

# PREVENTING DIABETES IN AFRICA.

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## Abstract

Early intervention of diabetes is known to be effective in reducing the severity of the disease and its co-morbidities. In Africa, where the incidence of diabetes is increasing rapidly, regional availability of early intervention therapies could help stem this rising tide. However, many African nations face daunting challenges in developing the support systems needed. Presented is a review of progress being made in dealing with this problem as well as some of the barriers that limit progress. **Hill MA. Preventing diabetes in Africa. Med J Therapeut Africa. 2008;2:157-9.**

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## Introduction

Worldwide, diabetes is on the rise. The problem has reached African nations, although severe lack of population and epidemiological data make it difficult to do more than make broad estimates of its prevalence there. The International Diabetes Foundation (IDF) place the 2003 prevalence of diabetes in Africa at 7 million or around 2% of the population.(1) Based on trends that include population growth, shifts from rural to urban demographics, and increases in the prevalence of impaired glucose tolerance (a condition that precedes diabetes onset), the IDF projects that diabetes will more than double in Africa by 2025. As this review will show, some regions are making strides in beginning to develop the public health infrastructure needed to face this problem; however, all regions have much to overcome in order to effectively deal with the looming diabetes threat.

## Methods

Websites of the International Diabetes Federation, the World Diabetes Foundation, and WHO African Region provided information on health clinics and programs in African countries. Medical literature sources were found by searching PubMed using "diabetes" as a search term in conjunction with other terms including "Africa", "intervention", "diagnosis", "rural management", "resource limited", and "stigma".

## Results and Discussion

### INTERNATIONAL AND REGIONAL EFFORTS

Preventive measures are underway in parts of

Africa, primarily through the work of nonprofit advocacy groups and national health ministries. But, although steps taken so far are important and effective, they remain small in contrast to the magnitude of the work still ahead.

### RECOGNITION OF THE PROBLEM

Despite the epidemiological trends that show clear evidence for action, African governments, community organizations, and general public have remained largely unaware of the diabetes epidemic looming on the horizon. Africa is just now realizing the problem as the result of efforts by nonprofit advocacy groups over the last 5 years.

Globally, the International Diabetes Federation has had success raising diabetes awareness within Africa and elsewhere. The International Diabetes Foundation is made up of over 200 national diabetes advocacy groups worldwide; 29 are based in African nations and constitute the International

Tanzania	In 2002, Tanzania had less than 5 diabetes primary care clinics and in 2007, 38 – enough to provide access to care in 25 out of 26 regions in Tanzania. According to a 2007 report, more than 17,000 humans have received diabetes care since the clinics were established and more than 3,000 have been diagnosed with diabetes.(6)
Uganda	The Ugandan Ministry of Health now recognizes diabetes and other chronic diseases as one of its health system's 4 principal pillars. A pilot clinic-building program completed in 2007 established diabetes care clinics in 4 districts. Based on these forerunners, additional clinics are now being developed in 10 districts; these are expected to treat an estimated 96,000 humans per year. Through these early models, Uganda is learning the best approaches to constructing a national infrastructure for diabetes care.(6)
Kenya	An aggressive clinic-building program has resulted in 42 clinics for diabetes care in Kenya. Educational programs are provided through 200 mini-clinics that bring information to the humans at various facilities including schools, churches, community halls, and workplaces. One report estimates that 6,000,000 humans will be impacted by this outreach.(7)
Mali	A nongovernmental organization, <u>Sante Diabete Mali</u> , formed in 2001, has led projects to: 1.raise public awareness of local eating practices that contribute to diabetes onset 2.expand diabetes care facilities and the number of doctors and other health workers needed to provide care 3.focus on foot care for diabetic patients in an effort to reduce amputations More than 340 healthcare workers have been trained and more than 55,000 humans have been served through these projects.(6)

Diabetes Foundation African Region.

This Region developed a document known as the Diabetes Declaration and Strategy for Africa based on several years of input from member organizations. Published in Dec 2006, it has since been officially adopted by the World Health Organization, Regional Office for Africa (WHO-AFRO).<sup>(2)</sup> This document represents a landmark declaration in that it recognizes diabetes as a serious public health issue in Africa. This proclamation has been vital to drawing attention to the problem.

Adding to this African-based declaration was the resolution passed at about the same time by the United Nations General Assembly to set aside 14 Nov as World Diabetes Day. In its resolution, the UN recognized diabetes as "a chronic, debilitating, and costly disease."<sup>(3)</sup> Recognition at this level is important, and international awareness has clearly moved forward. But, raising awareness and putting strategies into action requires tremendous work at regional and community levels where efforts are now being focused.

