

Facts

General Diabetes Facts

What is Diabetes?

Diabetes is a chronic, debilitating disease affecting every organ system. There are two major types of diabetes: type 1 and type 2.

Type 1 diabetes is an autoimmune disease in which a person's pancreas stops producing insulin, a hormone that enables people to get energy from food. Type 1 diabetes usually strikes in childhood, adolescence, or young adulthood, but lasts a lifetime. People with type 1 diabetes must take multiple injections of insulin daily or continually infuse insulin through a pump just to survive.

Type 2 diabetes is a metabolic disorder in which a person's body still produces insulin but is unable to use it effectively. Type 2 is usually diagnosed in adulthood and does not always require insulin injections. However, increased obesity has led to a recent rise in cases of type 2 diabetes in young adults.

Taking insulin does not cure any type of diabetes nor prevent the possibility of its eventual and devastating effects: kidney failure, blindness, nerve damage, amputation, heart attack, stroke, and pregnancy complications.

The Scope of Diabetes

Nearly 24 million Americans have diabetes (7.8 percent of the population):

- Diagnosed: 17.9 million
- Undiagnosed: 5.7 million

As many as 3 million Americans may have type 1 diabetes.†

Diabetes currently affects 246 million people worldwide and is expected to affect 380 million by 2025

In the U.S., a new case of diabetes is diagnosed every 30 seconds; more than 1.6 million people are diagnosed each year.

The Cost of Diabetes

Diabetes is the single most costly chronic disease.

In 2007, diabetes accounted for \$174 billion in health-care costs in the U.S.

Diabetes accounts for 32 percent of all Medicare expenditures.

The nation spends \$11,744 on each person with diabetes, compared to \$2,935 on those who don't have diabetes, as of 2007.

People with diabetes in the U.S. incur medical expenses that are approximately 2.3 times higher than people without diabetes.

The "National Bill" for hospital stays related to diabetes totaled \$58.3 billion in 2007.

An estimated 22 percent of hospital inpatient days in the U.S. were incurred by people with diabetes in 2007.

The Damage Caused by Diabetes

Attacks Many Organ Systems: Diabetes is the leading cause of kidney failure, adult blindness, and non-traumatic amputations and a leading cause of nerve damage, stroke, and heart attacks.

Increased Risk: People with diabetes are two to four times more likely to have a heart attack or stroke than someone without the disease.

Shortens Life: Diabetes kills one American every three minutes and is the 7th leading cause of death reported in the U.S. Life expectancy for people with diabetes is shortened by an average of 7-10 years, and the risk of death for people with diabetes is about two times that of people without diabetes of similar age.

† *Type 1 Diabetes, 2004; KRC Research for JDRF, Jan. 2005*

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Type 1 Diabetes Facts

Affects Young Children

Type 1 diabetes strikes children suddenly, makes them dependent on injected or pumped insulin for life, and carries the constant threat of devastating complications. While diagnosis most often occurs in childhood and adolescence, it can and does strike adults as well. Type 1 diabetes is an autoimmune disease in which the body's immune system attacks and destroys the insulin-producing cells of the pancreas. While the causes of this process are not yet entirely understood, scientists believe that both genetic factors and environmental triggers are involved.

Needs Constant Attention

To stay alive, people with type 1 diabetes must take multiple insulin injections daily or continually infuse insulin through a pump. They must also test their blood sugar by pricking their fingers for blood six or more times per day. While trying to balance insulin doses with their food intake and daily activities, people with this form of diabetes must always be prepared for serious hypoglycemic (low blood sugar) and hyperglycemic (high blood sugar) reactions, both of which can be life-limiting and life threatening.

Insulin Does Not Cure It

While insulin allows a person to stay alive, it does not cure diabetes nor does it prevent its eventual and devastating effects, which may include: kidney failure, blindness, nerve damage, amputations, heart attack, stroke, and pregnancy complications.

Difficult to Manage

Despite rigorous attention to maintaining a meal plan and exercise regimen, and always injecting the proper amount of insulin, many other factors can adversely affect efforts to tightly control blood-sugar levels including: stress, hormonal changes, periods of growth, physical activity, medications, illness/infection, and fatigue.

Statistics and Warning Signs

- As many as 3 million Americans may have type 1 diabetes.†
- Each year more than 15,000 children are diagnosed with diabetes in the U.S. That's 40 children per day.
- Warning signs of type 1 diabetes include: extreme thirst, frequent urination, drowsiness or lethargy, increased appetite, sudden weight loss for no reason, sudden vision changes, sugar in urine, fruity odor on breath, heavy or labored breathing, stupor or unconsciousness. These may occur suddenly.

What is it like to have type 1 diabetes?

Ask people who have type 1 diabetes. It's difficult. It's upsetting. It's life threatening. It doesn't go away.

"Both children and adults like me who live with type 1 diabetes need to be mathematicians, physicians, personal trainers and dieticians all rolled into one. We need to be constantly factoring and adjusting, making frequent finger sticks to check blood sugars, and giving ourselves multiple daily insulin injections just to stay alive."

