DIABETES
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LIFE ON THE BIG SCREEN WITH TYPE 1 DIABETES

Garber views his diabetes diagnosis as a learning experience. Photo: Dean Buscher/The CW/ Warner Bros. Entertainment Inc.

Canadian actor Victor Garber was just 12 years old when he was diagnosed with Type 1 diabetes. "I was sort of intrigued by the whole idea of giving myself shots," Garber remembers. "I wasn't so much frightened by it as curious as to how that was going to work."

Dependent on regular blood tests and injections to deliver the insulin his body could no longer produce, Garber describes how the diagnosis of a life-long condition affected not only his life but those around him. "I think it was almost harder for my mother than me," he recalls. But Garber learned how to manage the disease, showing his parents — and himself — there was life beyond the diagnosis. "Type 1 diabetes is not who I am — it's something that I'm living with."

Managing Type 1 with long, irregular days on set

Garber's accomplishments are notable: three Emmy Award nominations for his role in the ABC action series *Alias,* prominent roles in films like *Titanic* and *Argo,* and a successful stage career that has earned him four Tony Award nominations. Garber is currently starring as Dr. Martin Stein in the DC Comics series *Legends of Tomorrow*, where long and unpredictable days on set would challenge any diabetes management routine. "My hours are completely irregular because I work in television at the moment," Garber explains. But with the help of a continuous glucose monitor and a continuous insulin delivery system, he keeps his blood sugar levels stable and can concentrate on demanding scenes.

Garber is honest about how his diabetes management sometimes involves the help of those around him — especially when he's experiencing low blood sugar, remedied with a fast-acting source of carbohydrates like juice or candy. "When I was doing *Alias*, Jennifer Garner would know immediately," Garber explains. "She would say 'Get him some orange juice now.'" He encourages those with Type 1 diabetes to talk about their condition with friends, family, and coworkers so they recognize the symptoms of unstable blood sugar and can help give reminders to test blood sugar levels. "Be open about it so that it's not so mysterious and you're not a pariah."

> "Type 1 diabetes is not who I am — it's something that I'm living with."

Diabetes diagnosis is an opportunity to grow

For those who know or love someone with Type 1 diabetes, Garber encourages them to become educated on the condition. Talk about it or learn about the illness through websites and support groups. While a Type 1 diagnosis at a young age can be difficult for a patient's loved ones, Garber looks at the bright side of things. "Especially for parents and for grandparents, you can see this as an opportunity to grow," says Garber. "You learn more about your body. You take better care of yourself. There are a lot of positive things that can come out of these diagnoses."

Andrea Yu

LIVING WELL WITH DIABETES IS POSSIBLE

During the night of October 31, 1920, Canadian hero Sir Frederick Banting woke up with the idea of insulin — a discovery that has saved millions of lives worldwide.

Rick Blickstead
President & CEO
Canadian Diabetes Association

Since then, the progress achieved in managing diabetes is nothing short of miraculous. We understand and can manage it much better thanks to the medications, testing devices, and the expertise of dedicated health care professionals.

While it may be easier to live with diabetes today than in the past, it is never easy. Diabetes produces high blood sugar that can damage organs, blood vessels, and nerves — contributing to 30 percent of strokes, 40 percent of heart attacks, 50 percent of kidney failure requiring dialysis, 70 percent of non-traumatic leg and foot amputations, as well as being a leading cause of blindness.

Every person living with diabetes — whether Type 1, Type 2, or gestational — has a different journey, but all share the need to eat a healthy diet and be physically active. Many share the challenge of testing their blood sugars, taking medications — potentially including insulin, and monitoring their health for the first signs of the impacts of diabetes on their bodies.

The medications, devices, and treatments continue to improve — including Canadian-led advances coming from research funded by the Canadian Diabetes Association (CDA). Innovations are oncoming, including blood sugar monitoring that does not involve finger pricking, and an artificial pancreas that reacts to blood sugar levels in real-time.

