

Diabetes mellitus in Puerto Rico: opportunities to be discovered ^[1]

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Today, March 22, is American Diabetes Alert Day.

We've flirted with diabetes since the beginning of time, it has been part of our environment, and has become part of our family and our heritage. We live and die with it, it sits with us at the dinner table, at the beauty salon, on the bus, in the car, in the classroom, and in the office. And especially in those days, when we have no intention of walking or moving, that's when it takes hold and doesn't allow us to get out of our stupor. We have accepted it as a natural companion in our daily lives, and often we realize that we have a guest when it suddenly steals the control out of our health and our lives. So diabetes, surname mellitus, is thus one of the oldest diseases of humanity.

According to the *Behavior and Risk Factor Surveillance System (BRFSS)* ^[3], an annual telephone survey carried out by the Centers for Disease Control and Prevention (CDC) of the United States, since 1996, Puerto Rico has consistently had one of the highest prevalence of diabetes in the US, including the US territories. In 2014, the percentage of the Puerto Rican population that reported having diabetes was 15.7 while the percent in the general US population was 10.1.

Diabetes mellitus is also very prevalent among Puerto Ricans and their descendants living in the continental United States. Almost 32 years ago, an epidemiological study was conducted known as the *Hispanic Health, and Nutrition Examination Survey*, in which approximately 16,000 Hispanics of Mexican, Puerto Rican and Cuban origins were interviewed and examined. The study showed that Mexicans and Puerto Ricans had a prevalence of diabetes much higher than the Cubans. Recently, the *Hispanic Community Health Study / Study of Latinos (SOL Study)* ^[4], the largest and most comprehensive epidemiological health study of Hispanics in the US revealed that the prevalence of diabetes among Hispanics was 16.9%, and the highest prevalence (18%) was for Hispanics of Mexican, Puerto Rican and Dominican origins. Among all

Hispanics with diabetes, 40 percent did not know they had the disease, which was detected by blood tests. This means that approximately that for every 3 Hispanics who know they have diabetes, there are 2 who have the disease and don't know it.

How many of us are at risk of developing diabetes mellitus? According to *National Health and Nutrition Examination Survey* (NHANES), a population study conducted every two years with a representative sample of the US population, about one third of the US population has prediabetes, i.e. elevated levels of blood glucose that places them at a high risk of developing diabetes in the future. The SOL study showed that 36 percent of all Hispanics (and of these, 34.4% of Puerto Ricans) had prediabetes.

What do all these statistics mean for Puerto Rico? If we apply the statistics on diabetes and prediabetes for Puerto Ricans living in the continental US to the population of the island, we could calculate that in addition to the 15.7 percent of the population who know they have diabetes (according to BRFSS 2014), there could be another 6.3 percent who could potentially have the disease and don't know it. And we could have a similar or higher risk of developing diabetes than other Hispanic groups, states or US territories.

These figures represent a serious problem. The percentage of Puerto Ricans with this disease is not the only disturbing fact. Nor that we occupy the grim first or second rank in prevalence, but the scary thought is realizing all the complications in the short and long term that arise from this disease; complications that accumulate and affect patients, their families and society. And the more we hear about diabetes in Puerto Rico, the more it seems that it sounds like a losing battle.

But it doesn't have to be. Rather than meekly accepting this data a death sentence, it could become the motivation for transforming this big problem into great solutions.

The most common type of diabetes is diabetes mellitus type 2. The causes of this type of diabetes are not fully known, but it used to be associated with age. However, in the last 20 to 25 years, this disease has increased at a parallel pace with the rates of obesity, and has been identified increasingly in younger people. Moreover, the first phase of the study *Diabetes Prevention Program* showed that moderate physical activity and changes in nutrition delayed the development of diabetes - in people at risk - far more than the drug metformin or placebo treatment. Due to the success of this study, similar programs that promote changes in lifestyle have been implemented in community centers, gyms and clinical centers across the US. This is an indication that there are ways to reverse our risk of developing diabetes, and we could enjoy many more years of life without the disease.

Many of the solutions are within our reach, in our own hands. What can we do as individuals to stay healthy? What decisions about our food and our habits can we take to prevent or delay chronic diseases such as diabetes? And if we have the disease, what decisions can we take to keep our blood glucose under control and avoid complications? What can we do as physicians, health care providers, and researchers to better understand this disease so that we can prevent or treat it more effectively? How can we take care of our environment to protect it and how we can influence society by the way in which we consume food to have an impact and protect our overall health? What can we do so that instead of having the highest prevalence of diabetes, we make the headlines for reducing the prevalence of diabetes in our island? Would this be a goal

worth pursuing? Let us act.

The author [5] is an endocrinologist, researcher, and expert in Hispanic Health.

Links and References

BRFSS Trends:

http://nccd.cdc.gov/brfssprevalence/rdPage.aspx?rdReport=DPH_BRFSS.ExploreByTopic&irbLocationType [3]

Hispanic HANES:

Katherine M Flegal, Trena M Ezzati, Maureen I Harris, Maureen G Haynes, Rumaldo Z Juarez, William C Knowler, Eliseo J Perez-Stable, and Michael P Stern: Prevalence of diabetes in Mexican Americans, Cubans, and Puerto Ricans From the Hispanic Health and Nutrition Examination Survey, 1982-1984. *Diabetes Care* 1991; 14: 628-638

Prevalence of prediabetes in the US according to NHANES:

McKeever Bullard K et al: Secular Changes in US prediabetes hemoglobin A1c prevalence defined by fasting glucose and plasma. *Diabetes Care* 2013; 36: 2286-2293

Prevalence of diabetes in Hispanics in the SOL Study:

Schneiderman N et al: Prevalence of Diabetes Among Hispanics / Latinos from diverse backgrounds: the Hispanic Community Health Study / Study of Latinos (HCHS / SOL). *Diabetes Care* 2014; 37: 2233-2239

Prevalence of prediabetes in the SOL Study:

NIH Hispanic Community Health Study / Study of Latinos Databook - English:

<http://www.nhlbi.nih.gov/files/docs/resources/NHLBI-HCHSSOL-English-508.pdf> [4]

NIH Hispanic Community Health Study / Study of Latinos Databook - Spanish:

<http://www.nhlbi.nih.gov/files/docs/resources/NHLBI-HCHSSOL-Spanish-508.pdf> [6]

For more details on the SOL study please visit: www.csc.unc.edu/hchs [7].

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[3] http://nccd.cdc.gov/brfssprevalence/rdPage.aspx?rdReport=DPH_BRFSS.ExploreByTopic&irbLocationType=State

[4] <http://www.nhlbi.nih.gov/files/docs/resources/NHLBI-HCHSSOL-English-508.pdf>

[5] <http://www.cienciapr.org/es/user/mlaspr2014>

[6] <http://www.nhlbi.nih.gov/files/docs/resources/NHLBI-HCHSSOL-Spanish-508.pdf>

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[12] <https://www.cienciapr.org/en/tags/estudio-sol?language=es>