

Diabetes in Children— A Global Campaign

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Introduction

For the last 30 years as a pediatric endocrinologist in Los Angeles, California, I have had to tell countless parents that their child has diabetes. As the words emerge from my mouth, each parent gazes at me in amazement, despair and disbelief that such a chronic disease can be affecting their child. As my team of diabetes health care providers and I start what is often life saving treatment to bring the child back from the brink of disaster due to diabetic ketoacidosis and as we initiate insulin therapy, we know that with appropriate care, access to medications, education and support the child we are treating can not only survive but thrive and live a productive, meaningful and healthy life. But this is not the case for thousands and thousands of children around the world. In many of the developing countries, children and youth do not have access to medical care or basic medical supplies such as insulin, and they succumb to the ravages of diabetes before or shortly after it is diagnosed. For example, in Mali children live on average 12 months after they are diagnosed. Because of this, the International Diabetes Federation (IDF), a federation made up of Diabetes Associations from around the world, has targeted a two-year campaign, “Diabetes is Different in Children,” to highlight the worldwide impact of pediatric diabetes. I am privileged to chair this campaign with a group of international pediatric diabetes experts. With

the passage of UN Resolution 61/225 about diabetes in December 20, 2006 and the celebration of the first World Diabetes Day on November 14, 2007 uniting the world diabetes community under the UN banner, we can try to assure that all global citizens have access to care when they are diagnosed. My committee and the IDF hope our campaign about Diabetes in Children will begin to assure that the myriad of children around the world have the opportunity to receive basic supplies, education and the chance to control their diabetes and survive.

What are diabetes rates for children and youth globally?

The global incidence of type 1 diabetes in children and adolescents has been increasing at a rate of approximately 3 percent per year, including in the U.S.^{1,2} It is estimated that some 65,000 children under 15 years of age develop type 1 diabetes worldwide each year. There is an estimated 430,000 prevalent cases of type 1 diabetes in children throughout the world, however, these cases are not distributed equally across the globe. More than a quarter of these children reside in the South-East Asian Region, and more than a fifth are in Europe. The Western Pacific Region has the lowest prevalence of type 1 cases in youth, despite having the largest childhood population.

Although type 1 diabetes represents the predominant form of the disease in youth, due to the marked increase in childhood obesity in most regions of the world, type 2 diabetes is now being labeled an “epidemic.” In the US, it is estimated that type 2 diabetes represents between 8 to 43% of new-onset diabetes cases in children depending on geographic location and its prevalence varies by race with Native American Indian, African American, Hispanic and Pacific Islander/Asian youth at

high risk.³ In a 10 country study in Asia, an average of 10% of children presenting with diabetes were diagnosed with type 2. However, over a 20 year period, type 2 diabetes increased 10 fold in children in Japan, so that prevalent cases of type 2 are more common than type 1.⁴ In native and aboriginal children in North America and Australia, the prevalent rate of type 2 diabetes ranges from 1.3 to 5.3%. In contrast, European countries report that 0.5% of children with diabetes have type 2.

Can we prevent children from dying at diagnosis?

Globally, children with diabetes are threatened by poor access to health care, inadequate diabetes supplies including insulin, and lack of trained health care providers. As a result, the diagnosis of diabetes can often be delayed and children can succumb. Even in the developed world, the diagnosis of diabetes can often be delayed particularly in young children. This is because many people, still do not understand or believe that diabetes can occur in infants, toddlers and school-aged children. It is not easy to recognize an increase in thirst and urination in children who are still in diapers, nursing, drinking from bottles or at school all day. Children with diabetic ketoacidosis can be misdiagnosed as having the flu and they can slip into a coma or die before their diabetes is treated. As a result, the DKA rates in the U.S. at onset of diabetes are for the most part still between 25-40% of cases. Youth with type 2 diabetes often have a delay in their diagnosis as well. Recent reports in the US have described that a small percentage of youth with type 2 have died from hyperosmolar coma with blood glucose levels in excess of 800 mg/dl associated with severe dehydration at onset.⁵

The IDF in collaboration with the International Society for the Study of Diabetes in Adolescence and Pediatrics (ISPAD) is launching a worldwide campaign to reduce the incidence of DKA and hyperosmolar coma at the time of diagnosis by raising awareness about childhood diabetes. The impetus for this is the successful campaign that was conducted in Parma, Italy from 1991 to 1998.⁶ A campaign of information was promoted in