While research developments are encouraging, they do not always benefit everyone who needs them. Fair access to devices, medications, and health care professionals varies across Canada depending on where you live and your insurance plans. Shockingly, there are Canadians living with diabetes today who must choose between food, rent, utilities, or medication.

The fact that diabetes takes no breaks can make living with it difficult. Once you have it, it is 24/7/365. The key to living well with diabetes — and not have it control your life — is a network of family, friends, and health care professionals to support you. That network includes associations and patient groups, which offer education and resources to everyone involved in the fight against diabetes.

> "Every person living with diabetes — whether Type 1, Type 2, or gestational — has a different journey."

This fall, an online two-minute Type 2 diabetes risk questionnaire is also available at *www.diabetestest.ca.*

This fight is becoming ever more important as another Canadian is diagnosed with diabetes every three minutes, adding to the 11 million already living with diabetes or prediabetes. November is Diabetes Awareness Month, and World Diabetes Day falls on the 14th — the birthday of Sir Frederick Banting. These reminders give us a chance to make this invisible epidemic visible so we can end its health complication and stigma, and through research, end diabetes altogether.

Rick Blickstead

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MAX DOMI'S Success Depends on Accuracy

Max Domi encourages youngsters to take every step necessary to manage their diabetes. Photo: Ascensia Diabetes Care

When Max Domi steps out of the dressing room after a game, fans surround him. The rising professional ice hockey star always takes the time to exchange a few words and sign autographs.

Once in a while, Domi comes across youngsters who, like him, have Type 1 diabetes, a disease in which the blood sugar can soar to dangerous highs and lows because the pancreas is unable to produce insulin to regulate it. He spends a few extra minutes with those kids and always delivers the same message: "Control your diabetes. Don't let your diabetes control you."

Domi practices what he preaches. Since he was diagnosed with diabetes nine years ago, he has taken every step necessary to manage the disease and follow his dreams. "When you get to this level of competition, you need to use everything in your toolbox to set yourself up for success," he says.

Food, exercise, stress, illness, hormones, and other factors contribute to fluctuations in blood sugar levels, so Domi, one of the top scorers on his team, must constantly monitor and regulate it.

He checks his level using a CONTOUR® NEXT blood glucose monitor and adjusts his insulin through a pump upwards of six times a day, including before and after meals and even when he's competing.

During a typical 60-minute game, Domi checks his blood sugar level during and after each of the three periods, adjusting his insulin as necessary.

> "Control your diabetes. Don't let your diabetes control you."

Domi, 21, sometimes makes changes to accommodate the demands of his job. For example, Domi's regimen is different when the team is on the road, because he's eating and sleeping at varying times. Professional hockey players often travel through several time zones on a single road trip.

Never use blood sugar as an excuse

Domi has to be vigilant because when he's "out of range" he's not at his best. When his blood sugar drops too low he's not as mentally sharp as he needs to be — he describes it as feeling "loopy" — and when it climbs too high his energy fades; he gets as tired after 30-seconds on the ice as he normally does after 15-minutes of wind sprints.

High blood sugar tends to affect his game in other ways, too. "I'm not the kind of player who takes a lot of penalties, but when my blood sugar spikes I can be irritable," he says, admitting to the occasional slash across an opponent's leg. "I sometimes snap at referees and linesmen. But I always apologize. I never use my diabetes as an excuse."

Team mentality: depend on support

While game officials may not understand the role the disease plays in Domi's behaviour, his family members, friends and teammates do, and they have always been supportive. They are his other team.

Domi's coaches and trainers also play an important role in keeping him functioning at his best. "They work with my diabetic specialist to ensure everyone is on the same page in terms of my treatment," he says. "It's great to have them working together. They all help me to stay in control and focus on my passion."

