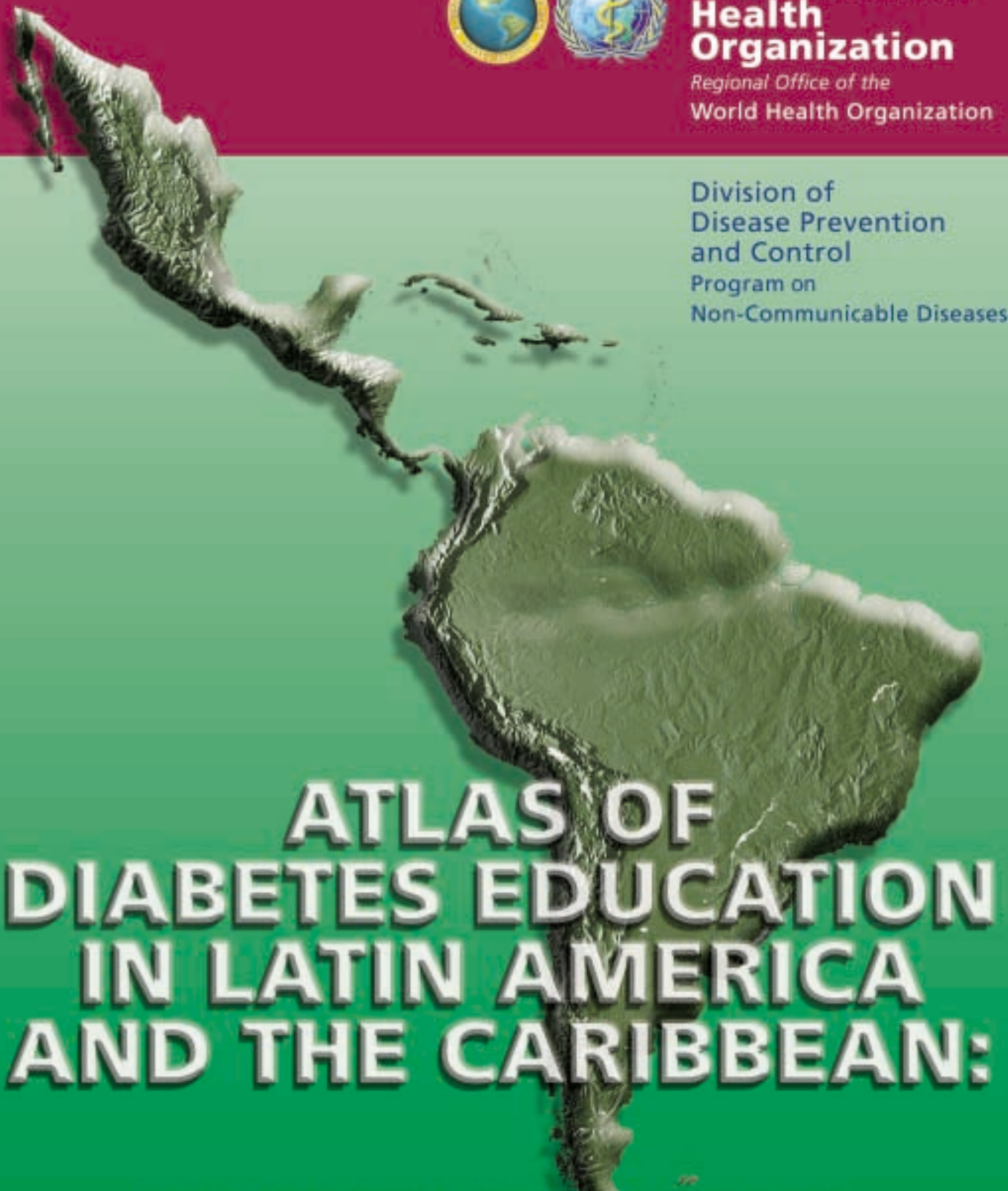
Pan American Health Organization
Regional Office of the
World Health Organization

Division of
Disease Prevention
and Control
Program on
Non-Communicable Diseases



ATLAS OF DIABETES EDUCATION IN LATIN AMERICA AND THE CARIBBEAN:

INVENTORY OF PROGRAMS FOR PEOPLE WITH TYPE 2 DIABETES

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Executive summary

Diabetes is rapidly becoming a global public health problem of epidemic proportions. However, it has been demonstrated scientifically that diabetes education helps reduce unnecessary mortality and morbidity from poorly controlled diabetes. For this reason, the Program on Non-Communicable Diseases of the Division of Disease Prevention and Control of the Pan American Health Organization (PAHO) conducted a special study to obtain information about diabetes education programs in Latin America and the Caribbean. The present document is organized as an inventory. Education programs for people with type 2 diabetes were selected and information was gathered in two stages. An initial list was drawn up of national programs and specialists in the following countries: Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, and Cuba. This first stage of information gathering lasted about 3 months (December 1999 to March 2000). In the second stage (August to December 2000), information was collected from Bolivia, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Peru, and Puerto Rico. This document describes the available information on background, methodology, objectives, materials, and, insofar as possible, evaluation of the educational programs.

This inventory includes information for 19 countries and 21 diabetes education initiatives (3 in the case of Chile). All the programs for which information was received are included, even those not well structured and those that replicate programs of other countries (as in the case of PEDNID-LA). The intention is to profile every educational effort so that steps can be taken to complete and improve the deficient ones on the basis of other, more structured programs.

This inventory is intended to contribute to the development of diabetes education programs in countries that currently do not have any education program for people with type 2 diabetes. The document can also be used to validate existing programs in the Region. Finally, we hope the document promotes the sharing of experiences and the valuable lessons that have been learned by those who are dedicated to diabetes education in the Region. In addition, standards for diabetes education programs developed by the education task group of the Declaration of the Americas on Diabetes (DOTA) are presented in Annex 1. The standards are included in view of the importance of their dissemination and future review.

Introduction

Diabetes mellitus takes a significant and costly toll on people with diabetes and on society (medical costs, health services, consequences for families, disabilities). Diabetes affects about 28 million people in the Americas. The death rates for men and women age 65 and older are 200 and 232 per 100,000, respectively, which amounts to 62,000 deaths a year from diabetes (Bulatao and Stephens, 1992). Furthermore, the disease imposes a heavy economic burden on the Region. In Latin America, diabetes costs society an estimated US$ 300 million per year, 6% of the total health expenditure (Gagliardino and Olivera, 1997).

Although diabetes is a public health concern because of its epidemic proportions, recent studies (DCCT, 1993; UKPD, 1999t; Ohkubo et al., 1995) show that complications of diabetes can be prevented and, in some cases, reversed with intensive treatment, in particular through proper control of blood glucose. Other studies have shown that education programs have positive effects on certain outcomes related to diabetes. Diabetes education increases understanding of the illness and self-care behavior (Brown, 1988; 1990); leads to improvements in HbA1c levels, body weight, and number of oral hypoglycemics taken daily (Berger et al., 1996; Domenech et al., 1995); and reduces ulceration of the lower limbs and rates of amputation (Malone et al., 1989; Barth et al., 1991; Kruger and Guthrie, 1992). As a result, in addition to the indisputable economic and social advantages, applying concrete strategies of preventive care substantially lowers premature mortality and morbidity rates in people with diabetes.

For these reasons, the Program on Non-Communicable Diseases of the Division of Disease Prevention and Control of the Pan American Health Organization has decided to explore what is being done in the Region of Latin America and the Caribbean with regard to diabetes education. This document reports on an ongoing project to compile an inventory of information on education programs currently available in the Region. We invite those whose programs do not yet appear in the inventory, particularly programs that began after this work was completed, to contact PAHO and submit materials to be included in the next edition.

Objectives

This project has two principal objectives.

1. To present and describe the education programs that are under way for people with type 2 diabetes mellitus in Latin American and Caribbean countries; and
2. To present and describe the methodology, content, and materials used in these programs.

General goal

The general goal of this project is to create an inventory of programs and materials with a view to helping professionals in the field to:

1) Validate the diverse initiatives and experiences of these countries.
2) Create an environment for sharing knowledge among the countries.
3) Evaluate the level of development of participating countries with regard to educational plans for people with type 2 diabetes mellitus.
4) Assist PAHO in preparing a strategic plan of education for people with type 2 diabetes based on the experiences of these countries. This activity can serve as a basis for creating a standardized educational process or program to be offered to the Member States of PAHO.

Programming strategies and project formulation

The program started in December 1999 with a list of countries and specialists (individuals and organizations) to be consulted for information about the education programs in progress in some countries of the Region. Countries and specialists for the first stage of information collection are listed below:

1. Argentina (Dr. Juan José Gagliardino)
2. Brazil (Dr. Laercio Franco)
3. Chile (Mrs. Elena Carrasco and Dr. María Cristina Escobar)
4. Colombia (Dr. Pablo Aschner)
5. Costa Rica (Dr. Carlos Mora)
6. Cuba (Dr. Rosario García)
7. Jamaica (Dr. Judith Kirley)

A simple methodology was used. Communication with specialists in each country was established by telephone and e-mail. The purpose of the project was explained to them, and they were asked to send information from which a description of the program was written. For the purpose of this document, only education programs for people with type 2 diabetes were considered. It is important to point out that other programs in the Region have been developed for people with type 1 diabetes as well as for educators in the field of diabetes health; these programs are mentioned only briefly in this inventory.

By the end of the first phase of the study (28 January 2000), information had been received from five countries: Argentina, Chile, Colombia, Costa Rica, and Cuba. Information and materials from Brazil, Colombia, and Jamaica were pending.

The second phase of information gathering began in March 2000. Programs in Bolivia, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Peru, and Puerto Rico were added to the list. It is noteworthy that in this second phase a change was introduced into the methodology for data collection. The new system consisted of sending to each organization or specialist an explanation in writing of the project's objectives and a request to send a written description of their program based on thematic guidelines (see Annex 1).

In this second phase, information was received from four programs and added to the list:

1. Chile (Dr. Ligia Allel, Chile Diabetics Association; Mrs. Elena Carrasco)
2. Ecuador (Dr. Edgar Vanegas Astudillo)
3. Mexico (Dr. Agustín Lara)
4. Peru (Dr. Olga Nuñez)

General list of programs in the inventory

1. Argentina PEDNID-LA (countries that have participated in implementation of PEDNID-LA include Argentina, Bolivia, Brazil, Chile, Costa Rica, Colombia, Cuba, Mexico, Paraguay, and Uruguay, although not all currently use it)
2. Barbados
3. Bolivia
4. Brazil
5. Chile (information is available on three education programs)
6. Colombia
7. Costa Rica
8. Cuba
9. Ecuador
10. El Salvador
11. Honduras
12. Jamaica
13. Mexico
14. Paraguay
15. Peru
16. Puerto Rico
17. Trinidad and Tobago
18. Uruguay
19. Venezuela

The following section describes these programs. Because this is a work in progress, information on other programs will be incorporated in the future.

Diabetes education programs in the Region

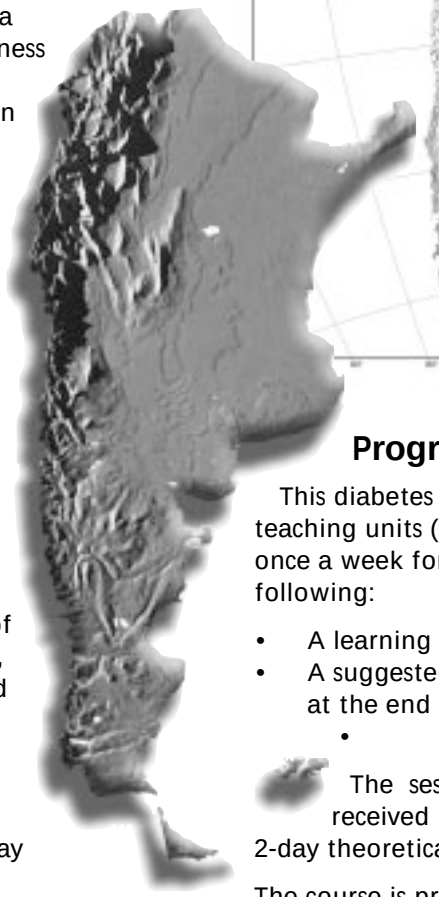
In this section the educational plans and programs of various countries in Latin America and the Caribbean are described. The program descriptions include information on the following subjects: background, program goal, specific objectives, target population, teaching methodology, materials, and time frame for completing evaluation of the program. Program descriptions vary in their level of detail in accordance with the information that was received when the document was prepared.

ARGENTINA

Education Program for Non-insulin-Dependent Diabetics in Latin America (PEDNID-LA): A cooperative international initiative

Background

The Spanish acronym PEDNID-LA stands for Education Program for Non-insulin-Dependent Diabetics in Latin America. It refers to a standardized, structured education program for people with type 2 diabetes (Gagliardino et al, 2001). The PEDNID-LA initiative resulted from the "Día de las Américas" workshop that took place in April 1996 in La Plata, Argentina. The Latin American Diabetes Association (ALAD), with the support of the International Diabetes Federation (IDF) and PAHO, organized this workshop. The objective of PEDNID-LA was to create a multicenter study to test the effectiveness of an education program carried out and evaluated in a standardized way in several countries of the Region. Since then, the standardized education program has been carried out and evaluated in the following countries: Argentina, Bolivia, Brazil, Chile, Costa Rica, Colombia, Cuba, Mexico, Paraguay, and Uruguay[1]. The general organization of the project was the responsibility of an Executive Committee (Antonio Chacra, Brazil; Gloria López, Chile and Eric Mora Morales, Costa Rica), a general coordinator (Juan José Gagliardino, CENEXA, Argentina), and international organizations that offered technical cooperation (Clinic of the University of Dusseldorf, Germany, International Diabetes Federation, and WHO/PAHO). To guarantee standardized training of health educators, health care professionals who participated in the PEDNID-LA project trained at the Bernardo Houssay Center, with the collaboration of the WHO/PAHO Collaborating Center and the Center of Experimental and Applied Endocrinology, CENEXA (UNLP-CONICET).



Program description

This diabetes education program consists of four teaching units (90–120 minutes each) and is given once a week for a month. Each unit includes the following:

- A learning component; and
- A suggested task, which the patient commits to, at the end of each component;
    - A practical component.

The session facilitator is a physician who has received previous training, having attended a 2-day theoretical group seminar.

The course is presented to six to eight outpatients, preferably recently diagnosed. Family members are strongly encouraged to participate. Clinical and biochemical parameters are recorded at the beginning of the course and again one year later to evaluate its effectiveness.

1. The education program that was implemented and evaluated for this project was the diabetes education program used by the Bernardo A. Houssay Center in La Plata, Argentina, adapted from the Berger program (Berger et al., 1987).

Program goals

1. Improve the quality of the patient's metabolic control and the level of compliance with treatment.
2. Reduce costs directly related to the disease.
3. Promote active participation of patients in their metabolic control and diabetes treatment.
4. Emphasize the advantages of a regimen that includes proper diet, exercise, and weight reduction as well as use of drugs, such as those taken orally, to achieve adequate metabolic control of the disease.

Target population

The program is for people with type 2 diabetes.

Content

1. General information about the disease
   - Physiological variations in blood glucose
   - Symptoms of hypoglycemia and hyperglycemia
   - Renal threshold for glucose
2. Self-monitoring of glucose
   - Learning glycosuric self-monitoring
3. Nutrition and weight control
   - Relationship between obesity and insulin resistance
   - Classification of foods and planning a proper diet
4. Foot care
5. Exercise and physical activity
6. Inter-current diseases and diabetes
   - Recommended behaviors
   - Minimum periodic clinical and biochemical controls

All this is contained in four units as detailed below:

Teaching methodology

Unit 1.

