The Voice of the Donor for a Cure

Juvenile Diabetes Cure Alliance

Type 1 Diabetes: A Growing Concern

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Conclusions:

- Published research on the incidence of type 1 diabetes in the United States has indicated that the prevalence of type 1 diabetes, particularly in children under the age of 17, has risen since 1985, and paricularly since 2000.

-While there is no consensus as to the cause, type 1 diabetes is striking more and more people across economic, racial, and geographic boundaries.

-The JDCA believes that there should be a corresponding increase in the urgency with which research centers and the diabetes non-profits pursue a Practical Cure for type 1.

Organizations of Focus:

American Diabetes Association (ADA)

Diabetes Research Institute Foundation (DRIF)

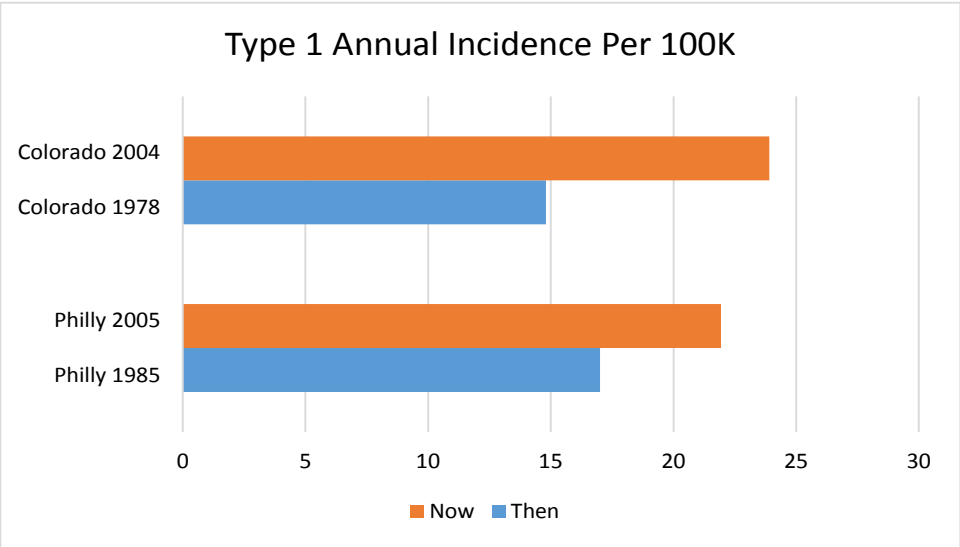
JDRF

Joslin Diabetes Center (Joslin)

November is Diabetes Awareness Month. This report is meant to draw attention to the increasing number of people, especially children, who have been diagnosed with type 1 in recent years. Published research on the incidence of type 1 diabetes in the United States has indicated that the prevalence of type 1 diabetes, particularly in children under the age of 17, has risen since 1985, and paricularly since 2000.

Notable recent studies estimate the incidence of type 1 in the U.S. by analyzing patient groups in select cities (e.g. Philadelphia), within a particular state (Colorado, Pennsylvania), or across states (the multi-center SEARCH study). These studies include:

- **Philadelphia Study**: The Philadelphia study, published in January 2013, analyzed twenty years of data from the Philadelphia Diabetes Registry, which tracks newly diagnosed cases of diabetes. The study found that the age-adjusted incidence rate of 17 new type 1 diagnoses per 100,000 people increased by 1.5% per year for 20 years from 1989-2009, or a 29% overall increase. It also found that the annual incidence of 12.2 new cases of type 1 per 100,000 children ages 0-4, had increased by 70% since the first cohort from 1985-1989.
- **Colorado Study:** The Colorado study, published in 2007, studied the Colorado IDDM (insulin-dependent diabetes mellitus) Study Registry and the Colorado SEARCH Registry to identify trends in the incidence of type 1 diabetes over the 25-year period from 1978-2002. The researchers found that the incidence of type 1 diabetes had increased from 14.8 new diagnoses per 100,000 children in 1978 to 23.9 per 100,000 in 2004, an increase of 2.3% per year.
- **Pennsylvania Study:** Allegheny County in Pennsylvania maintains a registry of type 1 incident patients. Analysis of the registry from 1965-1994 revealed that while the incidence rate was stable from 1965 to 1985, it increased by 0.22% annually from 1985-1989.
- **SEARCH Study:** The SEARCH study examined over 6,000 existing cases of pediatric diabetes and 800 new cases across six Centers for Disease Control centers (California, Colorado, Hawaii, Ohio, South Carolina, Washington). At the 2013 ADA conference, researchers revealed that the prevalence of type 1 diabetes had increased by 23% from 2001-2009.



Inadequate Explanations

No one knows why more and more people, especially children, are developing type 1 diabetes every year. Scientists have proposed several hypotheses, but the academic community has not widely accepted any one of them as the definitive explanation.

These hypotheses include:

1. **Accelerator hypothesis:** rising weight and height of children over the past century has put the insulin-producing beta cells under stress and "accelerated" their tendency to develop type 1.
2. **Sunshine hypothesis:** more time spent indoors is reducing children's exposure to sunlight, which in turn reduces their level of vitamin D. Lower levels of vitamin D and less exposure to sunshine have each been linked to an increased risk of type 1 diabetes.
3. **Hygiene hypothesis:** a decline in infectious diseases linked to better hygiene and medical conditions has resulted in autoimmune hypersensitivity, which triggers the destruction of the insulin-producing beta cells by rogue white blood cells.
4. **Cow's milk hypothesis:** exposure to cow's milk in infant formula during the first six months of life wreaks havoc on the immune system and increases the risk of developing type 1 later in life.
5. **POP hypothesis:** exposure to persistent organic pollutants increases the risk of both types of diabetes.

While there is no consensus as to the cause, it is undeniable that type 1 diabetes is striking more and more children across economic, racial, and geographic boundaries. If the growing number of children with type 1 were not enough of a reason to inject urgency into the pursuit of a type 1 cure, the financial costs associated with the growing population might also prompt a more concentrated cure effort.

The JDCA therefore believes that there must be a corresponding increase in the urgency with which research centers and the diabetes non-profits pursue a Practical Cure for type 1.

Besides the medical costs to individuals and their families, the rise in new cases of type 1 takes a sharp toll on the national economy. Our next report in our "Diabetes Awareness Month" series will gauge the economic impact of type 1 diabetes in the United States.

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Analyst Certification

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