### STRATEGIES FOR REGIONAL ACTIVITIES

Helping with the focus on regional work is the general strategy outlined in the document, Diabetes Declaration and Strategy for Africa, which recommends activities aimed at preventing diabetes morbidity. The measures make use of the research findings showing that early intervention is key. If discovered before onset, type 2 diabetes can be prevented altogether through lifestyle modifications. Although this means of prevention is not possible for type 1 diabetes, early discovery and treatment limits the severity of complications associated with either disease.<sup>(4,5)</sup> The term "prevention" is used in a broad sense, applying not only to prevention of diabetes onset, but also to actions that reduce complications associated with diabetes.

Specifically, the declaration urges that improvements be made on several fronts:

- 1) better screening to identify patients
- 2) increased capacities of health systems to adequately handle the projected patient loads
- 3) promotion of effective interventions at all levels of diabetic care
- 4) improved research and epidemiological efforts.

### EXAMPLES OF NATIONAL EFFORTS

Following through on efforts to increase the diabetes care capacities of their health systems, a number of African countries have been working to build new clinics or establish outreach programs. The following is not a complete list but provides a few model examples.

## Part 2. Barriers to Progress

### COUNTERPRODUCTIVE SOCIETAL PRESSURES

Societal trends can work against efforts to reduce diabetes onset and progression. In some cases,

these trends help create the environment that favors the development of diabetes; overcoming them will require a great deal of patient education and counseling support.

For example, a number of studies have shown that population shifts from rural to urban environments are accompanied by increases in obesity and diabetes.<sup>(8-10)</sup> These increases have been attributed to changes in diet and physical activity. In Africa, where rural to urban migration has increased in a short time, there likewise has been a shift to more sedentary habits and greater access to processed energy-dense foods for increasing numbers of humans.

Sedentary living and unhealthy eating habits are also reinforced through economic pressures that benefit foreign corporations. Companies that manufacture processed foods with high glycemic content think more about finding favorable markets for their products than about the long term impact of those products on the humans who consume them. As a result, African shops are flooded with foods that tempt buyers because they taste good and provide gustatory satisfaction, but in many cases don't offer balanced nutrition. Nath Onome Jr, editor of *The Herbal Doctor*, a Nigerian publication, warns that this will have devastating consequences down the road. He writes,

"And this is probable, considering the unfortunate dumping of all sorts of sweetened consumable items, largely substandard and uncertified as fit for consumption, by more industrialized nations overtly desperate for huge markets abroad to sustain the economic growth of their economies, using developing markets as veritable dumping ground[s].<sup>(11)</sup>"

External forces such as these are compounded by internal ones. The African humans suffer from a preponderance of myths and misinformation about diabetes and its treatment.<sup>(12)</sup> Misinformed patients may not make the necessary adjustments in lifestyle or receive proper medical treatment and may rely on herbal treatments and alternative therapies exclusively.

Misinformation and myth also feed the feelings of disgrace that are associated with being diabetic. For humans who suffer extreme weight loss, the stigma may result from assumptions made by neighbors and community members that the weight loss is due to HIV/AIDS. Stigma is also prevalent in social groups with beliefs in sorcery and witchcraft, where diabetes is viewed as an action of the devil.<sup>(13)</sup>

Eradicating the stigma associated with diabetes along with moving Africans to understand the importance of diet, exercise, and evidence-based therapies will be essential in managing diabetes as a public health issue. Tackling these barriers will require extensive community-level education and counseling services that are currently nonexistent throughout much of Africa.

## STILL-EVOLVING SCIENTIFIC UNDERSTANDING OF DIABETES

Concurrent with the need for greater education and support at the individual patient level is the need for more research into the underlying mechanism of the disease. Much about diabetes is not understood. This lack of understanding makes it difficult to optimize methods for screening new cases, particularly in regions where even a small cost for screening could be prohibitive.

A special task force organized through the International Diabetes Federation proposed a simple, inexpensive risk assessment method that is in many ways ideal for developing countries.(14) Known as the International Diabetes Foundation consensus, this plan identifies high-risk individuals using a series of clinical markers for metabolic syndrome including enlarged waist circumference, reduced HDL cholesterol, raised triglyceride levels, raised blood pressure, and raised fasting plasma glucose. The task force based their clinical marker list on research findings that show strong correlation between metabolic syndrome and T2DM onset.