Patients participate in a group discussion in which they are asked to speak about their background as it relates to diabetes. General information about the disease is given, such as the normal physiological range for glucose in serum, symptoms of hypoglycemia and hyperglycemia, and the renal threshold for glucose. During the practical or applied exercises of the session, patients learn to use dry strips treated with chemicals to monitor their glucose levels and to record the values.

As their first task, patients are advised to follow a diet that is very low in calories (600 per day) for a week, one day on and one day off the diet, until the next session, and to stop taking oral hypoglycemic agents. The purpose is to prevent the possible risk of induced hypoglycemia. This regimen gives patients the opportunity to test the effect of diet on glucose levels. Patients are also asked to monitor their sugar levels 2 hours after main meals (lunch and supper) and to record their body weight daily in their record books.

Unit 2.

During the teaching or training component of the session, patients learn and analyze information related to weight and proper diet as well as the effect of obesity on peripheral resistance to insulin and the advantages of losing weight. In the practical segment, they learn to separate and classify foods into three groups: green (foods to be consumed freely), yellow (foods with some restrictions), and red (foods that should be avoided). Then, the patients are asked to prepare their own individual diet plans based on 1,000 calories per day and to discuss these plans with other members of the group. They are encouraged to adopt this diet plan as a long-term objective until they reach their recommended body weight.

At the beginning of the last two sessions (units 3 and 4), patients are asked to explain and share with other participants their experiences of the previous weeks after they changed their diets and carried out daily monitoring of their glucose levels.

Unit 3.

The main topics of this session are foot care and physical activity. During the practical segment, the physician—or educator—examines patients' legs and feet and shows them how to do this to detect possible risks or problems. Patients are also asked to perform certain foot exercises.

Unit 4.

The last session presents information about measures to take on days when the patient is feeling bad (acute episodes of illness) as well as the minimum clinical and biochemical tests that are needed for effective monitoring of the patient's metabolic control.

Materials

1. Set of 25 color flipchart sheets
2. Educator's manual or guide to provide a structured standard for teaching each session
3. Set of 60 photographs of different foods, noting the category or color to which each belongs (green, yellow, or red)
4. Question cards to distribute to class aides as a standardized procedure for verifying knowledge acquired in previous sessions
5. Individual record book to note data from self-monitoring (glucose levels, body weight)
6. Pamphlet for the patient outlining the main content and other components of the program

7. Questionnaire for evaluation and documentation of the patients' knowledge about diabetes before and after the program

Boehringer Mannheim provides this material to the instructors.

Program evaluation

ALAD published the first report on the effectiveness of this education program in 1999. The results came from the participating countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Mexico, Paraguay, and Uruguay) and were based on a total of 658 patients. The criteria for selecting the sample subjects were as follows: people with type 2 diabetes (both sexes), not pregnant, under 65 years of age, body mass index (BMI) preferably over 27, not insulin-dependent, without serious complications from diabetes, and without previous formal diabetes education. The variables were evaluated four times, as follows: 6 months before beginning the course and 4, 8, and 12 months after finishing the course. Specific knowledge about diabetes was evaluated at the beginning and end of the course.

Variables evaluated

- Duration, in years, of diabetes mellitus
- Presence of classic symptoms (polyphagia, polyuria, polydipsia, vaginitis, balanitis)
- Height and weight (to obtain the BMI)
- Abdominal circumference
- Arterial tension
- Fasting plasma glucose
- HbA1c
- Fasting lipid profile (total cholesterol and triglycerides) and, optionally, high density lipoprotein
- cholesterol (HDL)
- Type and dosage of oral hypoglycemics
- Type and dosage of hypotensive and hypolipemic agents
- Other drugs the patient is taking
- Tobacco use
- Physical activity
- Serious hypoglycemic episodes
- Hospitalizations for diabetes
- Frequency of physician appointments and changes of physician
- Knowledge about diabetes

The participating centers were asked to send the information they collected to the offices of CENEXA for processing with the program PID-INFO 6.0.

The results of that first publication revealed important changes over the four periods in base measurements of the following variables: reduction of body weight, arterial tension, fasting glucose levels, HbA1c, cholesterol, and triglycerides in addition to general reduction in the quantity of hypoglycemics taken. An analysis of cost-effectiveness is still pending.

Currently, after publication of results from 12 months of the study, centers in the participating countries are maintaining this program satisfactorily and are continuing to evaluate the variables. Following is the list of centers in each country that are participating in PEDNID-LA:

Argentina - Italian Hospital, J. R. Vidal de Corrientes Hospital, José de San Martín Clinical Hospital, Center for Cardiovascular Diagnosis and Rehabilitation, School of Medicine, National University of Cuyo, Bernardo A. Houssay Center.

Bolivia - San Gabriel Hospital, La Paz.

Chile - San Juan de Dios Hospital, University of Chile, School of Medicine, Diabetes Unit.

Costa Rica - The program was first carried out in the Dr. Rafael Angel Calderón Guardia Hospital. It has since been incorporated in the National Diabetes Plan and is being carried out in government hospitals and physicians' offices that are affiliated with the social security system (Costa Rican Social Security Fund; CCSS).

Cuba - National Institute of Endocrinology.

Uruguay - CASMU and Maciel Hospital.

For more information, contact:

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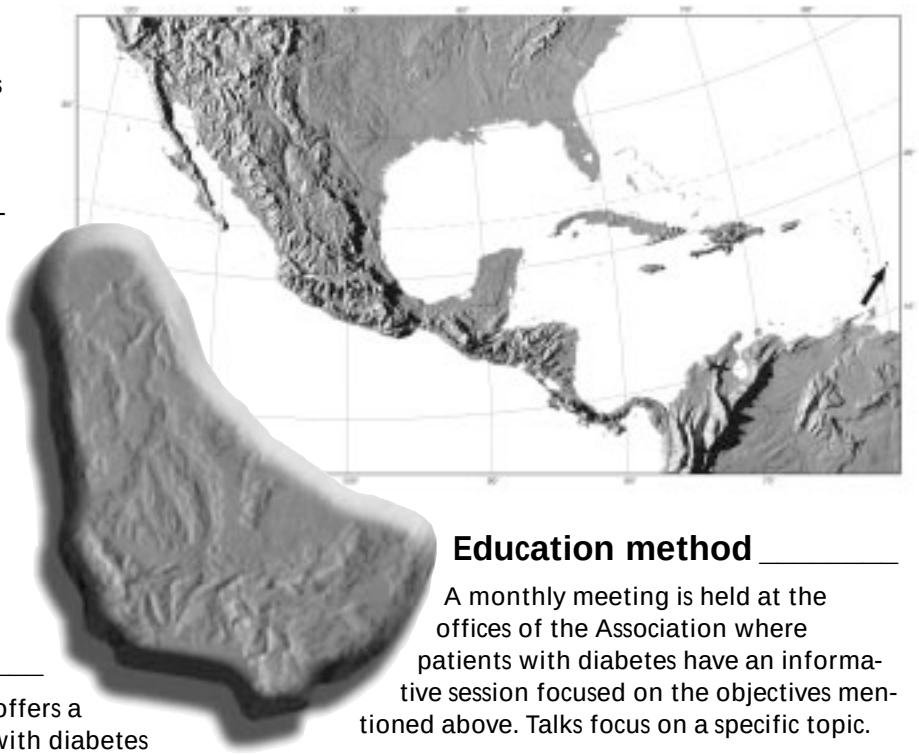
BARBADOS

The government of Barbados recognizes diabetes mellitus as a chronic non-communicable disease that affects about 10% of the population. Therefore, it has implemented a control program and legislated free medical care along with drugs and diagnostic measures for diabetes.

Moreover, the Diabetes Association of Barbados is a very active organization and is constantly promoting public education and information about diabetes and about methods for controlling this disease.

Some other groups, for example the Lions Club, also regularly sponsor health activities in this regard.



Education program in Barbados

The Diabetes Association of Barbados offers a diabetes education course for people with diabetes and their family members. It is directed mainly to recently diagnosed patients and to people with type 2 diabetes.

The education team is made up of health care professionals, such as diabetologists, nutritionists, graduate nurses, and psychiatrists.

Objective

The objective of the program is to offer information to people with diabetes and help them overcome the initial reaction of denial that typically occurs when one is diagnosed with this condition. They are helped to understand that knowledge about the disease and its treatment will enable them to improve their lifestyle.

Specific objectives

1. Offer health education to people with diabetes, especially those recently diagnosed, giving them all the information they need for self-management.
2. Provide information on self-care to help patients avoid life-threatening emergencies, such as hypoglycemia and some acute complications.
3. Offer information, training, and support for necessary lifestyle changes to help patients follow treatment recommendations such as diet, physical exercise, and control of blood glucose.

Population

All people with diabetes are invited to participate in the Association and in the education program.

Education method

A monthly meeting is held at the offices of the Association where patients with diabetes have an informative session focused on the objectives mentioned above. Talks focus on a specific topic.

Methodology

- Presentations by a health professional or monitor, using the participatory method and a question-answer period
- Group discussions
- Experiences of the participants

Content and topics

1. What is diabetes?
2. Diagnosis
3. Treatment with insulin, educational management, acute complications
4. Nutritional program for diabetes
5. Physical activity
6. Foot care

Materials

Printed materials

For more information, contact:

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Secxretary, Membership Chairman
Diabetes Association of Barbados
1RamsgateApartments
Woodside Gardens,
Bay Street, St. Michael, Barbados
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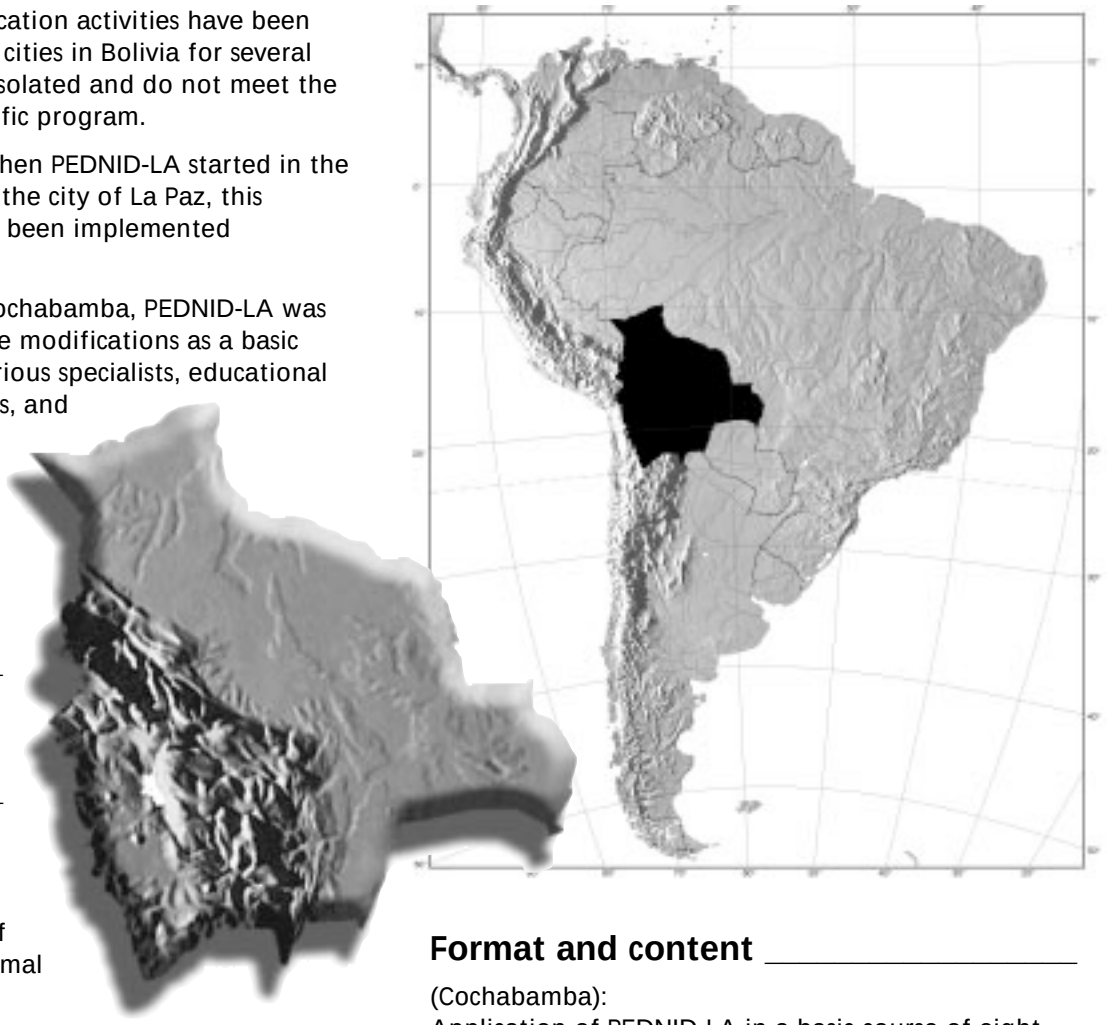
BOLIVIA

Although diabetes education activities have been carried out in different cities in Bolivia for several years, they are mostly isolated and do not meet the requirements of a specific program.

However, since 1997, when PEDNID-LA started in the San Gabriel Hospital in the city of La Paz, this education program has been implemented consistently.

In 1999 in the city of Cochabamba, PEDNID-LA was implemented with some modifications as a basic education program; various specialists, educational field trips, diabetes fairs, and camps maintained "traditional" education in the form of bi-weekly talks for children with diabetes.



Education program

PEDNID-LA
Continuing education

Population

People with type 2 diabetes
People with type-1 diabetes (other types of activities, without a formal education program)
Family members

Context

San Gabriel Hospital, La Paz
Living with Diabetes Center and Cochabamba Diabetes Association in Cochabamba
Oil Fund for Health of Cochabamba

Educational team

Endocrinologists
Nutritionists
Psychologists
Social worker
Diabetes educators

Objectives

1. Ensure that patients with diabetes collaborate with their physicians to control the disease.
2. Impart knowledge and attitudes that improve their quality of life.

Format and content

(Cochabamba):
Application of PEDNID-LA in a basic course of eight sessions, twice a week for 2 hours each
Session 1 (week 1): Presentation and group discussion
Initial evaluation by psychologist
Physical activity
Session 2 (week 1): Concept of diabetes, hyperglycemia, and hypoglycemia
Physical activity
Session 3 (week 2): Obesity and insulin resistance
Physical activity
Session 4 (week 2): Diet, classification of foods
Theoretical/practical session
Physical activity
Session 5 (week 3): Care of the feet, general recommendations
Theoretical/practical session
Physical activity
Session 6 (week 3): Inter-current diseases
Physical activity
Session 7 (week 4): Clinical and biochemical controls
Physical activity

Session 8 (week 4): Complications of diabetes
Physical activity

Capillary blood glucose testing is done at each session, with instruction in self-monitoring.
Eight patients per group, each with a family member.

Continuing education

Bi-weekly talks by specialists

Methodology

Group and participatory

Materials

PEDNID-LA

- 25 color slides
- Structured guidelines for developing sessions
- 60 color photographs of foods
- Cards with questions
- Control agendas
- Patient manual
- Evaluation questionnaire

Continuing education

- Wall charts
- Slides
- Transparencies
- Videotapes
- Booklets
- Material for practical classes (e.g., dietary classes)

Evaluation

Not carried out

For more information, contact:

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BRAZIL

This program emerged as an initiative of the Juvenile Diabetes Association (ADJ), a nonprofit entity founded in 1980. The Association promotes education for people of all ages with diabetes.