Every person with diabetes needs a support network to thrive, says Domi. Some support networks extend further than most. Domi's includes a service dog named Orion. When Domi's blood sugar drops, the golden lab picks up the scent and lets his owner know by grabbing a chew toy that Domi wears on his belt. The protocol is different when he is asleep. "Orion will jump on my bed and lick my face," he says with a laugh. "What a way to wake up!"

He encourages everyone living with diabetes to embrace the demands of managing the disease. "Everyone faces adversity. I do have more challenges to face, but my support team helps me take my diabetes management to the next level," he says. "I always say to young people, 'Go out and pursue your goals. Achieve your dreams. Don't let anything get in your way. Be remarkable.'"

Randi Druzin

Contour next

GET POWERED BY ACCURACY AND SEE WHAT YOU CAN ACHIEVE next

Max Domi, Accuracy Coach

Managing diabetes can be a challenge. That's why we need to rely on our team to help us get to the next level. Visit us online to see how me and the CONTOUR® NEXT team share our stories to help you be remarkable. **Now, what will you achieve next?**

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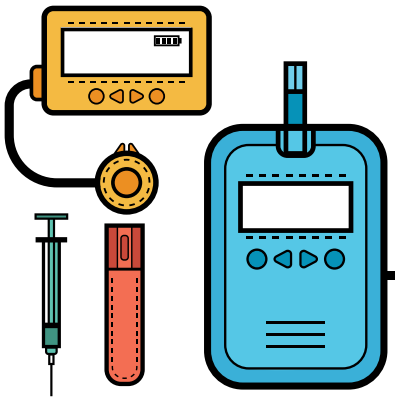

Insulin Pump Technology Gives Greater Freedom and Flexibility

Almost three million Canadians have been diagnosed with diabetes. By 2020 this number is estimated to reach 4.2 million, according to the Canadian Diabetes Association. While there is no cure to date, diabetes is a condition that can be managed.

Technology to benefit those with Type 1

More than 300,000 Canadians have Type 1 diabetes. "Although there is no national data available, the number of patients benefiting from insulin pump technology is far below expectations," says Dr. Rémi Rabasa-Lhoret, an Endocrinologist and Associate Professor at l'Institut de recherches cliniques de Montréal.

"There are many reasons for this, from lack of awareness of pump technology to misplaced fears and misconceptions. Cost also represents a significant barrier. However, the vast majority of patients who switch from multiple daily injections to an insulin pump will stay with this option and not switch back."

Some patients couple pump technology with continuous glucose monitoring (CGM). The combination — which delivers insulin throughout the day and measures real-time glucose levels — is a blessing to many.

Smart, personalized care adapts to individuals

"The main advantage of the pump is its flexibility," explains Dr. Rabasa-Lhoret. "A patient can fine tune the amount of insulin every half hour, if need be. You can't do that with injections."

Through a catheter placed under the skin, an insulin pump administers insulin doses 24-hours a day. In conjunction with CGM, risks associated with low blood sugar can be reduced.

As a safety measure, some pumps can automatically stop the flow of insulin should blood glucose drop below a pre-set level — even when the wearer is asleep. The insulin pump allows those with diabetes to match their insulin intake to their lifestyle — not the other way around.

CGM data provides personalized insights for better care

"The pump and CGM are good partners," says Dr. Rabasa-Lhoret. "Repeated glucose values are recorded at five-minute intervals, providing a more complete picture of what's happening with a patient. You get a tremendous amount of information."

That bounty of information is helpful also to health care providers, like Christine Richardson, a certified diabetes educator at the Children's Hospital of Eastern Ontario in Ottawa. "Data gathered via pump and CGM can be uploaded to a website," she says. "Together, clients and I can see the information and advice can be provided based on this data over the phone."

The results can be life-changing. "It's a more normal way to live," Richardson explains. "You don't have to plan for things hours ahead of time. You can be in the moment and adjust how much insulin is given through the pump according to your day."