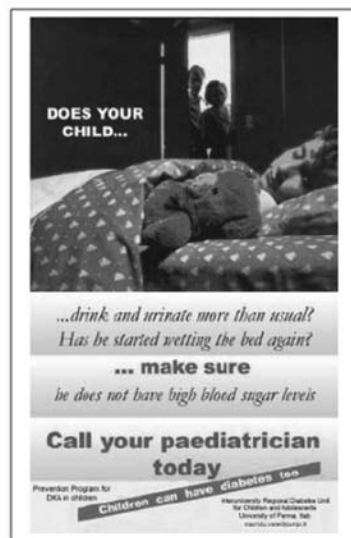


Figure 1.

schools and pediatrician's offices centered on nocturnal enuresis which was reported as the first sign of diabetes by 89% of parents of children with diabetes in Parma. By placing pamphlets and the poster shown in Figure 1, throughout schools, child centers, and pediatric offices during the 8 year period, the DKA rate dropped from 78% at diagnosis to 12.5%. With the posters still hanging, the DKA remains that low today. A group of international experts have come together to develop a tool box that contains posters and pamphlets about the signs and symptoms of diabetes in infants, children and youth that can be used around the world in schools, health care providers offices, and with the media. The goal is to have this culturally appropriate, multilingual tool box ready for worldwide dissemination at the ISPAD and IDF meetings in 2009.

Can we develop a global standard of care?

The IDF is committed to seeing that all children with diabetes receive at least minimal standards of care. An international set of guidelines penned by a group of experts from around the world entitled "The Global Burden of Youth Diabetes: Perspectives and Potential, A Charter Paper," simply puts forth that the goal for children with diabetes is to achieve as effective glucose control and disease management as is possible to decrease diabetes complications while maintaining normal physical and psychological growth and development. This means both hypoglycemia and hyperglycemia must be minimized. The entire family should be considered to be the patient when a child has diabetes and optimizing family dynamics is important. In addition, the overall environment, particularly school, must support children so they can be safe outside of their homes. All children with type 1 diabetes must take insulin. Youth with type 2 diabetes may take oral diabetes medications or insulin; many take both. To balance food medications and activity, it is recommended that children monitor their blood glucose levels at home. All children and their families must receive diabetes self-management education and training and be able to access health care services on a 24-hour basis. Routine health visits should occur to access glucose control

and screen for complications. Screening and treatment for comorbidities, such as hypertension and dyslipidemia, and for microvascular and macrovascular complications should occur to improve the long-term outcome of these children.

There are many parts of the world where these components of care – health care providers and educators trained in pediatric diabetes, insulin, glucose monitoring supplies—are not available in sufficient quantity or on a consistent and reliable basis. Worldwide, this leads to many children not receiving even minimum standards of care. To combat this, the IDF has established a program "Life for a Child," as shown in Figure 2. This program, established in 15 countries and presently serving about 650 children and families in Rwanda, the Congo, Tanzania, Nigeria, Bolivia, Fiji, Papua New Guinea, Philippines, India, Sri Lanka, Nepal, Uzbekistan, Mal, Zimbabwe and Azerbaijan, raises funds from businesses, the international Rotarian community, and individuals to provide the insulin, clinical care, glucose testing equipment, and education essential to keep these children alive. It is estimated that a dollar is necessary to support one of these children for a day. Since these children age out of the program at 14 years, there is an effort to assure they receive education and training so that they can survive over the long-term. The IDF is working arduously to double the size and scope of this program over the next two years.

Can we ignite the global community?

In 2007, I had the opportunity to travel the globe for Discovery Health making a documentary entitled, "Diabetes the Global Epidemic." We went to every continent, except Antarctica, to show the global effect of the diabetes pandemic affecting over 246 million people worldwide and expected to grow to involve 380 million people within the next 10 years. The show debuted during World Diabetes Day celebrations in New York in November, 2007, and has been shown on Discovery Health and Discovery channels around the world since that time. In South Africa, we filmed children with



Figure 2.

type 1 diabetes living in residential care because they are unable to get treatment and support in their townships. In Australia, we filmed Aboriginal children at risk of developing type 2 diabetes because of their genes and their environments. In Finland, we showed an entire nation—with the highest rates of type 1 diabetes in children in the world—committed to research and public health efforts to decrease the numbers of children and adults developing this devastating disease. The IDF, and in particular my committee on youth, are working hard to meet our goals for World Diabetes Day 2008 so that we can highlight the special needs of children with diabetes throughout the world. This platform gives us the chance to engage our countries and their leaders to improve the lives of children with diabetes. It will be the right time to demand that children have early detection of diabetes, improved access to and delivery of care, sufficient diabetes supplies and medications, and better self-management education and training. If we accomplish this, this generation of children burdened with diabetes will receive their basic rights and grow to be healthy members of the world community.

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