ADJ staff coordinated the program with external professionals such as a physician, a nutritionist, nurses, and a physical education coordinator in the first phase. A psychologist and a nutritionist, who lead group sessions, coordinated the second phase of the education program.

The following program is offered to people with type-2 diabetes.

People with Diabetes' Day

This can be considered the first phase of the education program. Once a month an entire day is devoted to helping patients recently diagnosed with diabetes learn to live with the disease. Orientation and practical exercises are provided on diet, self-control, physical activity, and other specific care activities.

Participants are 12 adults with type 2 diabetes; a family member may accompany each participant.

The education session is carried out in the Association's facility, which has rooms specifically equipped for cooking, self-testing, foot care, and oral health. A nearby park is available for physical activity.

The education session lasts from 8:00 a.m. to 5:00 p.m.

Materials

- Novos Horizontes magazine (quarterly)
- Transparencies
- Explanatory pamphlets
- Charts
- Specific environments

Content

1. Capillary blood glucose test
2. Insulin administration (course in self-administration), or use of oral medication
3. Physical activity
4. Preparation of lunch
5. Oral health
6. Care of the feet
7. Self-monitoring and final evaluation

Group experience

With the same objectives and the same monthly frequency, for groups that have completed People with Diabetes' Day.

The group programs the activities or trips that are of interest to them.

Coordinated by a nutritionist and a psychologist, various activities are carried out such as:

- Virtual restaurant (once a month)
- Discussion of different topics with the presence of a guest professional (once a month)
- Course in dietetic cooking (every 3 months)
- Educational field trips (once a year)

Individual needs are also addressed, covering topics such as self-control, self-administration of insulin, and nutrition.

For more information, contact:

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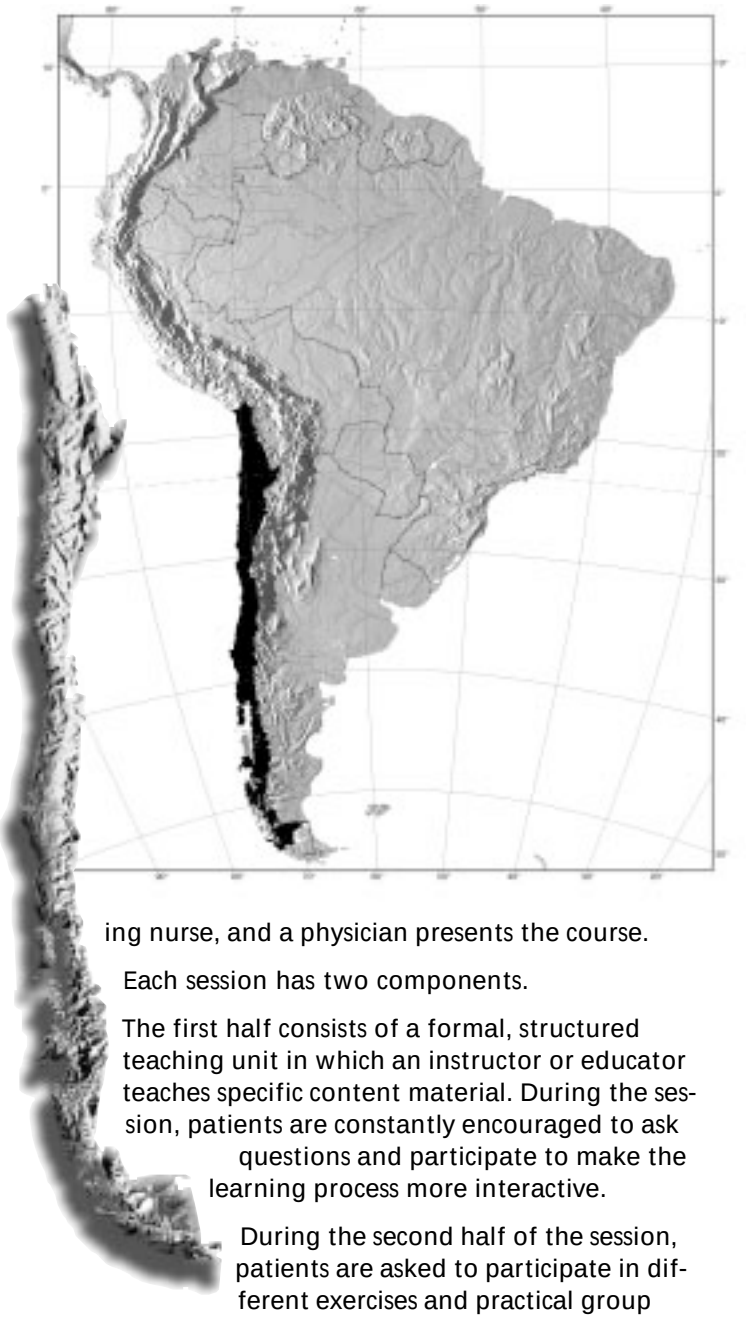
CHILE

In Chile, three education programs for people with diabetes were selected for inclusion in this study:

- The education program developed by the Ministry of Health
- The education program at the San Juan de Dios Hospital
- The program of the Chilean Diabetics Association (ADICH)

Below is a detailed description of the programs.



1. National Diabetes Education Program of the Ministry of Health

The National Diabetes Education Program of Chile is based on a manual published by the Chilean Ministry of Health in 1992 entitled "Diabetes Education: Basic Care for Living Better." There are other diabetes education programs in Chile, but this program has become widely popular in the country. Many health care specialists at different hospitals and private centers for people with diabetes have attended the workshops and seminars given by the Ministry of Health and later applied this program in their own centers.

Target population

This education program is offered to people with diabetes and their family members.

Goals

1. Reduce acute complications of the disease due to hypoglycemia and ketoacidosis that, in the last analysis, result from deficiencies in metabolic control.
2. Improve metabolic control of people with diabetes by maintaining proper blood sugar levels.
3. Prevent the emergence of chronic complications of the disease, such as neuropathy, retinopathy, nephropathy, and cardiovascular diseases.

Methodology

The program offers individual and group sessions.

Group sessions

The sessions can be organized on consecutive days or once a week, depending on the resources of the physician's office or center. Small groups of up to 10 people (patients and family members) are preferable. A health care team that includes a nutritionist, a teaching nurse, and a physician presents the course.

Each session has two components.

The first half consists of a formal, structured teaching unit in which an instructor or educator teaches specific content material. During the session, patients are constantly encouraged to ask questions and participate to make the learning process more interactive.

During the second half of the session, patients are asked to participate in different exercises and practical group activities that are described in the manual. Each instructor or educator can select one or more of these activities after evaluating the needs and skills of the patients. These activities encompass a broad range of exercises; for example, questions may first be answered individually and then submitted to the group for open discussion in which members speak about "real-life situations" that are particularly "challenging" and help each other come up with suggestions about what to do in such a situation (similar to simulation training). Other examples include applied exercises having to do with nutrition (patients create their own diets) or physical activities such as foot exercises and role-play.

Note. The group of people who participated in its initial implementation applied PEDNID-LA in Chile; it was then adapted by combining it with another national program.

At the beginning and end of the full program, as well as at the end of every unit, patients receive evaluation survey forms to determine their level of knowledge and specific weaknesses that need to be addressed.

Content or topics

The training or group education covers nine information units.

1. Being diabetic, general information about the disease (what is diabetes, symptoms, types of diabetes, and diagnostic classification) (2 hours).
2. Introduction to different components of treatment: proper diet, exercise, and drugs (2 hours).
3. Nutritional evaluation and proper diet for people with diabetes: general concepts of nutrition and eating habits (proteins, carbohydrates, lipids and fats), diabetic diets (2 hours).
4. Food groups and food substitution: dairy products, meats, fruits and vegetables, grains or cereals, carbohydrates (bread and cookies), oils and fats, classification of food groups (prohibited foods and foods to be consumed freely), and dietetic products (6 hours, three or four sessions).
5. Other food plans for people with diabetes and food substitution (4 hours).
6. Foot care: self-examination of the feet by people with diabetes and other self-care activities, such as selection of footwear and recommended foot exercises (2 hours).
7. Technique for administering insulin, body sites for insulin injection, types of insulin (2 hours).
8. Self-monitoring of glucose levels: different methods of glucose self-monitoring, how to interpret readings (1 hour).
9. Preventing complications of diabetes: acute complications (hypoglycemia, ketoacidosis) and chronic complications (1 hour).

Materials

1. Flipcharts
2. Chalkboard
3. Clippings, drawings, paper, colored pencils
4. Images or photographs
5. Pamphlets for patients (food properties and food substitution)
6. Practical supplies and products to stimulate discussion on given subjects (nail cutters, platform scale, food or edible products, strips for testing glucose in urine)

Educational materials from the Ministry of Health:

- Non-insulin-dependent diabetes mellitus: Technical standards
- Technical standards: Diabetes and pregnancy
- Prevention and outpatient treatment of diabetic feet, including a form for recording an annual evaluation

The program has different evaluations or questionnaires to determine the patient's level of knowledge; these are found in the instructor's manual.

Continuing education for people with diabetes

Patients who have completed the introductory course are invited to attend special educational group sessions. The Diabetics Association coordinates these meetings. Special talks are organised and speakers are invited (for example, representatives of pharmaceutical companies) for these monthly group meetings, which last about 3 hours. The purpose of these sessions is to reinforce the content learned in the introductory course, such as self-monitoring, strategies, and administering insulin.

Program evaluation

In 1998, a study was conducted to evaluate the effectiveness of an education program based on the diabetes education manual prepared by the Ministry of Health of Chile[2]. The study included comparison of indicators (before intervention and 6 months later) between a control group (traditional teaching methodology) and the experimental group (education program based on the diabetes manual prepared by the Ministry of Health). Several indicators were evaluated on the two occasions: HbA1c, knowledge about diabetes, and quality of life. There were no significant differences between the groups with regard to changes in HbA1c levels and quality of life. However, the reported results showed a significant difference in the levels of knowledge about diabetes: participants in the experimental group displayed a higher level of knowledge at 6 months, compared with their initial knowledge of diabetes, whereas the group exposed to traditional methodology did not show significant differences[3].

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2. The program that was used in the PAHO–Eli Lilly study was based on the manual published by the Ministry of Health. Note that minor modifications were made, and therefore the results of this evaluation cannot be generalized to the original education program of the Chilean Ministry of Health.
3. Publication of these findings is pending.

2. Diabetes Unit, San Juan de Dios Hospital

In the Diabetes Service of San Juan de Dios Hospital, an education program for people with diabetes has been offered since 1964, using various educational methodologies. The program currently uses the manual "Diabetes Education: Basic Care for Living Better," which was designed and validated by Dr. María Cristina Escobar and professors of nutrition Sonia Olivares, M.Sc., and Elena Carrasco, M.Sc. Training in this program's methodology was provided to all medical professionals, including physicians, nutritionists, and nurses, in Santiago and the surrounding regions for application at the primary and secondary levels of care. It was the first attempt in Chile to standardize this education. This unit also participated in the PEDNID-LA project.

The Diabetes Service has its own building, which was donated by Helen Lee Lassen of the United States. Doctors specializing in diabetes, vascular surgeons, nurses, nutritionists, and foot specialists provide comprehensive care to diabetic patients. Group and individual education is carried out. Supervision is provided to approximately 2,500 patients, including people with type 1 diabetes (children and adults), people with type 2 diabetes, and gestational or pregestational diabetics. The service has 18 inpatient beds, both for those who are clinically ill and for education of people recently diagnosed with diabetes.

New education techniques are continually being developed, including an interactive CD developed and validated jointly with the Nutrition and Food Technology Institute by Sonia Olivares, M.Sc., Elena Carrasco, M.Sc., and Dr. Gloria López. This CD, which is sponsored by the Ministry of Health, is for educating patients and their families and for training the health team. A manual accompanies it with general recommendations for carrying out an education program and an evaluation test. The CD provides instruction in an entertaining format with a focus on nutrition.

The education program is given in the form of courses to small groups consisting of 8 to 10 patients with type-2 diabetes.

Program goals

1. To help patients achieve better metabolic control (improve their HbA1c levels)
2. To reduce the number of hospitalizations
3. To prevent acute and chronic complications

Methodology

Each professional (nurse and nutritionist) uses the CD to teach different subject areas, so that all the content is covered in four sessions. The methodology is interactive.

Content

- General information about diabetes
- Treatment
- Laboratory tests, self-monitoring
- Acute and chronic complications
- Nutrition: the program includes, in addition to all foods, calculation of BMI and of calories and carbohydrates of the diet for an entire day or for a meal, which can be adjusted according to individual dietary recommendations.

Evaluation

This is carried out through a multiple-choice test.

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3. Diabetes Education Program of the Chilean Diabetics Association

Two years ago, ADICH began to offer diabetes education classes to people with diabetes and their family members. Initially, the course was directed to recently diagnosed patients, mainly people with type 2 diabetes. However, all members of the association are now encouraged to participate in the diabetes education program.

The diabetes education team is made up of health care professionals in the field (endocrinologists, nutritionists, physical therapists, psychologists) and people with diabetes who have participated in a training course offered by ADICH[4].

Goals

In general, the program was created to offer to people recently diagnosed with diabetes a body of information to help them overcome their initial fears about being diagnosed with a chronic disease, help them understand the disease and the therapeutic

4. People with diabetes who are part of the education team are called monitors.

process, improve compliance with treatment recommendations, and facilitate lifestyle changes related to diagnosis and treatment of diabetes.

Specific objectives

Educate and teach essential self-care skills to recently diagnosed patients.
Provide information to people with diabetes, diagnosed more than a year ago and to those who have problems complying with treatment; refresh and update their knowledge of the disease.

Offer training to help people with diabetes acquire self-care skills so they can handle emergencies caused by acute complications of the disease.

Offer information and training to help people with diabetes modify their lifestyles in line with treatment recommendations (diet, physical exercise, glucose tests).

Target population

All people with diabetes are invited to become members of the association and participate in the diabetes education program (types 1 and 2).

Methodology

New members of ADICH are given a card with information about the different educational activities the association offers, with a detailed schedule of the talks (time and topic). When a member attends an educational session, the information is recorded on the card. Such information allows monitors and professionals to ask about or complement the patients' knowledge about the various subjects, in accordance with their educational needs[5].

The course is a one week program with daily sessions, each lasting about 2 hours. ADICH offers its members uninterrupted services throughout the year, including the education program. The methodology includes a presentation by a health care professional or monitor, using a participatory approach and followed by a question-and-answer period.

During the session, the health professional or monitor promotes group discussion in which participants share their experiences.

Content or topics

1. What is diabetes? General principles of a proper diet.
2. How to live with the diagnosed diabetic; stress management.
3. Insulin therapy, self-care, acute complications
4. Nutritional program for people with diabetes[6]
5. Physical activity and foot care.

Materials

- Flipcharts
- Transparencies
- Slide presentations
- Diabetes education card
- Personalized card for information on diet
- Pamphlets and printed materials
- ADICH in Action magazine

The Juvenile Diabetes Foundation of Chile has educational material, texts such as "Live Better" and "Pipe Teaches You to Live with Diabetes," as well as a journal called Diabetes Control.

