POPULATION AND INDIVIDUAL APPROACHES TO THE PREVENTION AND MANAGEMENT OF DIABETES AND OBESITY

Pan American Health Organization

Regional Office of the World Health Organization

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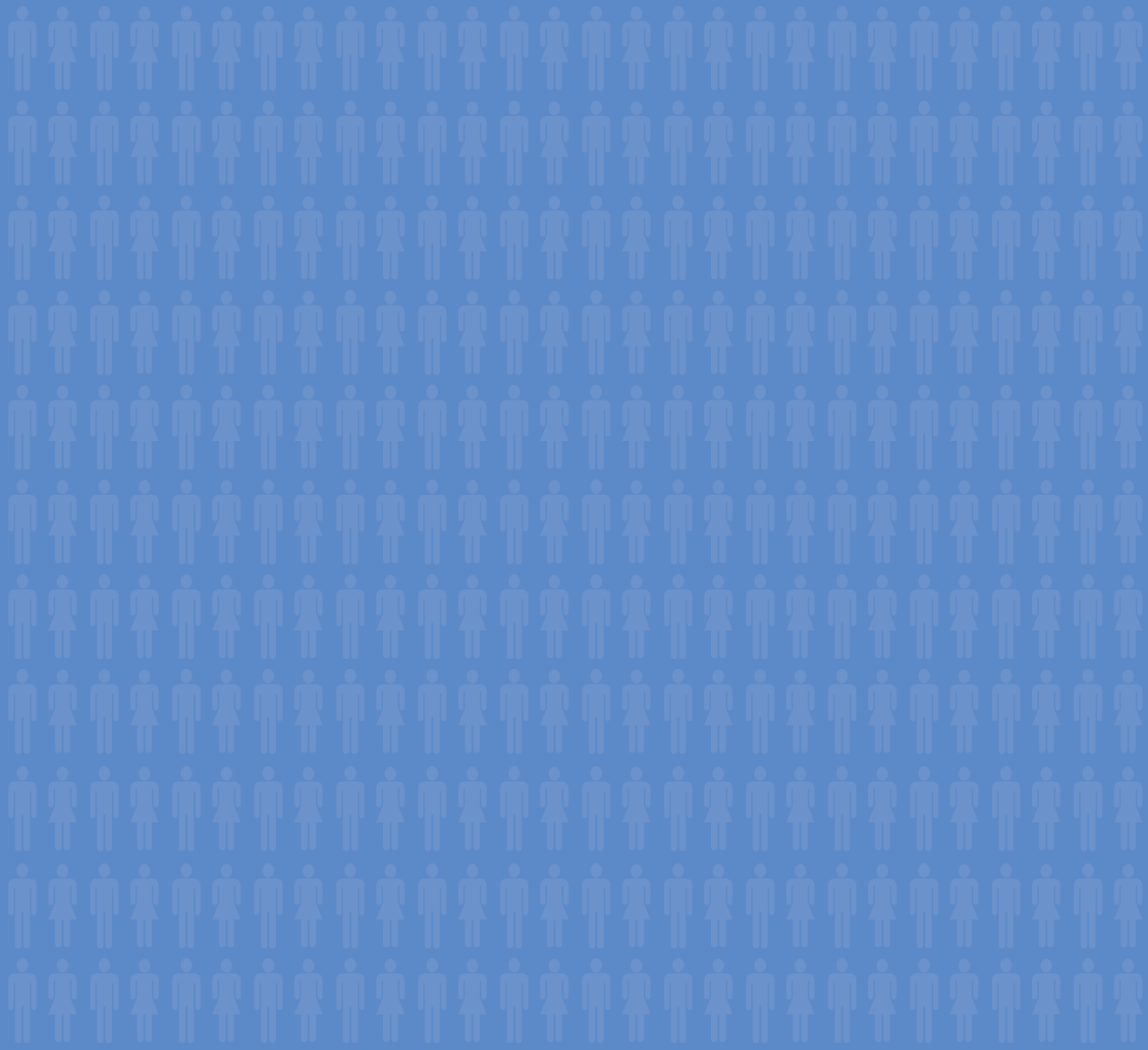


EDITORIAL NOTE

The Resolution **Population and Individual Approaches to the Prevention and Management of Diabetes and Obesity** was approved by the 48th Directing Council of the **Pan American Health Organization**, September 29- October 3, 2008, in response to the epidemic of obesity and diabetes currently affecting the countries of the Americas. Its main goal is to call on Member States to prioritize the prevention of obesity and diabetes and their common risk factors by establishing and/or strengthening policies and programs, integrating them into public and private health systems and working to ensure adequate allocation of resources to carry out such policies and programs. Furthermore a consultation process was carried out to define a list of priorities for the implementation of the Resolution. The consultation included the review of various national diabetes and other chronic disease programs such as those from Cuba, Paraguay, and Argentina among others. These programs were used as the basis for creating the list of priorities that was discussed during the workshop **Diabetes in the Americas: Priorities for the Partner Forum to Fight Diabetes and Obesity in the Americas in Montreal, Canada,** October 20, 2009. A list of workshop participants and other contributors is presented in Annex 1. After the workshop the list of priorities was circulated. The contributions and suggestions received were incorporated. The list of priorities is published aiming to help Member States in preparing action plans to fight diabetes and obesity. It is suggested that components be adapted to particular countries or organizations.

INTRODUCTION

Obesity and diabetes are affecting the peoples of the Americas at high and increasing rates. National surveys demonstrate that obesity is increasing in prevalence among all age groups; 7% to 12% of children under 5 years old and one-fifth of adolescents are obese,[1] while rates of overweight and obesity among adults approach 60%. [2, 3 ,4] Obesity is the major modifiable risk factor for diabetes.[5] The estimated number of people with diabetes in Latin America is expected to increase by more than 50%, from 13.3 million in 2000 to 32.9 million by 2030.[6] Diabetes and obesity are no longer "diseases of affluence," and disproportionately affect the poor [7] and the less educated of the Region. [8, 9] In 2006, Ministers of Health throughout the Americas adopted the Regional Strategy and Plan of Action on an Integrated Approach to the Prevention and Control of Chronic Diseases, including Diet, Physical Activity, and Health (CD47/17, Rev. 1). Given the upward trend in cases of obesity and diabetes in the Americas and armed with the evidence that cost-effective interventions to prevent and manage these conditions exist, the time to prioritize implementation of these actions is now.

