

Diabetes: The Shark in the Water

Diabetes is the paradigmatic chronic disease of our time: tragically disabling with devastating complications, and increasingly prevalent—but often approaching silently as a shark. Nearly half of diabetics are unaware of their condition, although the International Diabetes Federation estimates 366 million people worldwide suffer from the disease and it caused 4.6 million deaths in 2011. [1] Diabetes apparently chooses its victims at random, but this is not so. They are mainly people already plagued by unhealthy lifestyles, including poor nutritional habits and inactivity, with the resulting byproducts of excess weight gain and obesity. They are also predominantly people who come from developing countries or disadvantaged population groups in developed nations: by 2030, says the Federation, developing countries will be the home of 82.5% of the globe's diabetics.

In the USA, diabetes affects some 26 million people (8% of the total population, 27% of people over 65), over one fourth of them undiagnosed. Rates are disproportionate: with 10.2% of non-Hispanic white but 18.7% of non-Hispanic black persons suffering diabetes. The highest risk reported among Native American people, who are 2.3 times more likely to be diagnosed with diabetes than the white population. In general, diabetes is the seventh leading cause of death in the United States, again, with considerable underreporting of the disease as an underlying cause, according to the Centers for Disease Control.

Overall, risk of death among diabetics is about twice that of similarly aged persons without diabetes. Nevertheless, there is substantial scope for primary prevention, due to diabetes' strong association with key modifiable risk factors, including social determinants of health, and possibilities to effect secondary prevention as well.

In the USA alone, \$174 billion a year is spent on diabetes care, \$58 billion of this total calculated as the indirect costs of disability, work loss and premature mortality. Much of this price in lost health, livelihood and life itself is paid by patients and their families—many times by those least able to afford medical care.

Such immense and growing global human and financial costs spurred the International Diabetes Federation to launch the Global Diabetes Plan 2011–2021, urging establishment of national diabetes programs and a 'health in all policies' focus to more effectively prevent and manage diabetes for better individual and population health outcomes. In Cuba, an integrated, national strategy is one reason for low diabetes mortality—the lowest in the Americas—with decreases reported in 2011 and 2012. Nevertheless, prevalence continues to double every ten years, reaching some 510,000 patients registered in 2012.

This issue of *MEDICC Review* carries articles on achievements and opportunities, as well as the challenges faced by Cuba in prevention, patient care and a population health approach to the diabetes threat. For openers, we feature a paper by Sánchez and Gorry on Havana's Immunoassay Center—a mainstay of Cuba's biotech sector and the creator of a glucometer specially designed for tropical climates (*Immunodiagnosics: The Convergence of Biotech and Public Health*).

One of the most common—and devastating—complications of diabetes is the diabetic foot ulcer, which in the USA is responsible for over 100,000 amputations annually and US\$1.5 billion in Medicare costs.[2] As many as one in four diabetics will develop a foot ulcer over their lifetime, and one in six of those who do will eventually require amputation. Cuba's half a million diabetics are no exception, but a novel product from Havana's Center for Genetic Engineering and Biotechnology described by Berlanga has provided hope for them and perhaps for others worldwide (*Heberprot-P: A Novel Product for Treating Advanced Diabetic Foot Ulcer*).

Developing countries: Three Perspectives turn to aspects of diabetes prevention and detection. Sarmiento contributes to discussion of the type 1

diabetes hygiene hypothesis (*Evidence of Association between Type 1 Diabetes and Exposure to Enterovirus in Cuban Children and Adolescents*). Peix proposes an algorithm to optimize use of costly nuclear cardiology (*Usefulness of Nuclear Cardiology Techniques for Silent Ischemia Detection in Diabetics*). And Clapés underlines the importance of comprehensive prepregnancy care (*Oxidative Stress and Birth Defects in Infants of Women with Pre-gestational Diabetes*).

It is common to refer to diabetes' protean manifestations, so it is not surprising that two articles not directly addressing diabetes deal with conditions for which it confers high risk. Diabetes is one of the most common causes of end-stage renal disease, and Alfonzo reviews the history of kidney transplantation in Cuba (*Four Decades of Kidney Transplantation in Cuba*). Congenital deafness can be a complication of uncontrolled pregestational diabetes; here Charroó discusses cross-modal neuroplasticity in sighted deaf children, underlining the importance of early diagnosis to obtain benefits from cochlear implantation (*Cross-Modal Plasticity in Deaf Child Cochlear Implant Candidates Assessed Using Visual and Somatosensory Evoked Potentials*).

In her Viewpoint, Sarasa touches on primary prevention of an important diabetes risk factor, arguing for action to improve breastfeeding rates in Cuba (*Mother's Milk Still Best—and We Must Do Better*).

We dedicate this issue of *MEDICC Review* to the memory of Dr Juan Carrizo, an indefatigable champion of medical education for the poor and underserved. He devoted a lifetime to training doctors for public service, most recently as founding Rector of the Latin American Medical School. His loss is felt by family, friends, colleagues and thousands of medical graduates worldwide.

Finally, we extend heartfelt thanks to all our peer reviewers and to others who provided invaluable expertise during 2012. 

The Editors

1. International Diabetes Federation: The IDF Diabetes Atlas. 5th edition. Brussels: International Diabetes Federation; 2011.
2. VAC Therapy for Diabetic Foot Wounds [Internet]. Texas: KCI USA Inc.; c2009. Diabetic Foot Wounds and Amputations. The Impact of Diabetic Foot Wounds in the U.S.; [cited 2012 Jul 7]. Available from: <http://helphealdfus.com/diabeticfootwoundsandamputations.html>