Evaluation

Participants are evaluated at the beginning and end of the educational program. Currently, only knowledge about diabetes is being evaluated, but ADICH will soon introduce other indicators into the evaluation process: social and cultural factors, compliance with treatment recommendations, harmful lifestyle habits, the diabetic's beliefs and attitudes about health, and indicators related to metabolic control (HbA1c and weight). Furthermore, there are plans to add two more evaluations to the process, at 3 and 6 months after the program. This information will provide a basis for evaluating the needs of members to provide them with continuing diabetes education, add new presentations on subjects of interest to the members and, of utmost importance, help prevent complications of the disease[7].

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5. Patients are asked to show the card to their primary care physician.
6. Rebeca Flores, a nutritionist on the ADICH teaching team, developed this nutritional program. It has proved so successful that it has been incorporated into the diabetes education program of the Ministry of Health. The Rebeca Flores nutritional program covers different aspects of the dietary component of treatment, such as the effect of carbohydrates on the metabolism of persons with diabetes, interaction between education and administration of drugs, information on proteins and sources of protein in the diet, the effect of fat consumption and its relation to obesity, and ways of controlling cholesterol.
7. Results of the evaluation are not yet available.

COLOMBIA

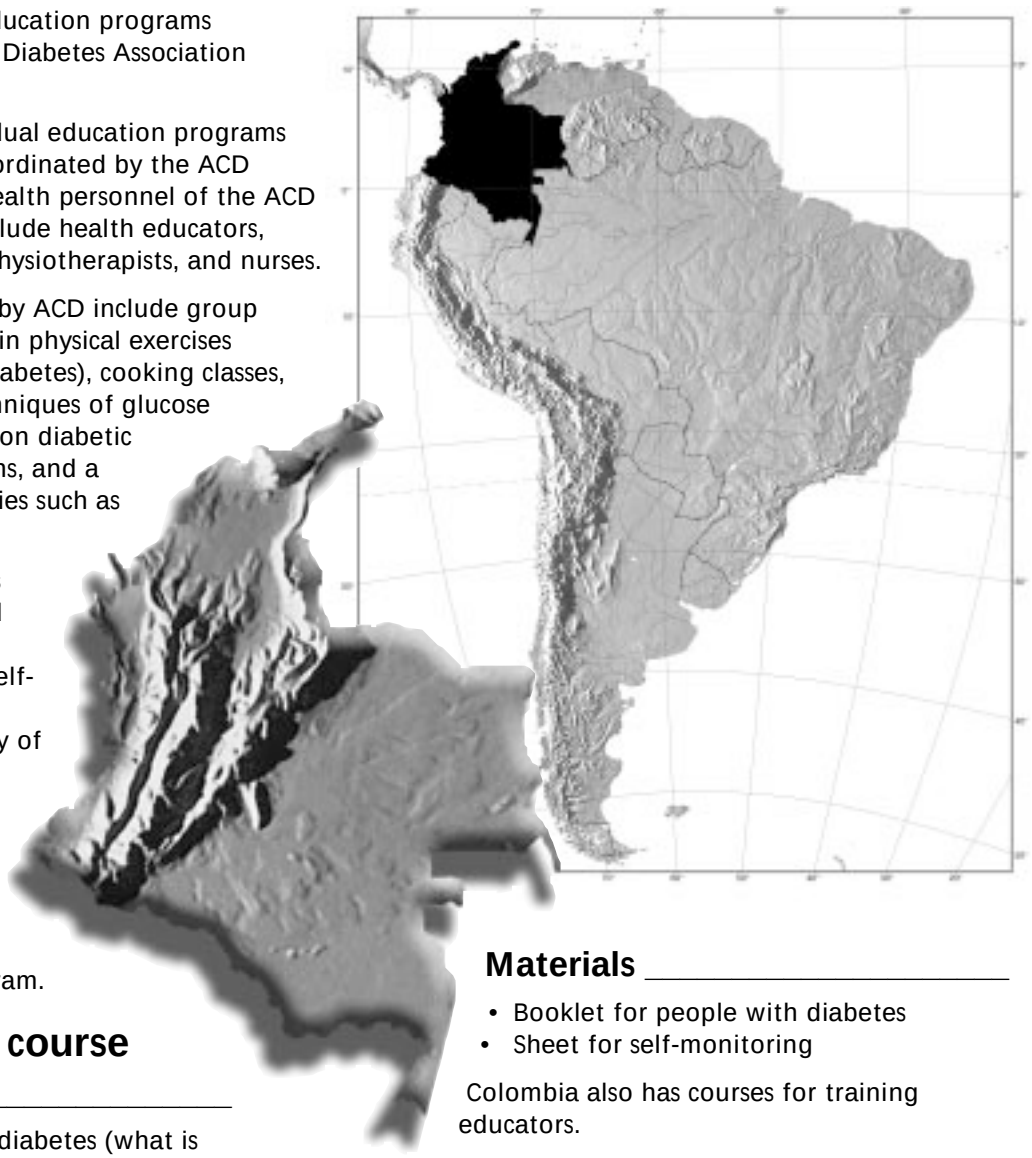
There are several diabetes education programs sponsored by the Colombian Diabetes Association (ACD), located in Bogotá.

ACD offers group and individual education programs for people with diabetes, coordinated by the ACD Department of Education. Health personnel of the ACD Department of Education include health educators, psychologists, nutritionists, physiotherapists, and nurses.

Some of the courses offered by ACD include group activities, such as instruction in physical exercises (especially for people with diabetes), cooking classes, a workshop on different techniques of glucose self-monitoring, a workshop on diabetic feet and related complications, and a variety of recreational activities such as weaving and art classes.

Individual education includes sessions on management and techniques of insulin administration and glucose self-monitoring. These individual sessions are offered every day of the week.

ACD coordinates two education programs tailored to people with diabetes and their family members: an introductory basic course and a continuing education program.



Introductory basic course

Content or topics

1. General information on diabetes (what is diabetes?)
2. Diabetes treatment (diabetes education, physical exercise, and diet)
3. Diabetes treatment, continued (insulin, oral hypoglycemic agents)
4. Metabolic control (glucose self-monitoring, laboratory tests)
5. Acute and chronic complications of the disease

Continuing education for people with diabetes and their family members

Every month, health care personnel from the Colombian Diabetes Association give a talk on a subject of interest to people with diabetes and their families. Patients, family members, and friends are invited to attend.

Materials

- Booklet for people with diabetes
- Sheet for self-monitoring

Colombia also has courses for training educators.

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COSTA RICA

A diabetes education program was launched in Costa Rica between 1995 and 1996, based on a German education program called "Diabetes Treatment" (Berger et al., 1996), which later served as a basis for PEDNID-LA. Currently, however, no information is available about its continuation.

This program was offered to patients recently diagnosed with diabetes and their family members. It was carried out at the Mexico Hospital and was led by a professional nurse.

The program consisted of four units, each 2 hours long, given once a week for 4 weeks.

Unit 1: Glucose self-control
Unit 2: Nutrition
Unit 3: Foot care
Unit 4: Exercise

Methodology

Active participation

Materials

Flipcharts of color illustrations
Booklets with illustrations of food
Booklets with questions
Set of educators' guides

Evaluation

Carried out and published

In addition, the Costa Rican Social Security Fund has educational material consisting of pamphlets:

- General information about diabetes mellitus
- Modules 1 and 2

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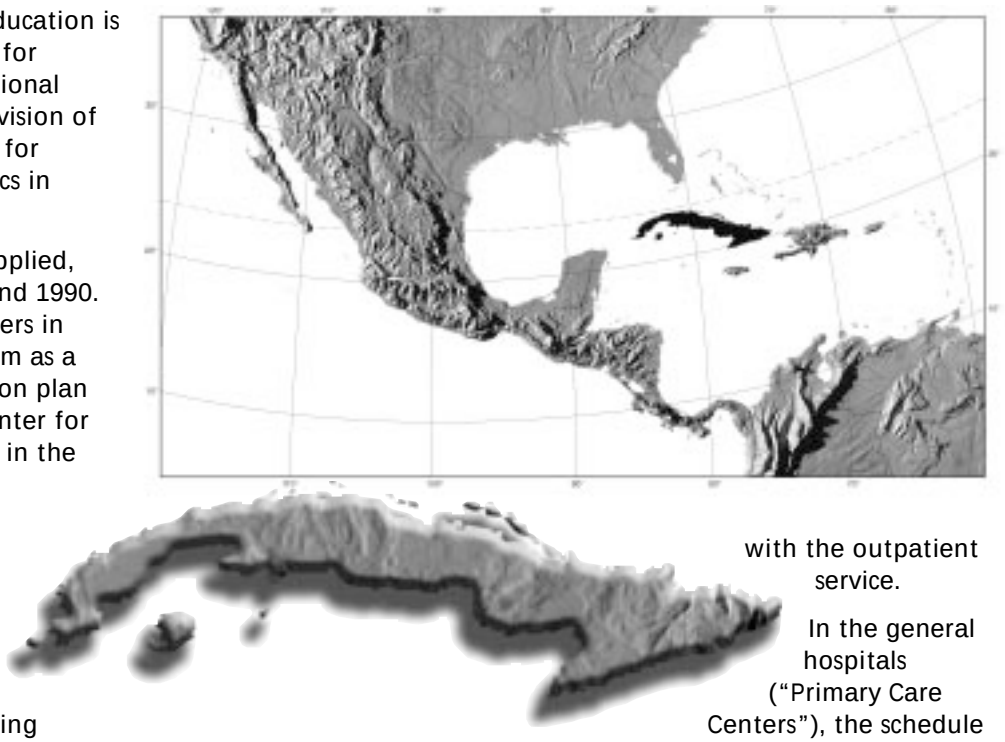
CUBA

The Cuban Plan for Diabetes Education is part of the work of the Center for Diabetes Care (CAD) of the National Institute of Endocrinology, a division of the WHO Collaborating Center for Comprehensive Care of Diabetics in Havana.



This program was conceived, applied, and evaluated between 1980 and 1990. Since 1993, other diabetes centers in Cuba have adopted this program as a result of a national dissemination plan undertaken by the National Center for Care of Diabetics, which began in the 1990s.

Health workers in the country were invited to participate and learn about this interactive program. The education program is the responsibility of a multidisciplinary group of health care providers, including endocrinologists, health educators, teaching nurses, podiatrists, dietitians, and social workers as well as people with diabetes with experience and good metabolic control.

The national comprehensive education program consists of two phases: a short-term intensive course and a long-term continuing education program.

Two educational phases

1. Basic information course on diabetes: This is offered to recently diagnosed patients, to the elderly, and to those with insufficient knowledge of diabetes.
2. Interactive continuing education program, or "diabetic circles": This is part of a continuing education program that is offered to participants who have completed the basic information course.

Basic Information Course on Diabetes (BICD)

This course is offered in two types of facility:

1. Specialized centers
2. General hospitals

In the Cuban specialized centers ("Centers for Diabetes Care"), the BICD is given to people recently diagnosed with diabetes over the course of one week, through daily hospital admissions or appointments with the outpatient service.

In the general hospitals ("Primary Care Centers"), the schedule for the BICD can vary; the course may meet once a week and, as a result, may last 6 to 8 weeks. The course includes individual and group sessions.

Goals

Short-term goals

Acquisition of knowledge and skills that makes it easier for people with diabetes to follow treatment recommendations.

1. Establish healthy eating habits that meet their individual needs.
2. Incorporate physical exercise in their daily routine.
3. Correctly carry out daily self-monitoring of glucose in urine.
4. Learn to take proper care of their feet.

Long-term goals

1. Contribute to the general quality of life of the diabetic.
2. Facilitate optimal metabolic control.
3. Reduce the risk of developing complications of chronic diabetes.
4. Prevent people with diabetes from feeling "disabled" or "handicapped" by the disease.

Content of the basic course

In the specialized care centers for people with diabetes, patients are admitted every day for a week as outpatients in the physician's office or hospital.

During the day, they receive medical services and an intensive information course on diabetes. The course consists of several educational activities through which complex information is provided to people with diabetes in a way that is nonthreatening and easily understood. People with diabetes attend afternoon educational activities directed by specialized instructors and medical staff. These activities use diverse teaching materials, such as flipcharts, slides, and chalkboards. The applied method is described as "interactive" because the educator and the patients collaborate as a group to present the subjects or the course content. Practical information and more theoretical issues are dealt with through group discussions. During the morning sessions, the patients receive more information at an individual level, when they rotate from one hospital to another.

Content or topics

1. What is diabetes? (types 1 and 2)
2. Diet
3. Physical exercise and proper metabolic control
4. Oral hypoglycemic agents
5. Self-monitoring of glucose (in urine and blood)
6. Complications (chronic and acute)
7. Foot care for people with diabetes
8. Other self-care activities (periodic examination of eyes or eyesight, impact of harmful habits such as tobacco or alcohol use, appropriate clothing)

These issues are addressed with reference to personal daily experiences the participants share. The focus is on the individual patient and not on the disease. The discussion is enriched with anecdotes, metaphors, and testimonies; challenging situations are presented to the group to help participants identify their problems and seek solutions. The objective is to help them gain problem-solving skills.

Materials

1. Chalkboard
2. Transparencies, slides
3. Flipcharts
4. Guide or manual for education of non-insulin-dependent diabetics
5. Educational games (in preparation and testing phase)
6. Guidelines for education of non-insulin-dependent diabetes patients in primary health care (manual for the general practitioner)
7. Questionnaires for ongoing evaluation
8. Text: "Cuban Strategy for Diabetes Education"

Teaching methodology

1. The educational process is carried out through group discussions, preferably in small groups. The content is simple and concentrates on the daily activities (lifestyle) of the patients. Only one or two topics are discussed at a time.
2. Through examples of behavior or applied training exercises, participants can practice certain skills and behaviors they will incorporate in their daily routine (such as foot care and self-monitoring of sugar levels at home).
3. Patients are continually encouraged to express their ideas, feelings, needs, and problems in complying with treatment. The group takes charge of the progress of the educational process. Patients are urged to participate and support each other on the basis of their own knowledge and experiences.
4. In the applied exercises, which simulate real-life situations, patients are asked to perform individual tasks, such as self-administering insulin, self-monitoring glucose, and planning their diet. The BICD seeks to increase patients' knowledge and skills in diabetes self-care to improve their metabolic control. Previous studies on the effectiveness of the BICD have shown that diabetic patients demonstrated significantly improved knowledge and skills immediately after they completed BICD activities, but they rarely achieved the behaviors necessary for maintaining good metabolic control. In studies to determine the effectiveness of the BICD (García and Suárez, 1996), 4–6 months after attending the basic course the patients were sent with similar problems to repeat the BICD. This led to development of a continuing education program, which was added to the national diabetes education program.

Interactive Continuing Education Program (ICE)

Premise

"Coping with diabetes is not a problem of one day or one week, but requires constant adaptation of daily living activities to achieve proper metabolic control and prevent chronic complications" (García and Suárez, 1996).

In this program, health care workers learn the importance not only of teaching "objective scientific" information about diabetes mellitus but also of understanding and helping people with diabetes to deal with their perception of the disease, their feelings, and their motivations; to perform self-care activities; and to make ongoing changes in harmful lifestyle patterns. Patients learn to manage diabetes only if they understand the importance of daily self-care and participate actively in identifying day-to-day difficulties, so that they find a variety of solutions and use appropriate criteria for making decisions.

Goal

Teach people with diabetes to improve their daily self-care while increasing their self-confidence, autonomy, and well-being. Diabetic patients propose the objectives and specific content of each meeting. The content chosen is carefully noted at each meeting so that health care providers can indirectly promote topics that are left out.

ICE consists of approximately 12 activities per year. These activities are offered once a month, with each session lasting from 90 to 100 minutes.