BACKGROUND

Overweight in adults is defined as body mass index (BMI) between 25 kg/m2 and 29.9 Kg/m2 and obesity as BMI above 30 Kg/m2. Research has demonstrated a strong and consistent link between obesity and diabetes; increases in BMI are associated with increased risk for diabetes[10, 11] and abdominal obesity has emerged as a strong predictor of diabetes.[12]

Diabetes Mellitus is a chronic metabolic disease characterized by elevated blood glucose (hyperglycemia). It is associated with an absolute or relative deficiency in the secretion and/or action of insulin.[13] There are three main forms of diabetes: type 1, type 2, and gestational diabetes. Type 2 diabetes is the most common and accounts for approximately 85% to 90% of all cases. It is related to modifiable risk factors such as obesity or overweight, physical inactivity, and high-calorie diets of low nutritional value. Intermediate hyperglycemia, often called prediabetes, is a component of the metabolic syndrome, which is characterized by the presence of prediabetes in conjunction with one other cardiovascular disease (CVD) risk factor (hypertension, upper body obesity or dyslipidemia). Recent estimates reveal that among Latin American and Caribbean (table 1) countries, the highest prevalence of diabetes has been reported in Belize (12.4%) and Mexico (10.7%)[14] with rates of 8% to10% in Managua, Guatemala City,[15] and Bogota.[16] The most recent data from the United States [17, 18 ,19] reported a prevalence of diabetes of 9.3% while it was 15.7% along the US-Mexico border.[20]

The burden that diabetes presents to society and to the individual is chiefly associated with increased disability and premature mortality due to complications. Diabetes complications and premature mortality are believed to be exacerbated by poor quality of care. The risk of dying from cardiovascular disease (CVD) and all causes is between two and three times higher among people with diabetes than among their peers without diabetes. [21,22] After a 20 year duration of diabetes, the frequency of chronic complications in clinical settings of six Latin American[23] countries were found to be 48% for retinopathy, 6.7% for blindness, 42% for neuropathy, 1.5% for kidney damage, 6.7% for myocardial infarction (heart attack), 3.3% for stroke and 7.3% for lower limb amputations. Some population groups are at particular risk for complications. For example, studies in Barbados demonstrated a high incidence of lower limb amputations (936 per 105) and a prevalence of retinopathy of 28.5% among blacks. [24,25] The cost of health care for people affected by diabetes is between two and three times higher than among peers without diabetes.[26] In 2000, the cost of diabetes in the Region was estimated at US$ 65.2 billion, of which $10.7 billion were direct costs and $54.5 billion, indirect costs. [27,28] In 2006, the cost of diabetes in some countries was reported between 0.4% and 2.3% of GDP.[29] While diabetes and its complications are largely preventable, lack of access to quality health care services and lack of knowledge of preventive measures are widespread.

The obesity epidemic, which is behind the rise in diabetes, is largely driven by the twin trends of changing dietary patterns and decreasing physical activity. Most countries in the Americas are experiencing a shift in dietary patterns toward increased consumption of energy-dense foods, rich in saturated fat, sugars, and salt. This pattern, coupled with the fact that 30 to 60% of the population does not meet minimum recommended levels of physical activity (e.g., 30 minutes walking per day) contribute in large part to the high rates of overweight and obesity in the Region. Transitions in the environment, rather than declines in knowledge or self-efficacy, are the major contributors to the aforementioned changes in diet and physical activity patterns. [30,31] A combination of government policies, regional and global market forces, inadequate response to changing demographic patterns, technological advances that precipitate behavior and lifestyle changes, and lack of awareness and action by civil society are key factors leading to the rising epidemics of obesity and diabetes. However, the strong social and environmental determinants of overweight, obesity, and ill health present an apt area for intervention in which an evidence-base exists to guide action.

In many countries, obesity and diabetes affect women disproportionately. Gestational diabe-

tes in particular has detrimental consequences for mother and child, increasing the frequency of perinatal morbidity and mortality. In addition, maternal obesity and diabetes have been linked to increased susceptibility for the child to develop diabetes during youth, creating a vicious circle where obesity and diabetes beget more diabetes.[32] Diabetes also has effects on other health conditions; because it impairs immunity, diabetes has been associated with tuberculosis. This association has potential public health implications given the growing epidemic of diabetes. [33,34] The relationship among diabetes, maternal and newborn morbidity and tuberculosis may have a negative impact on the achievement of the related Millennium Development Goals in many countries of the Region. Furthermore, low birth weight is associated with an increased risk for type 2 diabetes during adulthood. [35,36] This is an element that may exacerbate the diabetes epidemic in low and middle income countries still struggling with high frequency of low birth weight.

The international community recognized the problem of chronic diseases and set the stage with the WHO Global Strategy for the Prevention and Control of Chronic Diseases (WHA53.17, 2000), The Framework Convention for Tobacco Control (WHA56.1, 2003), the Global Strategy on Diet, Physical Activity and Health (WHA57.17, 2004) and most recently, the aforementioned Regional Strategy on Chronic Diseases (CD47/17, Rev.1). The United Nations General Assembly recognized the burden of diabetes by adopting a resolution in December 2006 designating World Diabetes Day as a United Nations Day (A/RES/61/225). Over ten years ago, PAHO's Directing Council adopted the Declaration of the Americas on Diabetes (DOTA)[37] a landmark document calling for actions to prevent and improve the management of diabetes in conjunction with civil society. Since then, PAHO has collaborated with Central America, the Caribbean, South America and the US-Mexico border in the area of obesity and diabetes, strengthening capacity for surveillance, conducting public awareness campaigns, facilitating quality improvement strategies for chronic care, and creating task forces for specific issues, among other activities. PAHO is also providing assistance and support to several Member States in the creation, implementation, and evaluation of evidence based clinical guidelines for the prevention and control of diabetes, the development and implementation of face to face and internet based diabetes education training programs for people with diabetes and health professionals, and the development of prevention programs as well as the analysis of policies related to diabetes and obesity. The current proposal prioritizes results-oriented actions that Member States can take, even in resource-constrained settings, to address the challenges of obesity and diabetes.