Flexible treatment suits patients' lives

Dessi Zaharieva, a 27-year-old PhD candidate at York University, was diagnosed with Type 1 diabetes at the age of 7. At 13, she switched to the insulin pump. "Life isn't always structured," she says. "You may end up going out to eat or playing sports with friends when you hadn't necessarily planned for it. The insulin pump allows for fine tuning in ways injections don't."

Zaharieva loves sports, from taekwondo to snowboarding. She doesn't allow diabetes to prevent her from doing what she loves. The irony is that she didn't want to wear an insulin pump at first.

"I told my parents, 'I feel like a walking hospital,'" she recalls. "But, once I got over the fear and worry of having something connected to me 24/7, I made the switch. And I couldn't be happier."

Michele Sponagle

VISION LOSS DUE TO DIABETES ON THE RISE

Worldwide, the prevention of unnecessary vision loss associated with diabetes has a particular urgency surrounding it. The risk of blindness due to untreated diabetic retinopathy (DR) and diabetic macular edema (DME) is serious. With DR alone, approximately one in three adults with diabetes is affected by the condition — a staggering 93 million people worldwide.

Sobering facts like these inspired this year's theme for World Diabetes Day (November 14). "The theme 'Eyes on Diabetes,' reflects how critical we believe the role of eye health to be within diabetes management," says Dr. David Cavan, MD, Director of Policy & Programmes, International Diabetes Federation.

Global DR Barometer Report sheds light on preventable vision loss

More findings are contained in the DR Barometer Report, a landmark study of nearly 7,000 adults with diabetes and health care professionals from 41 countries. It raises serious concerns about the critical need for clear patient care pathways and responsive health systems to address preventable vision loss.

In Canada alone, 11 million people are currently living with diabetes or prediabetes, according to a recent update to *The Diabetes Charter for Canada*, created by the Canadian Diabetes Associations.

According to Dr. Jane Barratt, Secretary General, International Federation on Ageing, "We are currently experiencing one of the most important demographic upheavals of our time in terms of our global population aging, and the impact of non-communicable diseases such as diabetes is rising at a rapid rate."

The high cost of vision loss

Vision loss touches lives on a personal, social and economic basis, causing increased rates of unemployment, divorce, and clinical depression. As Peter Ackland, Chief Executive Officer of the International Agency for the Prevention of Blindness (IAPB), explains: "Diabetic retinopathy is a leading cause of blindness in the working-age population of most developed countries, and the sight loss caused by this condition can have a profound impact on both an individual's quality of life and their ability to work."

Clearly, now is the time for those with diabetes, their families, and health care professionals to take action — but how? One important step is to have more discussions about vision loss. Findings within the DR Barometer Study estimate one quarter of people with diabetes are not talking about potential eye complications with their health care providers. Despite the fact that the risk of vision loss is twice as high as other diabetes complications, such as stroke and cardiovascular disease, it is not always addressed.

Good news on prevention

"DR and DME can be successfully managed with the right screening and treatment," says Mr. Ackland. "However, many people with diabetes are being placed at unnecessary risk of vision loss due to barriers within the referral system and patient care pathway."

The other critical part of the prevention picture is linked to issues with health care systems. Globally, there is a worrying lack of guidelines for health care professionals. The DR Barometer Study reveals 50 percent of providers surveyed did not have written protocols for the detection and management of diabetes-related vision issues. With late diagnosis cited as the greatest barrier to improving outcomes for those with the disease, this finding is especially concerning.

Individuals and communities should not be complacent while vision loss due to diabetes threatens quality of life. Talk to your health care professional and get the facts about early detection and treatment options before sight problems occur.

*For more information on the DR Barometer Report and its findings, which will soon include Canada-specific data, please visit **drbarometer.com**. To learn more about advocating for options in eye health, visit **eye-see-you.ca***

Michele Sponagle

HOW NEW CLOUD TECH IS CHANGING THE FACE OF DIABETES MANAGEMENT

Over the course of the last century, diabetes has been transformed from a death sentence to a chronic but more manageable condition, and technology has played a large role in that transformation.