During a session, the large groups of participants at the meeting (about 50) are asked to divide themselves into smaller informal subgroups (fewer than 15). In general, no more than two health care providers act as facilitators in each group. Educators or facilitators are trained to encourage participants to reveal their perceptions, feelings, and concerns, using their own words, and to learn in a practical and active manner, based on self-help, mutual assistance, and give-and-take. They are also trained to ensure that all participants are engaged in the debate, to facilitate exchange of ideas and moderate the discussion, to clarify clinical concepts (when other patients do not do so), and to encourage participants to ask questions. This is done even in the most structured activities, such as presentations and talks.

Teaching methodology

1. Presentation techniques or icebreakers allow participants to get to know each other and create an environment favorable to open dialogue.
2. The group then engages in discussion of the chosen topic using an active problem-solving method, so that participants interact, which promotes an interdependent approach to learning. The group begins by analyzing different situations related to the selected topic, identifying relevant problems, and seeking other solutions. To achieve this, participation strategies or techniques such as Metaplan, Phillips 6.6, and Conceptual Models are used.
3. After the small-group discussion, the groups come back together to exchange and enrich their own ideas with those of the other groups. At the end of the meeting, the patients decide which topics they will address at the next meeting. At each meeting, the patients are also encouraged to identify and commit themselves to pursuing an "achievable" goal or a behavior they wish to change or adapt, related to their own lifestyle.
4. Every month, members of the group form a mutual support network for achieving their own behavior goals. Another format for the monthly sessions is that of activities, such as diabetic roundtables, suppers in restaurants, parties in members' homes, cultural activities, and talks for diabetic youth.

Content or topics

The program can be structured or unstructured. Members of the group select the topic at previous meetings. The session can focus on educational, support, or social objectives, or a combination of the three, in a welcoming and familiar environment chosen by the participants in the group.

Cuba has a graduate degree program in comprehensive care of people with diabetes in primary health care.

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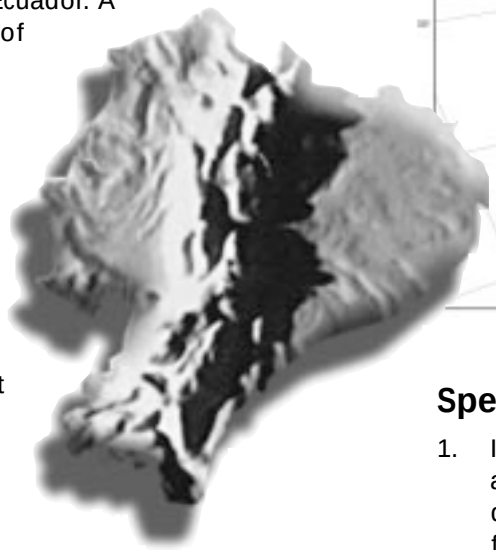
ECUADOR

In Ecuador, the DONUM Foundation offers a well-structured program for diabetes education. DONUM is a nonprofit, nongovernmental organization that designs and implements health projects, mainly in the primary and secondary health services of marginalized rural and urban centers. DONUM created the diabetes education program because of growing awareness of the epidemic proportions of morbidity from diabetes in Ecuador and the difficulties state health institutions have encountered in trying to cover the whole Ecuadorian population. The program was also designed to meet the need for more health services and education programs for the poor (working people with diabetes, indigenous peoples with limited access to medical care).

The DONUM Medical Center is located in the city of Cuenca, Ecuador. A multidisciplinary team of health professionals, including an endocrinologist, two medical internists, three ophthalmologists, three nurses, and a social worker, is responsible for the diabetes education program. A nutritionist and a psychologist volunteer their services.



In its initial stages of development, DONUM was able to grow thanks to generous funding from two Belgian nongovernmental organizations[8]. This financing contributed to implementation of programs and organization of activities during the first years of DONUM.

Goal

Increase awareness in the community (among people with diabetes and health professionals) of the importance of diabetes education as an integral part of diabetes treatment.

Specific objectives

1. Increase the level of knowledge about diabetes and promote a positive attitude toward the disease among people with diabetes and their family members. This is assumed to foster improvement in the psychological and social well being of the patient.
2. Increase patient compliance with recommendations from the team about nutritional properties of food groups and eating habits.
3. Improve the patient's feeling of competence with regard to self-control. This is expected to have a positive impact on patients' quality of life and their capacity to live normal lives (engage in physical activity, attend social events).
4. Improve the self-care skills of patients and their capacity to interpret the results of tests of metabolic indicators (HbA1c, arterial tension). This can contribute directly to preventing the emergence of complications.
5. Make people with diabetes, their family members, and care providers more aware of the importance of diabetes education as part of the treatment plan.

8. The DONUM Foundation took responsibility for development of infrastructure, the medical team, and supplies.

6. Reduce morbidity and mortality rates by disseminating information as a means of preventing the emergence of complications of diabetes.
7. Increase patients' awareness of the importance of foot care and early detection of possible complications. Patients need to incorporate special foot care into their daily routines.
8. Teach positive and responsible attitudes toward diabetes self-care. This is achieved with the social support gained through participation in social activities for people with diabetes (for example, annual walks for people with diabetes).
9. Encourage the formation of groups or associations for and by people with diabetes, in which they can obtain social support.

Content or topics

1. Psychology applied to diabetes
2. Nutrition
3. Arterial tension and diabetes
4. Physical activity and sports
5. Diabetes self-care
6. Foot care for people with diabetes
7. Sexuality and diabetes
8. Ophthalmologic care
9. Proper care of the kidneys

Methodology

The DONUM education program offers individual and group sessions led by a health care team. The teaching methodology used, described as "inductive-deductive," is based on talks and group discussions during workshops. Medical endocrinologists, internists, teaching nurses, and other specialists, (nephrologists, nutritionists, and psychologists) give these talks.

Different workshops are offered during the year, with sessions on nutrition, physical activity, glucose self-monitoring (in blood and urine), and social activities.

The group sessions take place once a month (for 2 hours) and consist of a talk by a health professional and a coffee break. The group sessions are held at different sites. The talks are usually given in the DONUM Foundation auditorium. The physical exercise workshops are held in a neighboring school gymnasium. The nutrition workshops are held at the School of Nutrition of the Medical School in Cuenca.

The individual sessions for people with diabetes are conducted in physicians' offices and last for about an hour. As a part of the program, there is an initial consultation session with each patient. An important goal of this initial interview is to determine the patient's special individual needs so that health professionals can meet those needs in the education program. Patients who participate in the education program also have access to consultations with medical specialists at low cost as well as to medical laboratory tests. This is possible through a special cooperative agreement with health care professionals who participate in this program.

Target population

People of low socioeconomic level with type 1 and type 2 diabetes who need specialized medical care. Participants pay a minimum fee, a requirement intended to strengthen the patient's commitment to participate in the process.

Materials

- DONUM has available the following types of educational resources and materials for its workshops, talks, and activities:
- Patient manual entitled "Manual for People with Diabetes: What Do You Know About Diabetes?[9]"
- Printed matter (pamphlets, documents)
- Chalkboards
- Opaque projectors and slide projectors
- Videotapes
- Films
- Medical supplies for self-care training sessions (glucometers, insulin injections, glucose test strips)

Evaluation of the program and the participant

The education process begins and ends with an evaluation. These evaluations (surveys, questionnaires, interviews) are often given after each activity. In addition, indicators of metabolic control are evaluated periodically (HbA1c, BMI, arterial tension). The results of these evaluations are used for presentations at scientific meetings and other forums[10].

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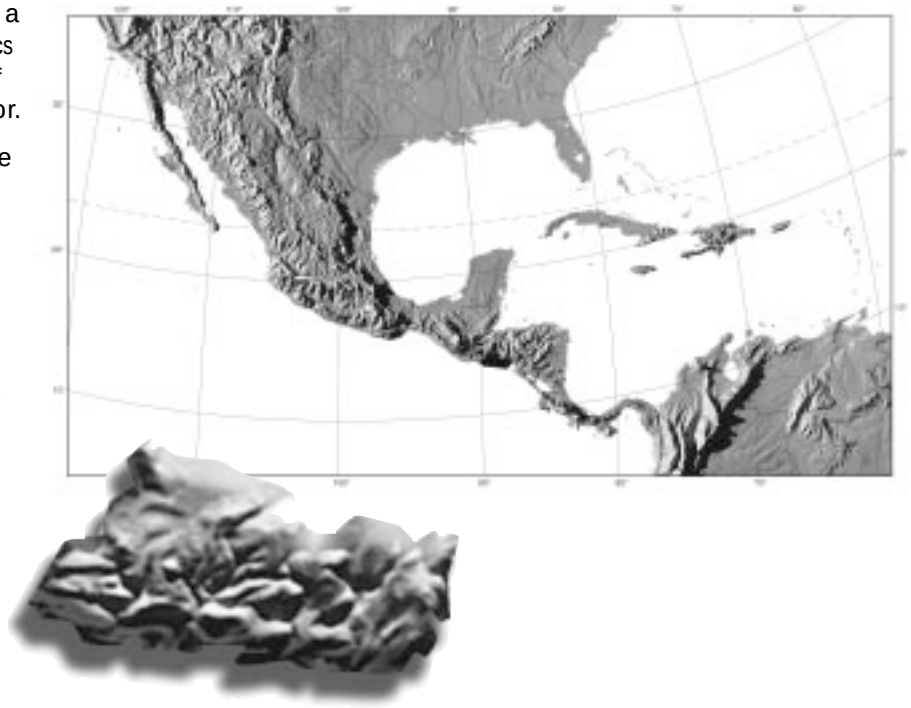
9. DONUM prepared this manual, which serves as a guide for planning educational activities.
10. Results of these evaluations are not available.

EL SALVADOR

El Salvador's diabetes education plan is a joint project of the Salvadoran Diabetics Association (ASADI) and the Ministry of Health of the government of El Salvador.

The general education plan includes the following:

1. An introductory basic course for people with diabetes and their family members;
2. Continuing education workshops; and
3. A variety of publications, including newsletters and a magazine on diabetes (Diabetes and Me), published by the Salvadoran Diabetics Association.



The introductory course and the workshops are given by an interdisciplinary group of health care workers made up of endocrinologists, health educators, and psychologists.

Introductory basic course

This introductory course is offered twice a month to people with type 1 and type 2 diebetes. Patients and their family members are invited to participate. The course consists of five modules on the following subjects.

Content or topics

1. General information on the disease (physiology of diabetes)
2. Nutrition and exercise
3. Diabetes treatment
4. Complications of diabetes
5. Importance of diabetes education for self-management of the disease

Workshops on diabetes

These workshops are based on information and motivational talks offered to large groups (300– 500 people) and are usually held at conference centers and hotels.

These workshops are also offered on a smaller scale to groups affiliated with the Salvadoran Diabetics Association, such as the diabetic clubs in the country. In these workshops, specific information not included in the introductory course is provided to the patients. The talks cover a broad range of subjects: complications of diabetes (nephropathy, neuropathy, retinopathy), learning to live with diabetes, healthy menus for special occasions and holidays.

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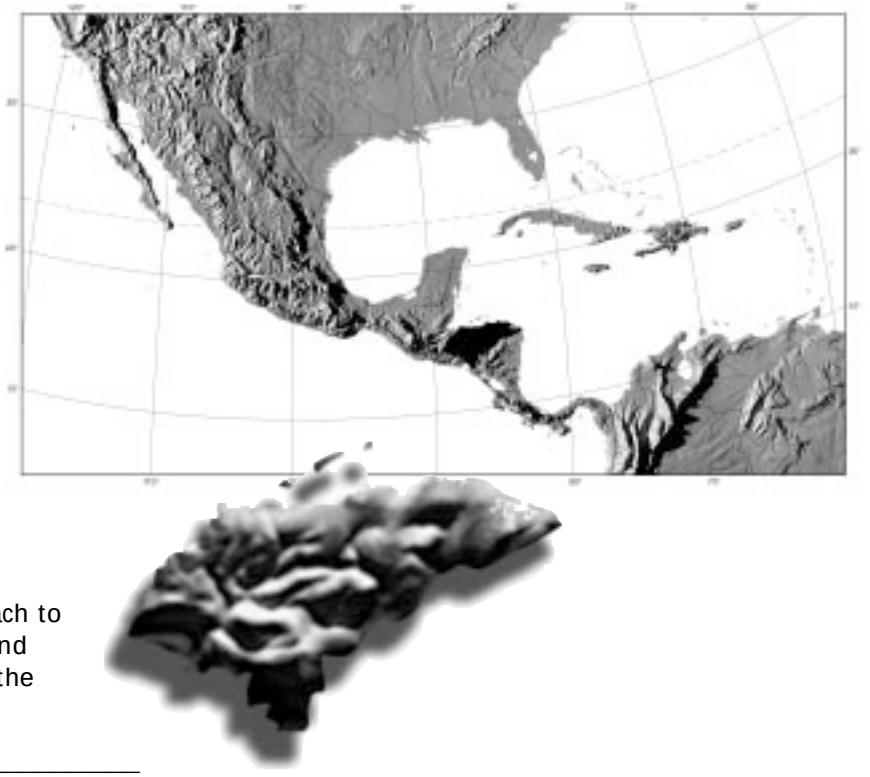
HONDURAS

The Honduran Foundation for the Protection of People with Diabetes has carried out educational activities since 1995. These activities are directed to people with diabetes, their families, health workers, and the population in general. The education program has been carried out at the San Felipe Hospital since 1997.



Education program for people with diabetes

Held the last Saturday of every month with the assistance of members of the foundation.

Objectives

Promote an optimistic vision of the approach to diabetes with participation of the family and society in comprehensive management of the disease.

Two levels

First level

- Concept of diabetes
- Physiopathology of diabetes
- Clinical manifestations
- Risk factors
- Diagnosis and treatment. Education —as well as nutrition, physical exercise, and treatment—is emphasized.

Second level

- Drug treatment
- Correct technique for self-injection
- Acute and chronic complications
- Psychosocial aspects of diabetes

Methodology

Strongly participatory

Materials

- Videotapes
- Slides
- Practical demonstrations

Evaluation

At the end of each educational day, self-care goals are established that are later evaluated.

Weeks of Prevention and Struggle against Diabetes (since 1997).

Health promotion activities

Seminars, workshops, etc., directed to health workers, patients, and family members.

These have been carried out in communities such as Tegucigalpa, San Pedro Sula, and La Ceiba.

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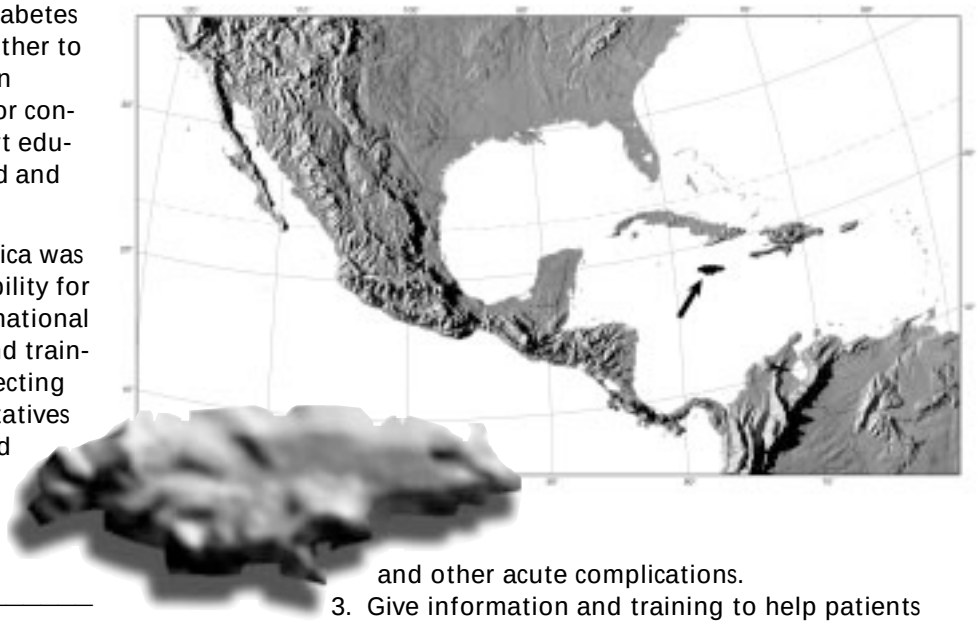
JAMAICA

The Ministry of Health and the Diabetes Association of Jamaica work together to control the problem of diabetes in Jamaica. An important strategy for control of this pathology is to support education for people already affected and for those in high-risk groups.