ANALYSIS: INTERVENTIONS FOR THE PREVENTION AND MANAGEMENT OF OBESITY AND DIABETES

Prevention and management strategies are crucial to turning back the tide on obesity and diabetes. Evidence demonstrates that risks of chronic disease begin in the uterus and continue into old age.[38] Therefore, strategies to address the problem at all stages of the life cycle are important, including paying particular attention to obesity and diabetes in women of reproductive age. The frequency of medical care and health expenditures increase notably among those with diabetes as early as eight years before clinical onset.[39] This means that people at the highest risk for type 2 diabetes are in contact with the health system and can be identified. People with prediabetes have shown an increased risk for diabetes and CVD. Diabetes screening facilities are the opportune identification of such at-risk individuals, or those in the early stages of obesity and diabetes, when non-pharmacological treatment may still be a preferred option. Studies have demonstrated that approximately one-third of people with type 2 diabetes are undiagnosed, and already present complications at the time of diagnosis.

Two approaches need to be used to implement prevention strategies: the population-based approach and the individual, high-risk approach. The population-based approach focuses largely on health promotion activities and actions that influence the environment (i.e., physical, social, economic and regulatory). For example, it has been calculated that replacing 2% of the energy from trans fat with polyunsaturated fat would reduce the incidence of type 2 diabetes by 40%.[40] Research has also demonstrated that metropolitan public transport systems designed to coordinate with pedestrian walkways or bike paths facilitate the practice of daily physical activity.[41]

The individual approach focuses on high-risk or affected individuals through direct interventions. For primary prevention of obesity and diabetes, the individual approach is based on the replication of randomized trials such as the Diabetes Prevention Program[42] (DPP), the Finland Diabetes Program[43] and the Da Qin Study, [44,45] which demonstrated that an intensive lifestyle intervention was successful in achieving weight reduction and preventing or delaying the onset of type 2 diabetes in at-risk individuals. Secondary prevention strategies are aimed at decreasing mortality and the prevalence of chronic complications in those who have been diagnosed with diabetes. Data that demonstrate the strength of secondary prevention strategies are widely available. For example, the UK Prospective Diabetes Study indicated that tight blood pressure control in

people with type 2 diabetes reduced the risk of developing any end point related to diabetes by 24%.[46]

The population and individual approaches are complementary and function best when combined in an integrated manner. Recommended actions for primary and secondary prevention of obesity and diabetes at both levels are found in Table 2. The choice is clear and inaction too risky; it is opportune to prioritize such strategies in the Region.

PROPOSAL FOR THE PREVENTION AND MANAGEMENT OF DIABETES AND OBESITY IN THE AMERICAS

The following approaches are presented along five strategic areas which form the foundation for action to address obesity and diabetes in the Region. These strategies need to be complemented with appropriate mechanisms of financing and policy development to ensure access to care and the necessary resources to address the twin epidemics of obesity and diabetes.

PRIMARY PREVENTION OF OBESITY AND DIABETES

Population approach

Primary prevention at the population level through activities such as health promotion, creation of healthy public policies focused on food, diet and physical activity, and creation of healthy environments. Key actions include fiscal/policy incentives for production and consumption of healthy foods, guidelines to regulate the marketing and sale of foods to children and adolescents, wide promotion of fruit and vegetable consumption, the elimination of trans fats in processed foods, workplace wellness initiatives, physical education curricula and healthy feeding programs in schools, urban planning that encourages walking and biking, improved access to recreation and sports through partnerships, and massive education campaigns.

Individual approach

Creation and implementation of guidelines for the prevention of obesity and diabetes in primary health care, including meal and exercise plans, or medication if required.

SCREENING FOR DIABETES AND PRE-DIABETES INCLUDING IDENTIFICATION OF OVERWEIGHT OR OBESITY

Individual approach

Identification of people at risk for diabetes (with two or more risk factors for type 2 diabetes (such as a family history of diabetes, high blood pressure, a history of hyperglycemia or gestational diabetes, or overweight) when preventive services are available and enroll those at risk in weight reduction programs or in courses of care for the management of obesity and diabetes.

IMPROVING MANAGEMENT OF OBESITY AND DIABETES

Population approach

Standards for care and management of obesity and diabetes should be developed and implemented at the primary care level. The chronic

care model is a framework to identify gaps in care with the aim of designing strategies for quality improvement. Adoption of this model at the national level can facilitate improved management. Additionally, the list of essential medicines should include those that are necessary for the management of diabetes, including insulin, metformin and glibenclamide. In settings with more resources available for health, access to medications for lipid and blood pressure reduction and certain diagnostic and treatment procedures are strongly encouraged.

Individual approach

The creation of community services within the civil society can provide additional support to people with obesity and diabetes.

SECONDARY PREVENTION OF COMPLICATIONS

Population approach

Strategies include patient and provider education, efforts aimed at smoking cessation, increased physical activity, and healthy eating.

Individual approach

A number of clinically proven strategies are available for the secondary prevention of complications.

