have to be respectful of the protocols for leadership. What is the leadership doing in order to be able to address the illness in a positive fashion so we can move forward and identify some of those health-access barriers. Why are they there?

• (1000)

Mr. Ron McKinnon: Thank you.

Mr. Boissonnault.

Mr. Randy Boissonnault (Edmonton Centre, Lib.): Dr. Verchere, it was Ray Rajotte and James Shapiro, two physicians at the Alberta Diabetes Institute, who were responsible for getting us to the Edmonton Protocol. In your opinion, what else could we be doing to make sure that more people can take advantage of that, and what are some of the other milestones you would like to see for this type of diabetes research?

Dr. Bruce Verchere: I know Ray and James very well. Ray is retired but I collaborated with James and colleagues at the University of Alberta. We're quite interested in this question. I think it's just not as promising as the potentially curative therapy that islet transplantation is. It's really been limited worldwide to only a few hundred patients, and that's for a number of reasons. One is that there are just not enough donor pancreases to go around, but there are also issues around how long the transplants last. Also, the recipients still have to go on immunosuppressive drugs for life to prevent the rejection of the transplant itself.

The real promise here is that when someone with diabetes injects insulin, they're making an educated guess as to how much insulin they need and they risk low blood sugars. When you put the beta cells back, the islets back, those cells know precisely how much insulin to secrete to produce them. The blood sugar control is much better and they don't have these really dangerous lows.

Going forward, I think there's great promise in stem cells as a potential source, an unlimited source of insulin-producing cells. There's world-leading research going on across the country. There's some in Vancouver, where Tim Kieffer is making these cells in the dish, and in Alberta, I know that Dr. Shapiro is doing clinical trials with these cells in collaboration with a company in the U.S.

It's not ready for prime time yet but it is important. I think the limitations here have to do with making good cells, cells that are safe and suitable for transplant, and also protecting them from the immune system. I think the research going forward is going to be finding ways to either encapsulate them or to genetically engineer them so that they're camouflaged from the immune system. We'd like to do this in a way that if it's truly curative then patients who receive the cells wouldn't need to take immunosuppressive drugs for life.

The Chair: Thank you.

Now we go to Mr. Davies.

Mr. Don Davies: I have four questions and three minutes, so that's 45 seconds each.

Dr. Sztramko, I'll start with you. Are your products covered by public or private insurance plans in Canada?

Dr. Richard Sztramko: No, they're not covered in Canada right now.

Mr. Don Davies: Ms. Nowgesic, the aboriginal diabetes initiative was established in 1999, so we're coming up to 20 years. The rates of diabetes in the indigenous population have increased in that time. Do you have any recommendations on what we can do to improve that diabetes initiative? Clearly it's not working in the way we all would like it to.

Ms. Marilee Nowgesic: We have to take a look at the current structures that are in place. Why are the medications increasing? Why are the prevention and promotion not effective? We have to be able to look at the geographical isolation of these people. We have many problems, of course, such as physician shortages, nursing burnout and things like that, but it's the health care worker turnover and the lack of coverage and continuity of care in particular.

We also need to look at the other factors that are now coming into play, so not only having diabetes but it being complicated by other chronic illnesses such as heart disease, stroke, and so on and so forth. It's the question of food security and the high cost of food in our communities. I'm sure most of you would not relish the thought of having to pay \$15 for a four-litre bag of milk, or \$6 to \$8 for a three-pound bunch of carrots. There's also some doubt as to whether or not those are even going to be fresh once you're able to access them at the Northern store.

We're looking at the mechanisms, what we can work with that the people have, and how we can make it work effectively.

Mr. Don Davies: Thank you.

Ms. Bains, you mentioned the Sehat program, and I'm just wondering if diabetes is one of the chronic diseases targeted by that program. Have the rates of pre-diabetes or type 2 diabetes changed since the introduction of your program?

•(1005)

Ms. Deljit Bains: We haven't been able to do any research around whether the rates have increased or decreased. As a chronic disease, diabetes is certainly a focus, but we're in the early stages. You'd have to be doing this research for 10 years to be able to see effective change.

Mr. Don Davies: Right. It's too early to tell.

Dr. Verchere, the last word goes to you. You talked about the U.S. special funding of \$150 million being transformative. How much more money would you like to see the federal government put into diabetes research? Where would that diabetes research funding be best deployed, in your view?

Dr. Bruce Verchere: A number similar to what the U.S. has invested would put us back on a competitive pace with them. Seeing what they've done with these funds has really opened my eyes to where we're falling short and what we're capable of.

My sense is that it would be a combination of competition—just letting the best ideas bubble up—as well as perhaps some targeted and specific areas of Canadian strength. For example, we could advance our work in islet biology, in replacement and regeneration, in prevention and in partnership perhaps with organizations like JDRF, where there's a specific interest in type 1 diabetes. We still have a lot to learn about autoimmunity, on beta cells and in clinical trials as well.

The Chair: I want to thank all the presenters today for your incredible contributions to our study. We're going to now talk about the drafting instructions for our report. Again, I want to thank you for coming. I want to thank Marilee for coming back again.

It's the first time we've had a witness from Albuquerque, so thank you for that.

Thanks to everybody.

We're going to suspend for a couple of minutes, and then we're going to go in camera and we'll have to clear the room.

[Proceedings continue in camera]

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