The Diabetes Association of Jamaica was created in 1976 and has responsibility for developing and implementing a national plan for treatment, education, and training about diabetes. The team directing the program consists of representatives of the Lions Clubs of Kingston and St. Andrew, citizens, and health professionals such as physicians, nurses, and physical therapists.

Objectives

The objective is to promote education about diabetes for patients as well as for doctors, nurses, dietitians, and other professionals. After carrying out training with the "Lay Diabetes Facilitator Program," the facilitators, who are not diabetics but are interested in the disease, educate people with diabetes in their communities; for example, by providing information and monitoring.

The Association currently plans to develop a major education program aimed at people with diabetes and their family members. This will not be a medical education program geared to members of the health team but rather a program of simple, easily understood information for people with diabetes and their families. Communicating information to people with diabetes is expected to have a "domino effect" in the community.

Since 1997 the Ministry of Health and the Diabetes Association of Jamaica have had a pilot program for training diabetes educators and facilitators, who then become responsible for the education of people with diabetes.

Objective

The general objective is to show the results of training diabetes facilitators who in turn help people with diabetes.

Specific objectives

1. Offer education about the need for self-care to people with diabetes, especially recently diagnosed patients.
2. Offer information about methods of self-care and managing emergencies, such as hypoglycemia and other acute complications.
3. Give information and training to help patients achieve the lifestyle changes that are recommended as part of their treatment (diet, physical exercise, glucose monitoring).

This program is aimed at volunteers who want to be trained to help people with diabetes in the community.

Content and topics

1. What is diabetes and what are its complications
2. Self-care
3. Diet
4. Exercise
5. Foot care

Material

- Printed material provided to the facilitators
- Text: Quality of Care in Diabetes Mellitus
- Pamphlets on diet and basic information about diabetes

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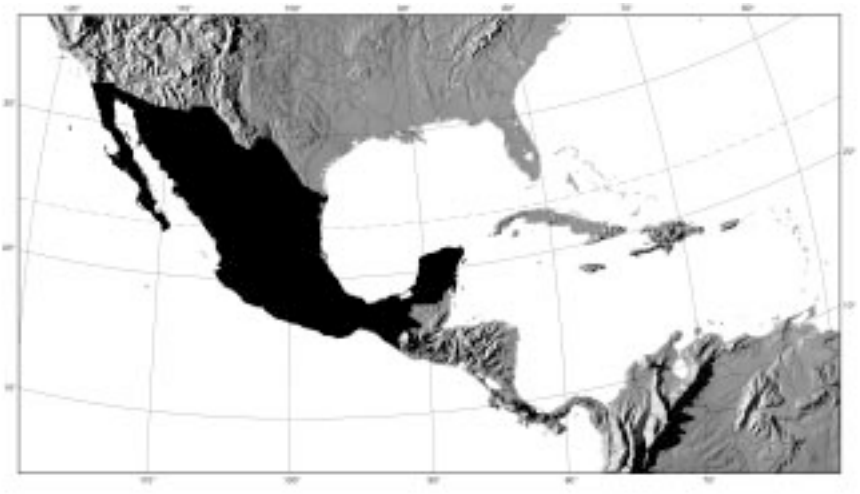
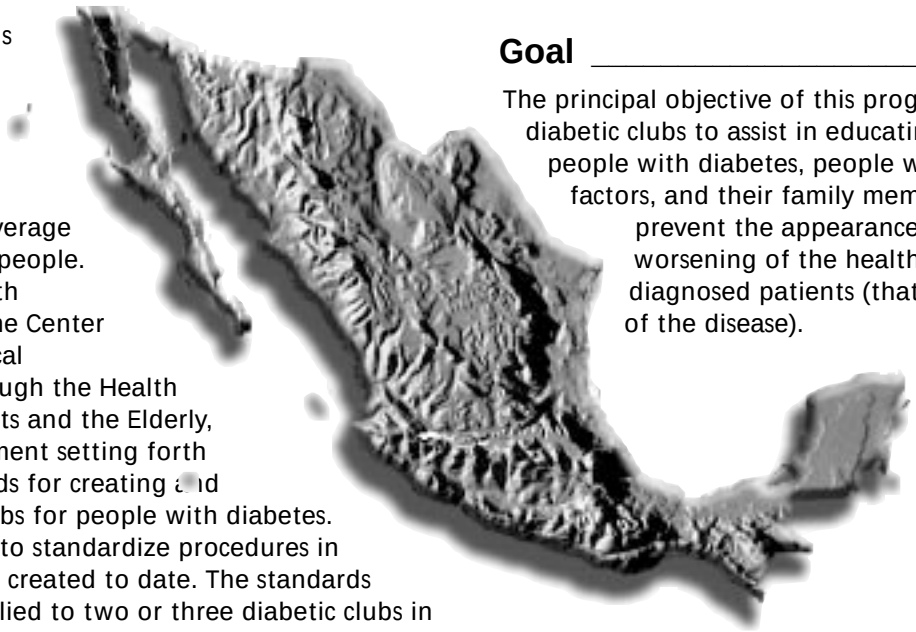
MEXICO

Background



In Mexico, the Mexican Social Security Institute has created and disseminated a fully elaborated education plan[11]. At the national level, this Institute is classified as second in coverage of services in family medicine and as first in specialties. In 1997, it reported 130,309 new cases of diabetes, which represents 357 cases of diabetes mellitus diagnosed per day. Furthermore, 57,730 hospital discharges were recorded as well as 15,111 deaths (amounting to a mortality of 63.3 per 100,000 users of services, or 42 deaths a day). This mortality shows a constant increase in relation to the figures for 1996, when the daily average mortality was 40 people. In 1998, the Health Secretariat and the Center for Epidemiological Surveillance, through the Health Program for Adults and the Elderly, prepared a document setting forth technical standards for creating and implementing clubs for people with diabetes. The purpose was to standardize procedures in the diabetic clubs created to date. The standards were initially applied to two or three diabetic clubs in the health jurisdictions of the states. As a result, application of standards in the country was gradual.



Goal

The principal objective of this program is to use the diabetic clubs to assist in educating and training people with diabetes, people with known risk factors, and their family members in order to prevent the appearance of the disease and worsening of the health status of already diagnosed patients (that is, complications of the disease).

Target population

The program is geared to people with diabetes and their family members. It also serves people at risk of developing diabetes (people with known risk factors; that is, having a family history of diabetes, being sedentary, or being obese).

Content or topics

The basic introductory course covers the subjects outlined below. The program consists of five modules.

- **Module 1:** General information about diabetes (what is diabetes, what are the symptoms, what are the complications).
- **Module 2:** Components of diabetes treatment (diet, physical activity, drug administration, interaction of treatment components).
- **Module 3:** Objectives of diabetes treatment. How to evaluate and interpret indicators of metabolic control (glucose levels, arterial tension, body weight, and lipids).

11. Mexican Social Security Institute, Office of Medical Services, Office of Economic and Social Services.

- **Module 4:** Development of skills and abilities of the patient (information on nutrition, physical activity, self-management of diabetes treatment, correct use of drugs, prevention of complications, management of crises and emergencies).

Methodology

The teaching team is made up of the diabetic club coordinator, a nurse, a social worker, a nutritionist, a physician's assistant, and an endocrinologist. The educational sessions vary according to the club. Some clubs offer courses once or twice a week; others offer them every month.

The subjects selected (see section on content) are addressed by using various teaching methodologies: talks or conferences, cooking classes, group discussions, and case studies. The group discussion sessions are very important because they offer participants a social support structure and a forum for exchanging their experiences, their knowledge, and their fears.

Materials

Diabetic clubs have the following educational resources available:

- Slides, transparencies
- Technical documents
- Units on diabetes mellitus
- Modification to the Mexican Official Standard (NOM-015-SSA2-1994) for the Prevention, Treatment, and Control of Diabetes
- Project on the Mexican Official Standard for the Prevention, Treatment, and Control of Hypertension
- Technical standards for operating diabetic clubs
- Standards for training or educating people with dabetes
- National Health Program for Adults and the Elderly, unit on diabetes
- State Health Program for Adults and the Elderly, unit on diabetes
- Pamphlets, leaflets, and other printed matter prepared at the national and state levels
- Other support documents
- A journal, Diabetes Today for the Physician
- Diabetes Today, a magazine aimed at people with diabetes.

Program evaluation

Monthly and semiannual evaluations of the treatment goals are carried out, including the following information:

- Name of patient
- Age
- Sex
- Pharmacologic and non-pharmacologic treatment
- BMI
- Blood glucose levels
- Arterial tension
- Physical activity
- Cholesterol levels

In a recent evaluation of several indicators, the following rates were reported:

- 80% of patients attend diabetic clubs,
- 80% of patients have received training,
- 50% were following non-pharmacologic treatment, and
- 80% achieved adequate metabolic control[12].

Mexico has a master's degree program for diabetes educators.

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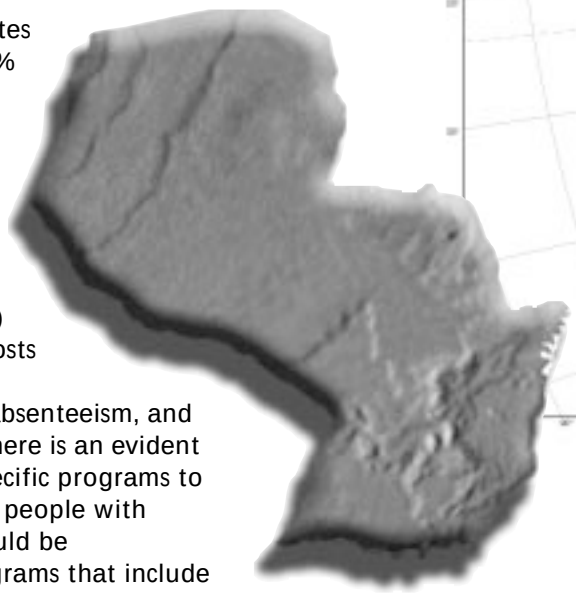
12. Metabolic control is defined as blood glucose levels lower than 110 mg/dl in the last three glucose tests.

PARAGUAY

Paraguay has a diabetes education program that is structured and funded. It has been evaluated and is the responsibility of the Ministry of Health of Paraguay. Initially PEDNID-LA was used in the country, but this method was later discontinued and Paraguay maintains its own national program. Other education programs also exist, run by, for example, the Support Groups, the Diabetes Foundation of Paraguay (FUPADI), the Red Cross, and the Lions Club. However, these are not structured programs and have not been evaluated.

Introduction



In Paraguay, the prevalence of diabetes already exceeds 6.5% of the adult population. In light of direct costs such as hospital and outpatient care (for prevention, diagnosis, treatment, research) as well as indirect costs including loss of productivity, labor absenteeism, and early retirements, there is an evident need to develop specific programs to improve the care of people with diabetes. These should be comprehensive programs that include all aspects of diabetes treatment.
Aware that education is the basis for managing the disease, the National Diabetes Program has as one of its priorities improving the education of people with diabetes, their family members, and, if possible, the population in general, with regard to diabetes prevention, management, and proper care and prevention of acute and chronic complications. This effort seeks to improve the quality of life of people with diabetes and to reduce morbidity and mortality in this group.

Institutions responsible

National Diabetes Program of the Ministry of Public Health and Social Welfare (Educational Area Committee).
Working Teams of the Diabetes Care Units of the different Health Regions of the country

General objectives

1. Raise awareness of the situation among patients and family members
2. Enable patients to become self-sufficient in diabetes care
3. Achieve a better quality of life for people with diabetes
4. Achieve greater adherence to treatment
5. Reduce the incidence of acute complications
6. Reduce the emergence of chronic complications.

Population and context

The program is aimed at all people with diabetes in the Insulin Project of the National Diabetes Program at the national level (Asunción, approximately 1,800 people) as well as those who visit the offices of the Diabetes Care Units of the 18 Health Regions (approximately 1,000 people per Region).
The population includes people with type 1 and type 2 diabetes as well as family members.

Composition of the team

The education team at all levels is made up of the following:

- Medical coordinator
- Nurse and/or health educator

Development of the program

The group program consists of three classes a week throughout the year.
The individual program is held from Monday to Friday in the mornings throughout the year.

Content

The program offers instruction in the following areas:

1. General information about diabetes
2. Risk factors for diabetes and cardiovascular disease
3. Diabetes prevention measures
4. Role of diabetes education
5. Psychosocial factors and family participation
6. Physical activity
7. General and specialized nutrition
8. Pharmacologic treatment of diabetes mellitus (oral anti-diabetics, insulin)
9. Treatment of related factors (hypertension, dyslipidemia, obesity)
10. Self-control for people with diabetes
11. Specific care: dental, skin, feet
12. Acute complications of diabetes: hyperglycemia, hypoglycemia
13. Chronic complications of diabetes: neuropathy, nephropathy, and retinopathy
14. Pregnancy and gestational diabetes
15. Infection and diabetes

Applied methodology

Individual: This is structured to meet the specific needs of each patient, making modifications as necessary. The patient's health status and level of knowledge about diabetes are evaluated. The physician defines the goal for metabolic control, barriers to learning are identified, and habits and socioeconomic factors are taken into account.

Group: Working groups, educational talks.

- **Working groups:** Identify individuals who, by merit of their individual capacity and educational level, are able to advance specific activities of the education program.
- **Educational talks:** Form groups that are as homogeneous as possible, taking into account the following:
  - Age
  - Type of diabetes
  - **Social and cultural level**
  - Barriers to learning

Materials

- Education manuals
- Slides, videocassettes
- Charts, posters, illustrations
- Cards with questions
- Chalkboard
- Pamphlets
- Journals
- Evaluation questionnaire
- Other educational materials

Evaluation

The evaluation committee reviews the results of the education program annually, both for the program as a whole, and for the patients.