CVD: blood sugar control,[47] blood pressure control, smoking cessation,[48,49] aspirin treatment, [50,51] lipid reduction treatment, [52,53,54,55,56] rennin-angiotensin system (RAS) inhibitors;[57]

Nephropathy (Kidney damage): blood sugar control, blood pressure control, and medications including RAS inhibitors[58,59] angiotensin receptor blocker (ARB, and angiotensin converting enzyme (ACE);[60]

Retinopathy: blood sugar control,[61,62] blood pressure control,[46,63] lipid reduction treatment;[64]

Blindness: annual eye examinations, and prompt treatment of problems in order to minimize visual loss; [65,66] this includes panretinal laser surgery for eyes with advanced proliferative retinopathy, and focal laser photocoagulation for eyes with clinically significant vision-threatening macular edema;

Amputations: foot exam and foot care education.[67]

SURVEILLANCE AND MONITORING

Population approach

Various sources of information can be used for the surveillance of diabetes and obesity in populations, including periodical popula-

tion-based surveys, health service statistics, school-based surveys and routinely collected vital statistics. Several countries of the Americas are currently monitoring risk factors for chronic disease using the Pan American STEPS methodology, which is a simple, standardized method for collecting, analyzing, and disseminating risk factor data.

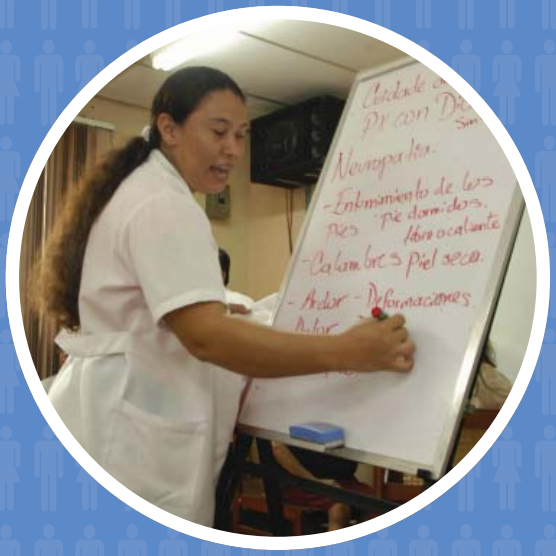
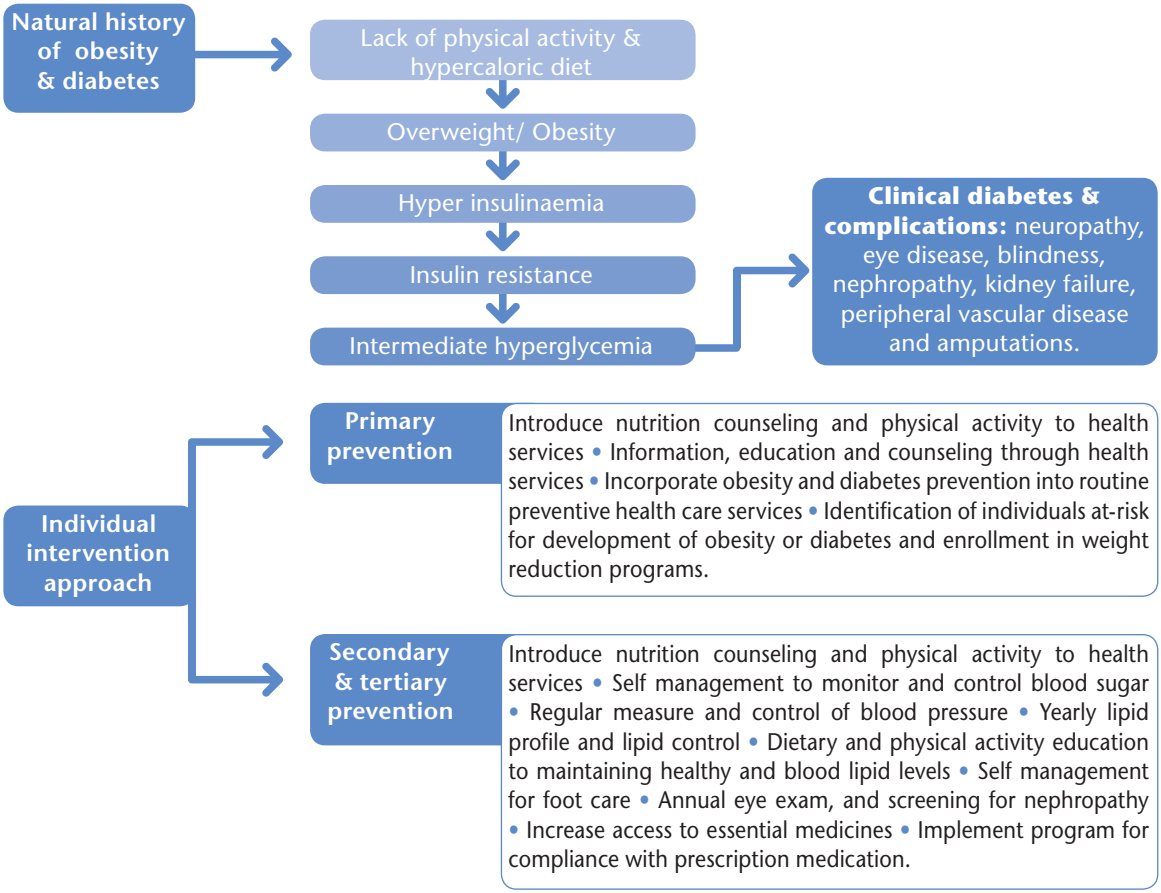

Neuropatía.
-Enhormiento de los pies
pie dormidos.
-Calambres
Piel seca.
- Ardor - Deformaciones.

TABLE 1.
PREVALENCE OF DIABETES MELLITUS, OVERWEIGHT (BMI ≥25) AND OBESITY (BMI≥30) IN SELECTED COUNTRIES.