A hundred years ago, there was no effective treatment for diabetes. It was in the 1920s that the great Canadians Banting and Best first isolated insulin. Fifty years ago, there was no real way for people with diabetes to monitor their glucose levels at home. The first home glucose meters didn't arrive on the market until the late 1960s, and compact easy-to-use models became prevalent only in the 1980s. Now, with the advent of Internet-connected blood glucose meters and their attendant software, the management of this chronic disease is undergoing another change perhaps just as big.

Philip Hosiassohn has been a practicing pharmacist for 35 years, first in South Africa and now at Rexall in Hamilton, Ontario. He has been helping people manage their Type-1 and Type-2 diabetes for his entire career and, himself father to a son with diabetes, has a very personal interest in the disease and the technology that can help manage it. Most importantly, he believes strongly that, despite the many challenges of living with diabetes, people with the condition do in fact have the tools to take control of their health.

The better the technology gets, the easier we can make that process for people who are coming to terms with a diabetes diagnosis.

Putting your health in drive

"I like to describe the difference between someone who has diabetes and someone who doesn't as like the difference between a standard and an automatic car," says Hosiassohn. "If you have diabetes, you have to take manual control of some aspects of your health. But it is controllable."

Of course, learning to drive stick is a bumpy process. The better the technology gets, the easier we can make that process for people who are coming to terms with a diabetes diagnosis. "When someone gets a diagnosis of diabetes, it can be a major shock," acknowledges Hosiassohn. "It brings lifestyle changes, medication changes; it's a lot to digest. Anything we can do to make that transition simpler is a very good thing."

And making the process as simple as possible is of paramount importance. Patient compliance with testing and getting access to accurate glucose data has long been a challenge for healthcare providers treating diabetes.

The manual transmission car just got a major upgrade

The newest blood glucose meters, like the OneTouch Verio Flex and its associated smartphone app, are bridging that gap between patients and their diabetes care team. "The first device I used that marketed this integrated Bluetooth technology was from OneTouch," says Hosiassohn. "Now, the reading can go straight from the blood glucose meter to your cellphone through the OneTouch Reveal app on your smartphone or tablet into cloud storage and directly to the health care provider. It's a seamless experience for the patient and their physician or pharmacist, from the prick of the finger to the health care provider's computer."

This is a massive change from the days when people living with diabetes had to eyeball the colour of test strips against a chart and take meticulous records in a handwritten log book. "With these new meters, you don't have to write anything down," says Hosiassohn. "It's all electronically stored. It's right there on your meter or your cellphone, you can print out all kinds of reports, and it all can be sent directly to the physician or pharmacist."

That convenience not only makes life easier for those living with diabetes, it greatly helps the healthcare provider as well. "With accurate information we can make much earlier and better-informed interventions," says Hosiassohn. "By using this data to guide our patients in improving their A1C (three month blood glucose value), we can also largely improve the morbidity factors and outcomes of diabetes, from cardiovascular health to eyesight."

Putting the patient in the driver's seat

From Hosiassohn's perspective, the most remarkable thing about these advances in diabetes monitoring technology is the way they are putting the power to manage this condition in the hands of those who live with it. "The key thing is to have the patients taking control of their own fate. With health care providers looking in through the window provided by this technology, we can enable them to better do that. It really is an enabler. It empowers the patient to improve their quality of life."

And that, the empowerment of people with diabetes to live their best life on their own terms, is the goal that the community has been chasing since well before Banting and Best.

D.F. McCourt

The **Most Significant Advance** in Diabetes Care Since Insulin

CONTINUOUS GLUCOSE MONITORING OFFERS FREEDOM, PEACE OF MIND

Jack Poisson was always a happy and healthy kid, but in May 2013 his life was turned upside down by a Type 1 diabetes diagnosis. Now new technology is allowing him to live his life to the fullest – and is giving his parents great peace of mind.