Evaluation of the program

The following aspects are reviewed (twice a year):

- Objectives of the program
- Methodology
- Composition of the team
- Attendance at and completion of activities
- Accessibility
- Resources
- Effectiveness of the program

Evaluation of the patients

The following indicators are evaluated:

- Body weight
- Blood pressure
- Symptoms
- Frequency of hospitalizations
- Hypoglycemia episodesChanges in medication (twice a year)
- Blood glucose levels
- HbA1c
- Lipid profile (twice a year)
- Adherence to the dietary plan
- Physical activity and treatment (twice a year)
- Levels of knowledge (three times a year)

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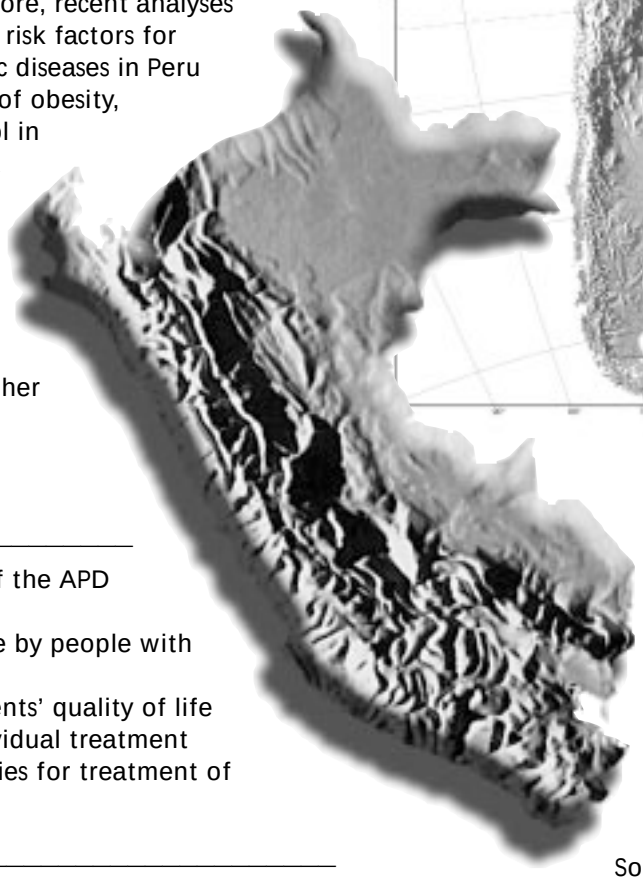
PERU

In Peru, the Peruvian Diabetes Association (APD) has a diabetes education program that is offered through diabetic clubs. This program is offered in several hospitals in Lima, the capital city, and in hospitals in other regions of the country including Piura, Arequipa, Huancayo, Chiclayo, and Ica. In the department of Lima, the program is under way in the following cities: Villa de El Salvador, San Juan de Lurigancho, La Victoria, and Lince.

There are more than one million diabetic Peruvians in the country, but only 30% of them have access to these diabetic clubs or other associations or organizations that offer diabetes education. Even fewer have the opportunity to be treated by a multidisciplinary team of professionals. Furthermore, recent analyses of the situation regarding risk factors for diabetes and other chronic diseases in Peru have indicated high rates of obesity, deficient metabolic control in people with diabetes, lack of knowledge of self-control strategies, and other obstacles such as negative beliefs about health, all of which explain the growing burden of diabetes and other chronic diseases in this population.



Goals

The three general goals of the APD program are as follows:

1. Promotion of self-care by people with diabetes
2. Improvement of patients' quality of life
3. Incorporation of individual treatment goals into the strategies for treatment of people with diabetes

Specific objectives

1. Increase participants' level of knowledge about general information on diabetes, innovative treatment strategies, and incorporation of self-care measures to prevent complications.
2. Evaluate each participant's level of knowledge before and after the program.
3. Improve the metabolic control of the participant (blood glucose levels, lipids, body weight, and arterial tension).
4. Introduce self-control skills to participants or strengthen their skills in this area.

Target population

The target population consists of people with diabetes and their family members, recruited with the assistance of the Lions Club or through announcements published in the newspaper.

Methodology

Some 60 patients normally attend the sessions, along with their family members.

The general program lasts a total of a year and a half. The education program is given in the form of workshops divided into sessions[13]. At each session, the participants (people with diabetes and family members) are divided into three groups.

A team of health professionals consisting of a

13. The workshop is called "*Living with Diabetes.*"

physician, a nutritionist, and a nurse directs each group. A rapporteur or recording secretary is designated in every group; this person is in charge of taking notes during the presentations and group discussions and provides the general group with a summary. Presentations are given at a plenary session with the entire group to promote the exchange of ideas and experiences among the participants. Participants receive educational materials, such as a manual on diabetes, information on the importance of proper foot care, and a card on which personal treatment goals can be noted.

Each participant's level of knowledge, body weight, arterial tension, and hospitalizations for poor metabolic control are evaluated at three different times (at the beginning, at 6 months, and at 9 months[14]). This evaluation is used to check the effectiveness of the education program and the needs of the patients[15]. This information is later used to adapt the program to meet needs identified in the population.

Content or topics

A multidisciplinary professional team is responsible for 10 workshops, dealing with the following five subjects:

1. Treatment
2. Nutrition (caloric intake of food)
3. Exercise
4. Self-control
5. Foot care

Other subjects

- Information about the latest results reported by the DCCT (Diabetes Control and Complications Trial) and the UKPDS (United Kingdom Prospective Diabetes Study) concerning effectiveness of intensive treatments.
- The importance of setting personal, concrete, and practical treatment goals.
- Evaluation of metabolic control to prevent the emergence of complications of the disease.
- The rights of the patient.

In addition to the diabetes education workshop, the Peruvian Diabetes Association carries out some activities for the general public aimed at disseminating information on diabetes and increasing the level of awareness in the community. These activities include producing television programs on subjects related to diabetes (gestational diabetes, behavior modification, and lifestyle of patients), celebration of World Diabetes Day, and a national conference for people with diabetes and their family members.

Importance of program activities for the community

In many overpopulated cities in Lima and other provinces, primary care physicians still do not recognize the importance of diabetes education for improving patients' metabolic control and quality of life. Accordingly, this education program focuses on educating people with diabetes to make them better-informed consumers of health services. Well-informed patients have the knowledge and skills to ask their professional teams to provide care that meets minimum standards, including laboratory tests and periodic physical examinations (of the feet and eyes). Through the activities and services it offers, the Association intends not only to serve people with diabetes and their family members, but also to prepare health professionals and, as a result, to have both professionals and patients duly trained and up-to-date. It is hoped that these activities will result in a significant reduction in avoidable mortality and morbidity due to poor metabolic control among people with diabetes.

Materials

- Fliers
- Bulletin of the Peruvian Diabetes Association

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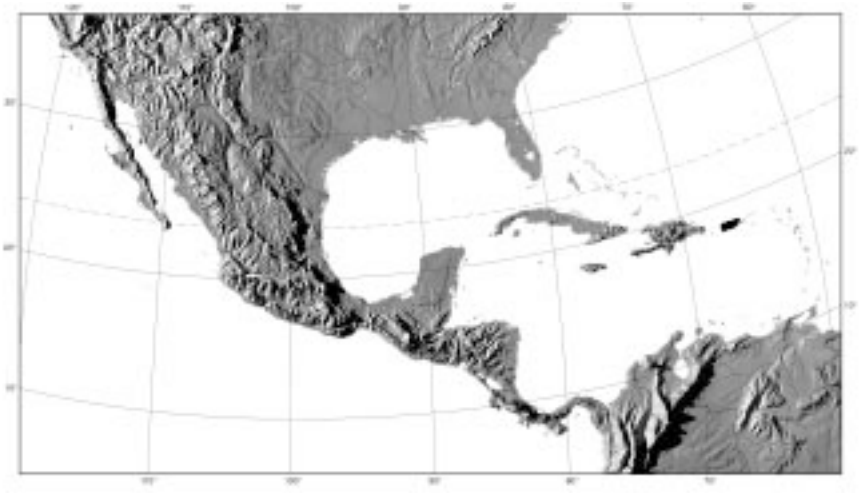
14. Although HbA1c is considered an important indicator for determining a patient's metabolic control, it is not included because of lack of financing.
15. The results of these evaluations have not yet been published.

PUERTO RICO

Since Puerto Rico's training program for diabetes educators began in 1991, approximately 370 people have been trained. Several educators have set up diabetes education centers. In addition, there are the following:
The Puerto Rican Diabetes Association and the Mutual Aid Hospital (Dr. Lydia Rodriguez) for people with type 2 diabetes and their family members.
The Pediatric Center for Diabetes Education and Treatment, which has offered an education program for people with type 1 diabetes up to 18 years of age since 1998.



Educational team

- Pediatric endocrinologist
- Clinical dietitian
- Graduated nurse
- Public relations officer

Objective

The objective of this program is to educate the pediatric population so they can live healthy and productive lives.

Methodology

The members are divided into two groups: the first group consists of infants and children through the age of 9; the second group consists of children and youth from 10 to 18 years of age.
Although this Center carries out regular educational activities, adapting them to the age of the participants and frequently adding recreational activity, there is in fact no structured program available.

Training educators: "Teaching the Teachers"

For:

- Nurses
- Medical technicians
- Nutritionists
- Psychologists
- Pharmacists
- Exercise physiologists

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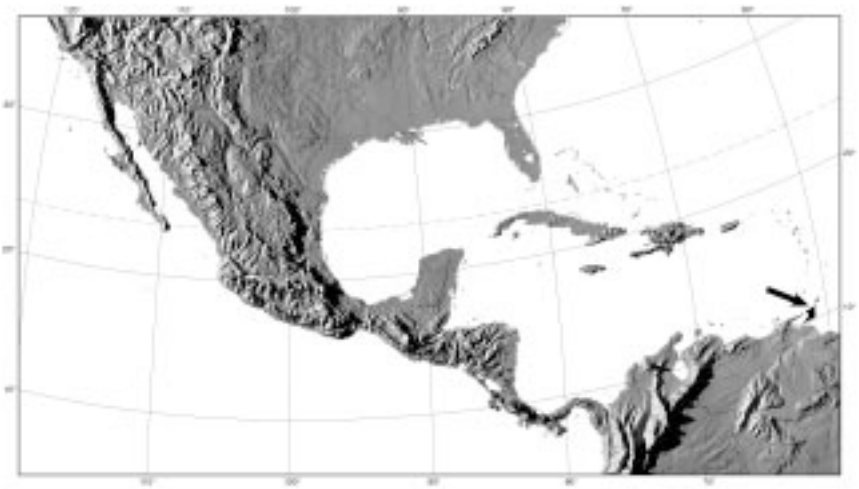
TRINIDAD AND TOBAGO

The Ministry of Health collaborates with the Diabetes Association of Trinidad and Tobago in diabetes control. Trinidadians of East Indian descent and those of African descent have a very high prevalence of diabetes.



Diabetes education program

The Diabetes Association of Trinidad and Tobago was established in 1988 to improve the quality of life of people with diabetes. The association is very active with regard to educational activities for patients in the country.

Objectives

The goal of the program is to provide information to people with diabetes to help them properly manage their disease and improve their quality of life.

Specific objectives

1. Provide health education to people with diabetes, especially those recently diagnosed, informing them about the need for self-care.
2 Give education and training to help modify lifestyles in line with treatment recommendations (diet, physical exercise).

Population

All people with or without diabetes who live in Trinidad and Tobago.

Educational methodology

The association has 14 or 15 groups in the country for practical sessions or diabetes education. Members of each group consist of health professionals as well as people with diabetes. Each group has one session a month, in which patients receive information about diabetes and about effective self-care measures. An important aspect of the discussions has to do with "lifestyle" changes (diet, alcohol, exercise). These sessions are based on interactive participation, and the patients ask questions about all their concerns.

Content and topics

1. What is diabetes?
2. Complications of diabetes
3. Self-care
4. Diet
5. Exercise
6. Foot care
7. Alcohol

Materials

Printed materials

For more information, contact:

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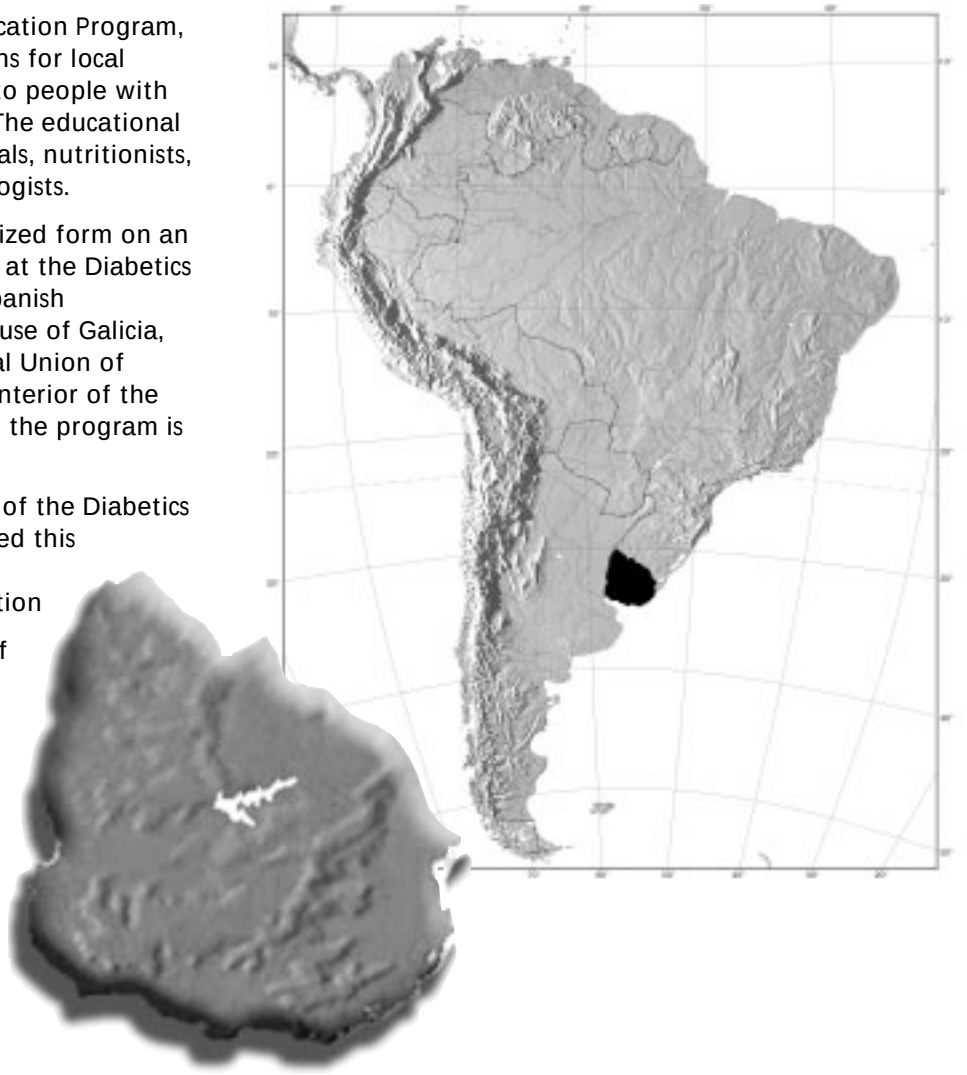
URUGUAY

Uruguay also uses the CENEXA Education Program, which is PEDNID-LA with adaptations for local conditions. The program is geared to people with type 2 diabetes and their families. The educational team consists of medical professionals, nutritionists, nurses, foot specialists, and psychologists.

The program is offered in an organized form on an outpatient basis, 3 days per month, at the Diabetics Association of Uruguay. The First Spanish Association Socorro Mutual, the House of Galicia, the Assistance Center of the Medical Union of Uruguay, and other entities in the interior of the country, whose method of applying the program is not known, also offer it.

The Technical Advisory Commission of the Diabetics Association of Uruguay has evaluated this program and this evaluation has reached optimal levels. No information is available about the publication of this evaluation.



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VENEZUELA

Venezuela's program on "Teaching the Diabetic Patient" arose from the need to educate and train recently diagnosed and "repeat" patients as well as their family members and friends about the use of drug treatment and lifestyle changes to achieve a better quality of life.