Subregion/Country/City	Year	Age (Years)	Prevalence (%)		
			Diabetes	Overweight BMI ≥ 25	Obesity BMI ≥ 30
North America					
Canada	2003	18+	-	-	15.1
Ontario	2005	20+	8.8	-	-
USA	2001/4	20+	9.3	66.3	32.2
Caribbean					
Port au Prince	2002	20+	7.3	27.75	16.11
Mexico					
Mexico	2000	20-69	10.7	62.0	24.0
Central America					
Belize	2006	20+	12.4	66.6	34.9
San Jose, Costa Rica	2005	20+	7.9	62.3	25.0
San Salvador, El Salvador	2004	20+	7.3	66.2	24.7
Guatemala City, Guatemala	2003	20+	8.2	59.7	22.3
Tegucigalpa, Honduras	2004	20+	6.1	56.4	19.4
Managua, Nicaragua	2004	20+	9.0	65.6	29.0
South America					
Central Argentina, Argentina	∞2004	20+	6.9	-	25.0
Barquisimeto, Venezuela	∞2008	25-64	6.0	-	25.1
Bogota, Colombia	∞2008	25-64	8.1	-	18.0
Buenos Aires, Argentina	∞2008	25-64	6.2	-	19.7
Chile	2003	20+	6.3	37.8	-
Lima, Perú	∞2008	25-64	4.4	-	22.3
Quito, Ecuador	∞2008	25-64	5.9	-	16.3
Santiago, Chile	∞2008	25-64	7.2	-	26.6

- Data not available ∞ Year of publication

TABLE 2.
INTERVENTIONS FOR THE PREVENTION AND MANAGEMENT OF OBESITY, DIABETES AND ITS COMPLICATIONS



Population based intervention approach

Primary Prevention

For food and diet

Supply-side interventions:

Promote agricultural policies • Elimination of trans-fats • Promote urban agriculture • Improve school feeding programs • Incorporate a health concept in the international food trade • Create incentives for the development of new healthier products.

Demand-side interventions:

Promote accurate and objective information and education • Develop or update the national food and dietary guidelines • Improve product labeling • Improve relative price of foods • Develop guidelines/ regulations for food marketing and advertising to children and adolescents.

For physical activity

Environmental interventions: Institutional approaches.

Promoting physical activity efforts in the workplace • Physical education programs in schools.

Environmental interventions: Urban approaches.

Transportation and Urban Planning • Recreation and Sports.

Secondary & tertiary prevention

Promote daily physical activity and weight control through mass communication and information and mass media campaigns • Policies and physical environments supportive of healthy eating and physical activity • Partnership with food industry • Partnership with recreation and sports associations • Policies and financing/insurance measures to increase access to appropriate package of integrated services in PHC and hospital settings • Monitoring systems for coverage and quality of care based on agreed regional standards • Surveillance of diabetes, obesity and other risk factors.

PROPOSAL FOR AN ACTION PLAN

GOAL

Improve quality of life of people with diabetes.

GENERAL AIMS:

1. Decrease morbidity related to Diabetes Mellitus (DM) by 2% annually.
2. Decrease premature mortality due to DM by 2% annually.
3. Reduce the frequency and severity of the acute and chronic complications of DM.

COMPLEMENTARY AIMS:

- Improve the knowledge of the magnitude of the problem of diabetes.
- Develop appropriate methods for the education of people with diabetes, their families, the general population, and health care providers.
- Decrease the costs associated with DM in society.
- Support research designed to prevent and control DM.
- Establish international collaboration for strengthening diabetes prevention and control.

PRIMARY PREVENTION AT THE INDIVIDUAL LEVEL

Specific Objectives	Activities	Indicators
1. To provide information, education, and counseling through health services.	▪ Organize training seminars on diabetes education for medical staff (physician, nurses, social workers, preventive medicine technicians, psychologists, nutritionists, etc.) ▪ Provide diabetes education following the DOTA and IDF standards ▪ Implement a training program on chronic non communicable diseases and their risk factors for health care professionals and include it in plans of continued medical education	▪ Number of educational activities (individual or group based) about diabetes provided to people with and without diabetes ▪ Number of continued medical education courses about chronic non communicable disease ▪ Number of health care professionals trained in chronic non communicable diseases

2. To incorporate diabetes and obesity prevention in health services.	▪ Conduct opportunistic screening of diabetes and risk factors (obesity, physical inactivity) in people visiting health centers ▪ Carry out training on opportunistic detection of diabetes and risk factors. ▪ Promote early detection of people with obesity and/or diabetes risk factors to enroll them in weight loss programs ▪ Detect, educate and control patients with risk of developing diabetes, Impaired Glucose Tolerance or Impaired Fasting Glucose (IGT/IFG) ▪ Screen and diagnose diabetes and IGT/IFG in high risk groups and pregnant women ▪ Carry out training on the application of the clinical protocol to the personnel of the first level	▪ Number of people detected with diabetes risk factors ▪ Number of people trained to detect diabetes and diabetes risk factors ▪ Number of people with obesity and lack of physical activity treated in primary care centers ▪ Number of people with obesity an lack of physical activity that are enrolled in weight loss programs
3. To facilitate the creation and utilization of health information systems for adequate patient and program management	▪ Promote the automation of clinical health information collection process ▪ Facilitate the utilization and monitor the use of clinical health information system for appropriate patient management ▪ Organize a system of referente and counter-reference linking the primary, secondary, and tertiary levels	▪ Number of clinical records integrated into an information system ▪ Number of health centers with implemented health information systems ▪ Number of reference and counter-reference among the primary, secondary, and tertiary levels

PRIMARY PREVENTION AT THE POPULATION LEVEL

Specific Objectives	Activities	Indicators
1. To promote healthy eating habits and physical activity to prevent type 2 diabetes and other diseases related to obesity.	▪ Implement, disseminate, and communicate information about healthy eating and physical activity ▪ Conduct campaign about the strategy for healthy nutrition and physical activity ▪ Review elementary and middle school curriculum to include physical activity and educational activities emphasizing healty eating habits. ▪ Review school menu to increase the consumption of fruits and vegetables ▪ Screen children at school to measure body mass index (BMI) and advise parents of children with obesity risk factors ▪ Promote eating home-cooked meals	▪ Number of television, radio, and written press advertisements promoting the practice of physical activity and healthy eating ▪ Number of revised school curriculums ▪ Number of fruits and vegetables included in the school menu ▪ Number of children at schools screened for BMI ▪ Number of campainings promoting home cooked meals