— JDRF International Chairman, Mary Tyler Moore

"This disease controls our lives with all the pricking of the fingers, shots, high and low blood sugars; it's like being on a seesaw. Without a cure, we will be stuck on this seesaw till the day we die."

— Tre Kawkins, 12, Michigan

"I want to live someday without thinking about my diabetes. It's a lot for a little kid to keep up with."

— Luke Varadi, 11, South Carolina

"Diabetes has made me different than all my friends. I have an extra burden to carry."

— Caroline McEnery, 17, Connecticut

† Type 1 Diabetes, 2004; KRC Research for JDRF, Jan. 2005

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About the Juvenile Diabetes Research Foundation

Dedicated to Finding a Cure

The Juvenile Diabetes Research Foundation International is the leader in setting the agenda for type 1 diabetes research worldwide, and is the world's largest charitable funder and advocate of type 1 diabetes research. The mission of JDRF is to find a cure for diabetes and its complications through the support of research. Type 1 diabetes is a disease which strikes children and adults suddenly, but lasts a lifetime. It requires multiple injections of insulin daily or a continuous infusion of insulin through a pump. Insulin, however, is not a cure for diabetes, nor does it prevent its eventual and devastating complications which may include kidney failure, blindness, heart disease, stroke, amputation, and pregnancy complications.

Building Upon Research Successes

JDRF funding and leadership is associated with most major scientific breakthroughs in type 1 diabetes research to date. In fact, JDRF funds a major portion of all type 1 diabetes research worldwide, more than any other charity. JDRF provided more than \$156 million to diabetes research in FY 2008, and is responsible for more than \$1.3 billion in direct funding since it was founded. Our research review process not only includes leading research scientists from around the world, but lay reviewers who either have type 1 diabetes or have family members with type 1 diabetes. This process insures that JDRF funds research with the greatest impact throughout the world, leading to results as soon as possible.

Moving Research from Bench to Bedside

JDRF is a leading catalyst for development science that delivers treatments and cures to improve the lives of people with diabetes in the near term. Working toward this goal, JDRF has taken the lead in translating basic research breakthroughs into cure therapies in such areas as restoring autoimmunity, preventing and reversing complications, islet replacement, beta cell regeneration, and achieving metabolic control. The Foundation creates multidisciplinary programs that bring together diabetes researchers from both academic institutions and industry to find a cure for diabetes and its complications.

Efficiently Organized for Successful Results

JDRF is structured on a business-world model that efficiently and effectively directs resources to research aimed at finding a cure as soon as possible. More than 85 percent of JDRF's expenditures directly support research and research-related education. Because of its unwavering focus on its mission to find a cure, JDRF annually receives top rankings from independent sources that rate charitable giving. JDRF leverages its research impact by partnering with and stimulating increased research spending on the part of public and private medical organizations and other entities throughout the world.

A Backbone of Dedicated and Active Volunteers

JDRF was founded in 1970 by the parents of children with type 1 diabetes. As a result, JDRF volunteers have a personal connection to type 1 diabetes, which translates into an unrelenting commitment to finding a cure. These volunteers are the driving force behind more than 100 locations worldwide that raise money and advocate for government spending for type 1 diabetes research.

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Research Funding Facts

Since its founding in 1970 by parents of children with type 1 diabetes, JDRF has awarded more than \$1.3 billion to diabetes research, including more than \$156 million in FY2008. Of this total more than \$88 million represented new scientific projects. More than 85 percent of JDRF's expenditures directly support research and research-related education. In FY2008, the Foundation funded more than 1,000 centers, grants, and fellowships in 22 countries, including nearly 40 human clinical trials.

Areas of Scientific Investigation

- Artificial Pancreas
- Beta Cell Development
- Beta Cell Function
- Beta Cell Regeneration
- Clinical Trials
- Environmental Triggers
- Gene Therapy
- Genetics
- Hypoglycemia
- Immunology
- Islet Transplantation
- Nephropathy
- Neuropathy
- Retinopathy
- Stem Cells
- Technological Interventions
- Tolerance
- Wound Healing

JDRF's Research Goals

JDRF has established a set of cure therapeutic goals to guide its research funding efforts. These research goal areas hold the greatest potential to lead to breakthrough cures and treatments for type 1 diabetes and its complications:

- **Autoimmunity:** Stopping or reversing the immune system response that causes diabetes – the attack on insulin-secreting cells in the pancreas.
- **Complications:** Understanding how diabetes causes complications, and developing drugs, treatments, and therapies to stop that process, or reverse the impact of the different types of individual complications.

- **Replacement:** Replacing cells killed off by diabetes with functioning ones from a donor – similar to a heart or kidney transplant – including increasing the supply of cells that can be transplanted.
- **Regeneration:** Regenerating insulin-producing cells in people who have diabetes (as opposed to transplanting cells from organ donors or other sources).
- **Metabolic Control:** Demonstrating that advanced monitoring tools might significantly improve the health of people with diabetes, and developing technologies that link insulin pumps and continuous glucose monitors.

FY 2008 JDRF Research Funding

Autoimmunity	\$48.5 million
Complications	\$28.9 million
Metabolic Control	\$15.2 million
Regeneration	\$21 million
Replacement	\$42.8 million