

## Rotarians learn about diabetes, and progress being made

By Bill Rea

Diabetes continues to have a major impact on the well-being of many, but there is also cause for optimism.

People attending the recent dinner hosted by various local Rotary clubs were provided with plenty of news, both positive and negative, on what the disease has been doing and what's being done about it. They heard from world renowned doctors and researchers Dr. Gary Lewis and Dr. Maria Christina Nostro.

The event was put on by the Rotary Clubs of Bolton, Palgrave, Erin, Orangeville and Shelburne.

Lewis, head of the Endocrinology and Metabolism Division at the University Health Network and Mount Sinai Hospital in Toronto, and Canada Research Chair in Diabetes at the University of Toronto, gave a description of diabetes, stating it occurs when the pancreas fails to produce sufficient insulin.

"Insulin is absolutely essential for the function of the body," he told the packed house at the Royal Ambassador Event Centre.

He also said there are two types of diabetes.

Type 1 affects younger people, usually before the age of 35. It can start because cells in the pancreas get attacked by the body's immune system. People with Type 1 can be treated with daily insulin injections; sometimes four times per day.

Type 2 accounts for about 90 per cent of the cases. Lewis said it's a disease of adulthood, occurring when the pancreas doesn't make enough insulin. The illness increases the risk of cardio-vascular disease. Lewis said about 75 per cent of diabetics have problems in that regard.

"It is a very serious illness," he remarked, adding it can also lead to blindness, renal failure, nerve damage and strokes.

Insulin was discovered in 1921 at the University of Toronto in 1921, and Lewis called it one of the greatest medical discoveries in history. This was before the days of anti-biotics, so there wasn't a lot doctors could do for their diabetic patients.

The first treatment was administered at Toronto General Hospital. Lewis commented that up until then, Type 1 diabetes was fatal.

Leonard Thompson, a 14-year-old diabetic, was given the first injection of insulin. This came after Dr. Frederick Banting was able to secure some lab space, as well as the assistance of medical student Charles Best, and tests had been conducted on dogs. A doctor named Macleod, who had provided the lab space, started to take notice. "Something very, very exciting was happening," Lewis remarked, adding things were starting to look better for the patients. The race started to produce insulin.

The 1923 Nobel Prize for Medicine went to Banting and Macleod. Banting thought he and Best really deserved the credit, so he shared his portion of the prize money with him.

In the 21st century, roughly one in four Canadians are impacted by diabetes, either by having the disease or knowing well someone who does. Lewis added that it's expected that by 2030, 438 million people in the world will have it. "This number keeps getting revised upwards," he observed.

He also said about three million Canadians have the disease, adding a lot of people who have it don't realize it.

He also said the vast majority of cases are in places like China and India.

Factors that add to the increase include an aging population, immigration from high-risk areas and obesity.

Lewis also pointed to statistics that young people in Canada are not considered active enough. He said only about 21 per cent of Canadian teens are considered active enough, according to international guidelines, adding the people who are obese when they are young, tend to stay that way when they get older.

Socio-economic issues, as well as the environment, play a role too, he said.

But the good news revolves the amounts of research being done, and the positive results that are being realized.

That includes work to enable the development of human insulin producing cells from stem cells that could replace the need for daily insulin injections.

"We need all the help we can get, but we're absolutely committed," Lewis declare.

Christina Nostro went through some of the progress that has been made in this form of research.

She said it's possible to transplant a pancreas, but the surgery is difficult, and there's also a shortage of donors. That's leading to the efforts to make use of stem cells and their capacity for self-renewal.

"It's extremely encouraging," she said. "We're just super excited."



Dr. Maria Christina Nostro and Dr. Gary Lewis had plenty of information on the progress of the fight against diabetes at the recent Rotary event. Photo by Bill Rea