SECONDARY PREVENTION

Specific Objectives	Activities	Indicators
1. Self-Management and control of blood glucose	▪ Conduct oportunistic screening for the detection of diabetes ▪ Pay continuous attention to people with diabetes and and treat them according to clinical protocol ▪ Prepare, update, and implement guideliness for the clinical management of diabetes and obesity in primary health care services. ▪ Organize training of physicians and other medical staff to manage diabetes, emphasizing the importance of the strict control of blood glucose and prevention of other complications, as well as the early identification of the following: nephropathy, ocular disorders, diabetic foot, and diabetic neuropathy ▪ Measure blood glucose in pregnant women.	▪ Number of people screened with fasting blood glucose in primary care services ▪ Number of people with diabetes and pre -diabetes detected in health services ▪ Proportion of people with diabetes that recieve A1c tests (3 per year) ▪ Number of persons with diabetes and poor glycemic control (fasting blood glucose >130 mg dl or A1c>7) ▪ Number of glucose measurements to pregnant women ▪ Number of people within the medical staff who are trained in diabetes care
2. To prevent hypertension	▪ Regular measure and control of blood pressure	▪ Number of patients with controlled blood pressure ▪ Number of patients with hypertension
3. To promote control of blood lipid profile	▪ Create, maintain, and control a yearly lipid profile ▪ Provide education about nutrition and physical activity to maintain healthy concentrations of blood lipids	▪ Number of lipid analyses in blood

4.	To prevent foot complications associated with diabetes	■ Encourage personal care of feet ■ Incorporate foot exam in visits to primary health care provider. ■ Educate medical staff and patients about the importance of foot care ■ Emphasize good hygiene for better foot care	■ Number of feet examinations ■ Number of patients with foot amputations (below the ankle, above the ankle)
5.	To prevent ocular disorders	■ Perform annual eye exam ■ Educate medical staff about the benefits of early detection and referral of patients to an ophthalmologist	■ Number of patients referred to an ophtalmologist ■ Number of laser photocoagulations ■ Number of blind or visually impaired patients due to diabetes
6.	To prevent nephropathies	■ Perform oportunistic screening for nephropathies	■ Number of nephropathies detected ■ Number of tests of creatinine serum in people with diabetes (normal and pathological) ■ Number of tests of micro albuminuria and albuminuria to people with diabetes (normal and pathological)
7.	To promote compliance with prescription medication	■ Implement a program emphasizing compliance with prescription medication ■ Provide education about diabetes care and compliance with prescription medication to the relatives of patients with diabetes. ■ Make use of the pharmacist as the facilitator and to guide patients about prescribed medication ■ Perform house visits to patients to verify the compliance with prescription and the support of the family members	■ Number of house visits to people with diabetes to verify the compliance with prescribed medication ■ Number of educational activities (individual or group based) about diabetes provided to people with and without diabetes ■ Number of people with diabetes who comply with the prescribed medication ■ Number of people with diabetes who do not comply with the prescribed medication

EMERGENCY SERVICES

Specific Objectives	Activities	Indicators
1. To provide attention to complications related to diabetes	■ Guarantee the training of the personnel and the necessary equipment for emergency attention of DM, such as: i) Diagnose and treat the moderate metabolic decompensations with or without mild ketosis, hypoglycemia. ii) Diagnose and admit into hospitals patients with ketoacidosis and comas (diabetic, hyperosmolar, or from lactic acidosis), acute ischemia of legs or acutely complicated diabetic foot, acute painful neuropathy, acute loss of vision or painful ocular syndrome. Other acute disorders that occur in people with diabetes will follow what is governed for them (e.g.: myocardial infarction, hypertensive crisis, encephalic vascular accidents, etc.) ■ Implement the statistical information of cases of acute episodes and the analysis of fatality from them	■ Number of professionals trained for diabetes emergency care ■ Number of remissions at the immediate superior level ■ Number of counter-remissions received from the immediate superior level ■ Number of medical emergencies from hyperglycemia, ketoacidosis and, hyperhosmolar coma ■ Number of urgent cases due to diabetic foot, ulcers, infections, gangrene ■ Number of deaths from diabetes ■ Number of amputations of lower extremities in people with diabetes ■ Number of cases of blindness in people with diabetes

HOSPITALS

Specific Objectives	Activities	Indicators
1. To provide information, education, and counseling through health services	■ Prepare training courses to patients with diabetes during their hospital stay organizad by the endocrinologist and with the participation of the entire medical staff ■ Organize inter-disciplinary diabetes education groups ■ Promote the prevention of complications realted to diabetes by suggesting the use of th primary health system	■ Number of diabetes courses for patients and their families ■ Number of patients enrolled in diabetes education courses ■ Number of patients who took the diabetes education courses
2. To provide attention to complications related to diabetes	■ Guarantee the medical facilities and the emergency staff for the treatment of emergencies related to diabetes. ■ Guarantee earlier surgeries to people with diabetes and rule out presence of pre operative autonomic cardiovascular neuropathy as a risk element for trans-operative cardio-respiratory arrest. ■ Establish a policy of early admission for the cases of lack of metabolic control, eliminating the cause of metabolic decompensation before assessing the hospital discharge ■ Create conditions in hospital wards to see people with diabetes (with trained dietitians and nutritionists, nurses trained in diabetes education, the management of frequent emergencies in people with diabetes, e.g.: hypoglycemias, etc) and directed by suitable personnel for this type of pathology (endocrinologists or, in its absence, internists especially trained in diabetes)	■ Number of emergencies due to diabetes. ■ Numbers of hospital admissions (or discharges) from diabetes ■ Number of nutritionists and dietitians in hospitals trained in nutritional management of diabetes ■ Number of admissions in the rooms of intensive care of patients with hyperosmolar ketoacidosis and lactic acidosis ■ Number of patients with diabetes that were hospitalized or served in outpatient consultation due to diabetic nephropathy, diabetic foot, diabetic neuropathy, stroke, acute myocardium infarction