However, it has been reported that at least one of the major clinical markers - waist circumference - is not optimized for all ethnicities.(15) The consensus document has been updated to reflect differences in a few groups; however, insufficient data are available for specifically addressing African populations. Until more research is conducted to fill in this gap, health workers are advised to use waist circumference cutoff values taken from groups of western European heritage. So, even though the International Diabetes Foundation Consensus provides the simple, inexpensive, and non-invasive assessment plan needed, it is not yet optimized for the African patient.

## ECONOMIC/INFRASTRUCTURAL BARRIERS

The most significant barrier to diabetes prevention in Africa may be the lack of public health funding and infrastructure needed to cope with the magnitude of the problem. The healthcare systems in many African countries developed in response to acute, infectious illnesses, and these receive most funding, what little there is of it.(16) Despite the recent public acknowledgement of diabetes as a priority health concern, national health systems by themselves do not have the capability to expand service to these patients. In addition, most countries have no free national health service or medical insurance program to assist poor humans.

Creative management will be required to prioritize needs under these conditions. The challenge is great and the barriers to progress are steep, particularly given the projected increases in diabetes incidence

in Africa in the coming years.

[Note: For the most up-to-date version of the International Diabetes Federation's consensus worldwide definition of the metabolic syndrome, go to: [http://www.idf.org/webdata/docs/MetS\\_def\\_update2006.pdf](http://www.idf.org/webdata/docs/MetS_def_update2006.pdf).]

## References

- 1.IDF, *Diabetes Atlas, 2nd Edition*, Brussels, Belgium, International Diabetes Foundation, 2003.
- 2.WHO, *Resolution AFR/RC57/7, Diabetes Prevention and Control: A Strategy for the WHO African Region*, World Health Organization, 25Jun2007.
- 3.United Nations, 61.225. *World Diabetes Day, Resolution adopted by the United Nations General Assembly, 61st session, 20Dec2006*.
- 4.Tuomilehto J, Lindstrom J, Eriksson JG, Valle TT, Hamalainen H, Ilanne-Parikka P, Keinanen-Kiukaanniemi S, Lasskso M, Louheranta A, Rastas M, Salminen V, Uusitupa M. *Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. N Engl J Med. 2001; 344: 1343-50.*
- 5.Diabetes Prevention Program Research Group. *Reduction in the incidences of type 2 diabetes with lifestyle intervention or metformin. N Engl J Med. 2002;346:393-403.*
- 6.*World Diabetes Foundation Annual Review 2007*. At <http://www.worlddiabetesfoundation.org>.
- 7.*Diabetes and Non-communicable Diseases - now considered as big a threat to Africa as HIV/AIDS [press release]. Nairobi, Kenya: World Diabetes Foundation; 27Jun2007.*
- 8.Popkin BM. *The nutrition transition and its health implications in lower-income countries. Public Health Nutr. 1998;1(1):5-21.*
- 9.Aekplakorn W, Stolk RP, Neal B, Suriyawongpaisal P. *The prevalence and management of diabetes in Thai adults. Diabetes Care. 2003;26:2758-63.*
- 10.Dong Y, Gao W, Nan H, Yu H, Li F, Duan W, Wang Y, Bin Sun Qian R, Tuomilehto J, Qiao Q. *Prevalence of type 2 diabetes in urban and rural Chinese populations in Qingdao, China ?Diabetic Medicine. 2005;22(10):1427-33.*
- 11.Omame N. *Diabetes. The Herbal Doctor, A Journal of African Medicine. 2007;2(3)*. At <http://journal.paxherbals.net>.
- 12.Fokumlah VP. *Diabetes in a developing setting. International Diabetes Monitor. 2005; 17(4)*. At <http://www.d4pro.com>.
- 13.de-Graft Aikins A. *Reframing Applied Disease Stigma Research: A Multilevel Analysis of Diabetes Stigma in Ghana. J. Community Appl Soc Psychol. 2006;16:426-41.*
- 14.George K, Alberti MM, Zimmet P, Shaw J. *The metabolic syndrome - a new worldwide definition. The Lancet. 2005;366:1059-62.*
- 15.Yamada S, Tsukamoto Y, Irie J. *Waist circumference in metabolic syndrome. The Lancet. 2007;370:1541-2.*
- 16.Sobngwi E. *Diagnosis and management of diabetes in resource-limited countries. International Diabetes Monitor. 2005, 17(4)* At <http://www.d4pro.com>.