Jack is a healthy, active 13-year-old who lives with his sister, Annie, and their parents, Alissa and Ken, in Windsor, ON. He loves playing hockey and soccer, and spends his free time skateboarding with friends. The Type 1 diabetes diagnosis was incredibly difficult for Jack and his family.

Jack and his parents began monitoring Jack's blood glucose levels several times a day by using a blood glucose meter. This enabled them to track and control his levels but offered incomplete data. A year passed before the Poissons learned about a new kind of technology that monitors glucose levels in real-time and offers trend information on where glucose levels are heading.

Can be a safety net for those living with Type 1 diabetes

Continuous glucose monitoring (CGM) is a small wearable device that tracks glucose levels 24-hours a day, alerting the patient when their blood sugars begin to trend high or low.

"It's a huge safety net for me as a mom," says Alissa. "We used to be kept up at night, worrying that Jack could die in his sleep going low. But now there's an alarm that gives me peace of mind. And Jack loves that we're more open to the idea of sleepovers now!"

"I believe CGM is the single most significant advance in diabetes care since the discovery of insulin," says Dr. Angelo Simone, Paediatric Endocrinologist at Trillium Health Partners and Assistant Professor of Paediatrics at the University of Toronto.

"CGM technology provides not only a real-time snapshot of glucose levels but more importantly trend information on where glucose levels are headed. This allows the ability to predict and prevent both hypoglycemia and hyperglycemia before they occur – with a high degree of accuracy and reliability."

An inspirational encounter

In 2014, Jack met endurance athlete Sébastien Sasseville, who also lives with Type 1 diabetes. Despite his condition, Sasseville has completed six Ironman Triathlons, run the Sahara Race, climbed Mount Everest, and, most recently, ran across Canada from east to west – a 7,200 kilometre journey, the equivalent of 170 marathons.

Sasseville undertook his epic journey to highlight what people with diabetes can achieve. Jack and Sébastien met during the Ontarian leg of Sasseville's journey.

The encounter inspired Jack, normally a shy child, to give a presentation on diabetes in front of his entire school and to start fundraising for the cause. He even forwent birthday gifts in favour of donations. Later that year, he and his parents flew out to Vancouver to surprise Sébastien and the pair ran the last leg of Sasseville's trans-Canada journey together.

"To run those last steps with Jack was just pure bliss," says the athlete.

Sasseville also uses a CGM device and says it was the most important tool he had during his run across Canada.

"Numerous clinical trials have demonstrated the ability of CGM technology to decrease the risk of hypoglycemia in all age groups," says Dr. Simone. CGM technology can be used by both Type 1 and Type 2 diabetics, and integrates with whatever method of insulin therapy the patient uses.

He adds that the technology has come a long way since early models were first made available in Canada. In fact, the world's first iOS-compatible CGM system will come to Canada in January 2017 – the Dexcom G5 Mobile CGM.

The gold standard for accuracy, the Dexcom G5 is also Canada's first CGM to be approved for use in place of blood glucose fingersticks for dosing insulin in most situations. And iOS compatibility means that users can not only view real-time glucose data and trends on their devices – but share that data, including trends and alarms, with parents and loved ones. For the Poissons, this means Jack's parents can know whether his levels are where they should be, even while Jack is away at camp or at a sleepover.

CGM is a powerful technology that is allowing people like Jack and Sébastien to live their lives to the fullest.

> "I believe CGM is the single most significant advance in diabetes care since the discovery of insulin."

Jack continues to play sports and, inspired by Sasseville's achievements, the 13-year-old is contemplating running across Ontario to raise awareness of Type 1 diabetes. As for Jack's parents, Alissa and Ken can finally have a full night's sleep knowing Jack is in good health and able to chase his dreams.

Bronwen Keyes-Bevan