	■ Admit patients with diabetic coma due to ketoacidosis, hyperosmolarity, or lactic acidosis in intensive care units ■ The national or obstetric-gynecological or regional general hospitals should have a diabetes and pregnancy room, served by a multidisciplinary team (endocrinologist, obstetrics and neonatologist), applying the nationally established standards ■ Pediatric hospitals should guarantee visits and rooms prepared for the systematic attention of patients with diabetes by a pediatric endocrinologist ■ Standarize patient care protocol for children with diabetes ■ In general, require more participation of the endocrinologist in everything related to the diabetes program	■ Number of cases served in diabetes and pregnancy services ■ Number of cases, served or hospitalized, of diabetes in people younger than 15 years of age
3. To facilitate the creation and utilization of health information systems for adequate patient and program management	■ Create, within the clinical file, a registry of the medications taken by the patient ■ Use the clinical files to create lists of the following: patients with diabetic foot, patients with eye complications, elevated A1c levels, etc., in order to obtain better control and knowledge of the complications related to diabetes ■ Provide multidisciplinary care in the cases of diabetic nephropathy, diabetic foot, diabetic retinopathy, diabetes, and pregnancy, diabetic neuropathy, encephalic vascular accidents, and myocardial infarction ■ Implement the discussion of the clinical history of deaths from diabetes, with the presence of the corresponding primary care physician	■ Number of clinical files that include a registry of pharmacological treatment ■ Number of inter-consultations of patients with diabetes with specialists ■ Number of hospitals that have an information system for: the control of reference and counter-reference, the control of complications, the control of medical consultations

4. To encourage the professional development of the medical staff	■ Organize diabetes courses, trainings, and workshops (coordinated by the endocrinologist or trained specialist), aimed at specialties related to diabetes care, including the technical or paramedic staff, especially nurses, dietitians, etc. ■ Coordinate with the endocrinologist various teaching activities on diabetes care directed to primary care physicians assigned to the area that serves the hospital ■ Organize training courses for primary care physicians and endocrinologists about the care of children with diabetes	■ Number of diabetes courses, trainings, or workshops performed for the education of the medical staff ■ Number of members of the medical staff (paramedics , nurses, dietitians, etc) that have taken these trainings ■ Number of primary care physicians that have taken workshops about diabetes care ■ Number of primary care physicians that have taken workshops about the care of children with diabetes

SPECIALIZED CENTERS FOR DIABETES CARE

Specific Objectives	Activities	Indicators
1. To guarantee the following services:	■ Day hospitalization and education focused on nutrition, self-monitoring, physical activity, use of insulin, prevention and management of complications	■ Number of day hospitalizations ■ Number of diabetes education programs for people with diabetes ■ Number of people with diabetes enrolled in diabetes education programs ■ Number of people with diabetes that have participated in diabetes education programs
2. To facilitate the creation and utilization of health information systems for adequate patient and program management	■ Provide multidisciplinary consultations according to the local characteristics ■ Provide orientational inter-consultations and advice to the general population, family members, patients, and health workers ■ Create, within the clinical file, a registry of the medications taken by the patient ■ Use the clinical files to create lists of the following: patients with diabetic foot, patients with eye complications, elevated A1c levels, etc., in order to obtain better control and knowledge of the complications related to diabetes ■ Provide multidisciplinary care in the cases of diabetic nephropathy, diabetic foot, diabetic retinopathy, diabetes, and pregnancy, diabetic neuropathy, encephalic vascular accidents, and myocardial infarction	■ Number of orientational inter-consultations provided to patients and their relatives ■ Number of clinical files that include a registry of pharmacological treatment ■ Number of hospitals that have an information system for: the control of referral and counter-referral, the control of complications, the control of medical consultations

3. To encourage the professional development of the medical staff	■ Training in services to health workers (medical nurses, paramedics, and with special emphasis on family physicians) ■ Coordinate and develop graduate training programs on diabetes care aimed to general practitioners of primary health services	■ Number of family physician who have enrolled in a graduate training program on diabetes care ■ Number of family physicians who have completed a graduate training program on diabetes care

CIVIL SOCIETY

Specific Objectives	Activities	Indicators
1. To promote the collaboration from the diabetes associations	■ Use the diabetes associations as intruments to disseminate education and support to people with diabetes	■ Number of active diabetes associations en the particular community/region ■ Number of educational activities performed by these associations
2. To motivate the population towards a better quality of life	■ Use succesfull entertainers as advocates for the prevention and control of obesity and diabetes ■ Recommend and promote physical activity programs in community centers according to age, physical condition, and taste ■ Establish obesity prevention programs as a first step to the prevention of diabetes ■ Share information about healthy lifestyles among communities and support groups ■ Promote the creation of secure and accesible public recreation areas	■ Number of physical activity programs in community centers ■ Number of advocacy activities like campaigns ■ Number of informative activities or campaigns about healthy lifestyle ■ Number of secure public recreation areas

ADMINISTRATION, PROGRAM MANAGEMENT

Specific Objectives	Activities	Indicators
1. To guarantee the execution of the program in all of its ramifications	■ Guarantee the execution of the program in all the physicians' offices of primary care ■ Keep up-to-date and trained the personnel involved in the diabetes program (Physicians, Nurses, Podiatrists, Dietitians, Educators, Psychologists, social workers, etc) facilitating the interdisciplinary group activity. In this end the Endocrinologist and/or ad hoc trained Comprehensive General Practitioner should participate actively ■ Guarantee the fulfillment of the educational activity geared toward the patients and family members. ■ Guarantee the materials and equipment necessary for carrying out the laboratory tests according to the standards (Blood glucose, glycosylated hemoglobin, glucose level, albuminuria, or microalbuminuria), cholesterol, ketone bodies, and ECG (EKG). ■ Supervise the quality of compliance with the Program, from the tasks of prevention up to those of rehabilitation ■ Analyze the aspects of cost, prevalence, mortality, and complications of diabetes and report with the established periodicity ■ Improve the availability of esential medications	■ Number of units with functional diabetes programs ■ Ratio of patients per family physicians (or general practitioners) per unit ■ Ratio of patients per endocrinologists per unit ■ Number of health care professionals trained in diabetes at the primary, secondary, or tertiary levels (physicians, nurses, nutritionists, podiatrists, educators) ■ Ratio of patients per health care professional trained in diabetes per level of care ■ Medical equipment provided to the different levels of care (reactive strips, glucometers, sphygmomanometers, tape measurers, scales, etc.) and medications (metformin, glibenclamide, insulin, aspirin 100mg, statins, fibrates, ACE inhibitors) ■ Number of materials required to perform laboratory tests that are stored in backup ■ Number of esential medications available for people with diabetes

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ANNEX 1

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Diabetes in the Americas: Priorities for the Partner Forum to Fight Diabetes and Obesity in the Americas, Montreal, Canada, October 20, 2009

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PAN AMERICAN HEALTH ORGANIZATION
WORLD HEALTH ORGANIZATION

142nd SESSION OF THE EXECUTIVE COMMITTE

Washington, D.C., USA, 23-27 June 20(

CD48/5 (Eng.)
Annex C

ORIGINAL: ENGLISH

RESOLUTION

CE142.R6

POPULATION-BASED AND INDIVIDUAL APPROACHES TO THE PREVENTION AND MANAGEMENT OF DIABETES AND OBESITY

THE 142nd SESSION OF THE EXECUTIVE COMMITTEE,

Having reviewed the report of the Director, *Population and Individual Approaches to the Prevention and Management of Diabetes and Obesity* (Document CE142/9),

RESOLVES:

To recommend that the Directing Council adopt a resolution along the following lines:

THE 48th DIRECTING COUNCIL,

Having reviewed the report of the Director, *Population-based and Individual Approaches to the Prevention and Management of Diabetes and Obesity*, (Document CD48/5);

Noting Resolution CD47.R9 (2006), Regional Strategy and Plan of Action on an Integrated Approach to the Prevention and Control of Chronic Diseases Including Diet, Physical Activity and Health, which called for integrated action to prevent and reduce the

burden of chronic diseases and related risk factors in the Americas; and Resolution CSP26.R15 (2002) on the public health response to chronic diseases, which recognizes the heavy economic and social burden of noncommunicable diseases and calls for increased and coordinated technical cooperation from the Pan American Health Organization;

Considering Resolution WHA57.17, Global Strategy on Diet, Physical Activity, and Health (2004), which emphasizes an integrated approach and intersectoral collaboration to improve diet and increase physical activity;

Taking into account United Nations General Assembly Resolution 61/225, World Diabetes Day (2006), which recognizes diabetes as a chronic, debilitating and costly disease associated with major complications that pose severe risks for families, countries and the entire world and designates 14 November, the current World Diabetes Day, as a United Nations Day to be observed every year beginning in 2007;

Considering Resolution WHA61.23, Prevention and Control of Noncommunicable Diseases: Implementation of the Global Strategy (2008), which urges Member States to strengthen national capacity and increase resources for the prevention and control of chronic diseases;

Cognizant that obesity and diabetes have reached epidemic proportions in the Region and are projected to continue to increase if drastic action is not taken;

Taking note that obesity and diabetes are largely preventable and that scientific evidence and cost-effective interventions are available that combine population-based and individual approaches; and

Recognizing the importance for governments, the private sector, civil society, and the international community of renewing their commitment to the prevention and control of obesity and diabetes,

RESOLVES:

1. To urge Member States to:

a) prioritize the prevention of obesity and diabetes and their common risk factors by establishing and/or strengthening policies and programs, integrating them into public and private health systems and working to ensure adequate allocation of resources to carry out such policies and programs;

b) work to develop public policies that permit healthy lifestyle choices such as healthy eating and greater opportunities for physical activity;

c) create partnerships and engage with the private sector and civil society so that consumers are better informed, healthy choices are more available, and affordable workplace wellness programs are implemented;

d) create supportive environments that contribute to the prevention and management of obesity and diabetes through greater opportunities for physical activity and choices for healthier eating, in collaboration with sectors outside the public health sector;

e) implement the Global Strategy on Diet and Physical Activity and Health and the Regional Strategy and Plan of Action on an Integrated Approach to the Prevention and Control of Chronic Diseases, Including Diet, Physical Activity and Health;

f) establish incentives and policies that favor the production and consumption of fruits and vegetables;

g) improve food labeling and public education that facilitates the choice of healthy nutrition;

h) develop guidelines and policies to promote the responsible marketing of food to children and adolescents;

i) use the media (i.e. radio, television, print, internet) to implement educational campaigns and disseminate information, including mass media communication;

j) improve surveillance and monitoring of obesity and diabetes at the population level, in order to advocate for policies and evaluate outcomes;

k) develop and implement plans and programs to improve the management of obesity and diabetes within the public and private health systems, integrating prevention into care;

l) reorient health services in the context of primary care to ensure the necessary resources for prevention strategies, including diagnostic media and drugs, for early detection and treatment of preventable or controllable diabetes complications with interventions of proven effectiveness, especially those addressing foot care, ocular health, renal health, glycemia and blood pressure.

2. To request the Director to:

(a) develop integrated interventions for the prevention and control of obesity and diabetes, including norms and protocols, focusing on the needs of low-income countries and vulnerable populations throughout the CARMEN network;

(b) support Member States in their efforts to strengthen their health information systems to monitor obesity and diabetes and to evaluate the results of related public health interventions;

(c) support Member States to strengthen their capacity, including research, means of diagnosis and treatment, as well as the competencies of the health system, for integrated management of obesity and diabetes;

(d) develop new or strengthen existing partnerships for resource mobilization, advocacy, and collaborative research related to obesity and diabetes prevention.

(Eighth meeting, 26 June 2008)

Pan American Health Organization

Regional Office of the
World Health Organization