Institution in charge of implementing the program

FUNDIABETES

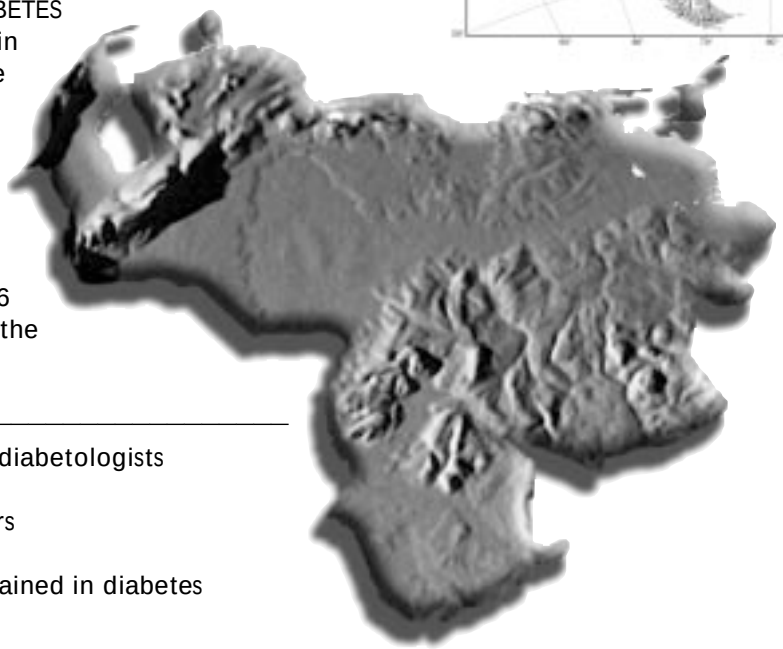
Target population

People with type 1 and type 2 diabetes, their family members and friends, and the larger community

Context

- Patients referred by public hospitals
- Patients referred by private clinics
- Patients referred by other patients
- Patients who find out about the program through the various radio programs on prevention in which the Institution's president participates

The program is carried out almost exclusively at FUNDIABETES headquarters located in the capital region. The only extension of this program is the one headed by Dr. Yalitza Carrizales (a geriatric physician) in Ciudad Bolívar, in the State of Bolivar, who received 6 months of training at the main offices.



Education team

- Endocrinologists, diabetologists
- Nutritionists
- Diabetes educators
- Nurses
- Medical visitors trained in diabetes education

Methodology

Interactive talks lasting 2–3 hours, given twice a week for three consecutive weeks.

Objectives of the program

- General:
  Raise awareness of patients and those around them about the impact of poorly controlled diabetes, and strive to prevent the emergence of possible complications of the disease through proper use of diabetes education.
- Specific::
  1. Improve the quality of life of people with diabetes.
  2. Prevent complications
  3. Promote the importance of self-control
  4. Reduce the number of new cases in the community

Content and topics

1. General aspects, definition
2. Diagnosis
3. Classification
4. Physiopathology
5. Characteristics and manifestations
6. Acute complications
7. Chronic complications
8. Pharmacologic and nonpharmacologic alternatives for therapy
9. Management of complications
10. What is diabetes education?
11. Exercise
12. Nutrition
13. Self-control and its importance
14. Diabetes in social events, on vacations, and at school

Methodology

Schedules are used for each working day as well as slides, informative material, and scale models. There is an effort to integrate groups so the work is dynamic and participatory.

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Conclusions

At the end of the period for data collection and review of this document, it was clear that, although very interesting and well-developed education programs for people with type 2 diabetes are under way in Latin America and the Caribbean, there is also a lack of knowledge among countries—even, at times, within countries that have programs—about these programs being carried out in the Region. As a result, many people in the countries without diabetes education programs thought that nothing (or very little) was being done in the Region.

This document is intended to serve as a resource for the countries of the Region that do not have diabetes education programs in progress and that are seeking information to help them prepare their own programs. Furthermore, the document validates existing programs to control diabetes so that they can function as catalysts to promote collaboration among countries in executing and evaluating programs. Finally, this document should motivate people in countries that have education programs under way and that want their programs to be included in the inventory to send in information for future editions.

Future projects will seek to compile an inventory of education programs for people with type 1 diabetes and for health educators in the Region.

Acknowledgments

We thank all the volunteers in the countries who so generously provided their support by collecting and sending in information on diabetes education programs. Without their valuable contribution, it would not have been possible to produce this document.

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Anex

Standards and Norms for Diabetes Education Programs for People with Diabetes in the Americas.

By the DOTA Education Committee

Preface

The Declaration of the Americas on Diabetes (DOTA) is a recognition of the gravity of diabetes in the Americas and a commitment by the citizens of the region and their governments to implement strategies and actions capable of diminishing the socioeconomic costs of the disease and improving the quality of life of those who suffer from it.

In that context, DOTA subscribes to the necessity of incorporating education of people with diabetes as an indispensable aspect of treatment in order to achieve the active participation of the patient in the control and effective treatment of the disease.

Bouchardat originated promotion of patient education as a fundamental premise in the treatment of diabetes in 1875, and diverse authors in communities with quite distinct socioeconomic characteristics have repeatedly demonstrated its value. Nevertheless, in many countries only a minority of patients receive adequate diabetes education. As a consequence, many of those with diabetes are unaware of fundamental aspects of their disease and the steps they can take to control diabetes. The lack of adequate patient education is due in part to the fact that such education still does not have sufficient scientific weight and its value is often not recognized by opinion leaders and by those who are in charge of the public's health.

In order to be effective, education requires a series of planned events: individual assessment of knowledge and skills, educational interventions based on this assessment and adult learning principles and an evaluation of learning and behavior change. This process assumes health professionals competent in the care and treatment of persons and who possess advanced training in patient counseling and education. To assure the best outcome from an educational program, it is necessary for those who carry it out to have adequate training and experience. Additionally, education is an important part of the treatment and needs to be recognized as such in order to be adequately remunerated.

In order to facilitate the achievement of these objectives, the DOTA Education Task Group has developed the present document in which are enumerated, under the title of standards, conditions that ought to be strived for in an educational program for persons who have diabetes. In order to develop this document we have analyzed existing documents regarding the topic such as those of the International Diabetes Federation (IDF), the American Diabetes Association (ADA), and the American Association of Diabetes Educators (AADE). Consequently, many of the concepts in the present document are also found in their guidelines.

The region of the Americas is heterogeneous in aspects such as ethnicity, cultures, traditions, level of literacy, health systems and socioeconomic conditions. This heterogeneity also includes the level of diffusion, perceived importance, implementation and effectiveness of education programs for persons with diabetes. In consequence, the task of establishing standards is not simple; one runs the simultaneous risk of establishing standards inferior to that already in place for some and of establishing some that appear unreachable for others. Facing this circumstance, the DOTA Education Task Group attempted to create uniform criteria and establish common standards that would permit people with diabetes in the region to access reasonable diabetes treatment and control that actively and effectively incorporates education.

The Education Task Group desired that the standards enumerated were not only achieved but also exceeded in the programs of the region. Conscious, nevertheless, of the situation of many countries in which these programs are in an embryonic state, and to avoid the feared "inaction by deficiency"; the Task Group has defined in what follows the minimal standards to strive for in order that a program become an effective one.

We hope that the contents of the document will facilitate both the task of those who assume the responsibility for the education of people with diabetes and the task of those who are in charge of accreditation of educational programs as part of the treatment of this disease.

Based on all we have described, on the need of continuous evaluation of the results obtained and the permanent growth of knowledge in the field of diabetes, the Education Task Group believes that this document is a "work in progress" that will require periodic update in order to assure its relevance and effectiveness. That is and will be its commitment and challenge.

Implementation of these standards offers people with diabetes an opportunity to improve their daily lives and to avoid the long term complications of their disease. We are aware that this is not an easy task, but the effort is clearly justified by the benefits to be gained.

The DOTA Education Task Group

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I. Organization

An organization will be created that will be responsible for the design and implementation of an educational program for people with diabetes. The organization will be composed of qualified teaching staff, a Coordinator and an Advisory Committee.

Standard 1. The organization should have in writing the objectives of the education program, and it will be clearly indicated that education is a fundamental component of the treatment and management of persons with diabetes.

Standard 2. The organization should clearly identify in writing its objectives and provide the necessary resources in order to achieve the proposed objectives taking into consideration the target population and its sociocultural characteristics. Adequate resources should be provided in terms of:

- space/location
- personnel
- budget, and
- educational materials (audiovisual, manual for the participants, slides and transparencies with educational information and others).

Standard 3. The organization will be composed by the following:

- Teaching team and its members
- A Coordinator
- An Advisory Committee

II. Teaching Staff Characteristics:

Standard 4. The personnel of the organization should meet the following requirements:

a. Should be knowledgeable in a wide array of topics related to diabetes including: diagnosis, control and management of the disease, and teaching methods (pedagogical & motivational aspects, evaluation).
b. The core teaching team will be composed by a physician and/or nutritionist, nurse, diabetes educator or an adequately trained layperson (demonstrated objectively - accreditation of previous teaching experience and development of educational programs related to diabetes). In those cases in which the candidate is not a member of the health care team, he/she should provide proof of his/her previous experience as a diabetes educator.
c. It is desirable and fitting to make it possible for other members of the health care team to be incorporated as part of the teaching team such as nutritionists, podiatrists, physical education professors, psychologists, and social workers.
d. Meet with the coordinator at least three times a year in order to exchange opinions, evaluate the progress of the program, and submit an annual report to the Advisory Committee.

The Coordinator

Standard 5. The coordinator will be responsible for overseeing the overall progress of the program, an will be responsible for its planning, implementation, and evaluation. Additionally, the coordinator will:

a. Act as liaison between the teaching team, the Advisory Committee, and the organization
b. Provide and coordinate the orientation and continuing education of the teaching team/personnel of the organization
c. Meet with the teaching team periodically (at least 3 times a year)
d. Participate in the planning and annual review of the program.
e. Participate in the preparation of the budget
f. Be a member of the Advisory Committee

Advisory Committee

Standard 6. The Advisory Committee should have the following characteristics and operation modalities.

a. Interdisciplinary and intersectoral integration. The Committee will be formed by members of the health care team (such as physicians, nurses, nutritionists), diabetes patients and community representatives. In that case, the community representative should not be an employee of the organization.
b. Members of the Advisory Committee must have experience in diabetes management and stay up-to-date.
c. Meet at least twice per year
d. Annually participate, in conjunction with the Coordinator, in the planning of the program including the development of the following aspects: objectives, access of the diabetes population, methods of teaching, resources, monitoring, and evaluation of the program.
e. Review and approve annually diverse programs and recommendations.
f. Certify the knowledge, skills and abilities, and experience of the educators.
g. Approve new programs that are in agreement with the pre-established standards

III. Education Program

Standard 7. Patients access to the educational program: Upon development, the program will ensure its accessibility to the overall population to whom it is directed, including people with DM (type 1, 2 or insulin dependent), age and special needs of specific groups of people with diabetes.

Standard 8. It should guarantee the development of the program in a systematic and consistent fashion ensuring the continuing education of its participants (educators and learners)

Population

Standard 9. A target population should be defined with regards to:

a. Potential number of patients
b. Type of diabetes
c. Age
d. Language
e. Regional characteristics
f. Special educational needs (example, grade of schooling and of illiteracy).

Standard 10. A document that clearly indicates the curriculum of the educational program to be implemented will be prepared. This document should include the following aspects:

a. Objectives
b. Contents
c. Teaching methodology
d. Educational materials that will be used in the educational program
e. Evaluation and assessment of the program's objectives (instruments of evaluation, frequency and responsibility for its realization).

Program's Curriculum:

Standard 11: The program for education should include the following aspects:

a. General aspects on diabetes
b. Psychosocial factors and stress
c. Social support and family participation
d. Nutrition
e. Exercise
f. DM specific medication and administration, and related risk factors
g. Self glucose monitoring (clinical and metabolic), including how to self monitor glucose levels, interpretation of results and subsequent adjustments and decisions based on the results.
h. Relationship between diet, exercise, medication, and blood glucose levels (and other metabolic indicators)
i. Prevention, detection, and treatment of acute and chronic complications
j. Dental care, cutaneous (skin), and special emphasis on the care of feet
k. Benefits, risks, and management of different alternatives to achieve a better metabolic control based on clinical and metabolic variables.
l. Health care in the stage of pre-conception, pregnancy, and gestational diabetes.
m. Use of health care system and community resources
n. Advice and recommendations to patients for special occasions (i.e., holiday season, trips/travels, sickness)
o. The work environment
p. The negative consequences of unhealthy behaviors such as smoking or alcohol intake, and ways of eliminating these behaviors
q. Strategies enhancing the ability to establish behavioral changes, fulfill personal goals with regard to the medical treatment (i.e., reduction of risk factors) and strategies to achieve more efficient ways of dealing with daily life conflicts.

Standard 12. The educational program should use methods and materials that are appropriate regarding the characteristics of the target population.

IV. Methodology of Teaching

The educational program should include plans both at an individual and a group level:

Standard 13. The health care team will share the responsibility of the individual teaching of persons with diabetes. Education at an individual level will take place in every appointment the patient has with the health care team, in order to make each medical encounter an opportunity to educate persons with diabetes. The health care team and patient will work together and determine possible modifications in the development of the program in accordance with the individual needs of the patient, based on periodic outcome evaluations.

Standard 14. Group teaching: This is not a substitute for individual teaching, which the patient receives during regular interview/appointments with other health care team members, but a complement. Small groups (maximum of 15 people) and participatory techniques that facilitate the permanent feedback between student-educator will be favored. Group teaching should promote the strengthening of the patient's skills in terms of their decision-making, ability to adjust and change unhealthy habits, self-management and control of the disease, prevention of the development of complications and the improvement of the patient's quality of life.

This educational modality will tend to the formation of homogenous groups taking into account the following:

1. Age
2. Type of diabetes
3. Socio-cultural level
4. Potential learning barriers

V. Evaluation

Educational program evaluation outcomes will be annually reviewed by the Coordinator and the Advisory Committee. Future modifications of the program will be based on the results of this evaluation. The evaluation should assess if the program continues to meet the pre-established standards for diabetes self management educational programs. The results of this evaluation should be documented and use for the subsequent planning and updating of the program. If the evaluation of the program is not conducted in the predetermined time and fashion, or if the educational program does not meet the pre-established standards, the Committee will be authorized to intervene and even suspend the operation of the teaching team/program.

Standard 15. The Advisory Committee should be responsible for the annual program evaluation. This evaluation should take into account the following aspects:

a. Program objectives
b. Curriculum, methods, and materials
c. Composition of the teaching team
d. Participant follow-up mechanisms and access to the program
e. Program resources (space/location, personnel, and budget)
f. Marketing strategies to expand the access of the "target" population of interest to the educational program.
g. Effectiveness of the program based on objective patient/participant outcomes (clinical, biochemical, therapeutic, economic and overall patient satisfaction). The participants will be assessed at four points in time (i.e., at the beginning of the program (baseline), at the end, at 6 months and 12 months after the conclusion of the program).

The information obtained will be used for the following:

1. to evaluate the effectiveness of the program,
2. to detect the areas of the program that need reinforcement/change,
3. to carry out adaptations in the program in relation to the change of demand of the participant's needs and
4. to include topics of interest in continuing education courses.

Standard 16. Patient outcomes should be assessed according to program objectives, including the following:

a. Clinical changes: weight, symptoms, hypoglycemias, ketoacidosis, hospitalizations, changes in medication administration, and blood pressure.
b. Laboratory changes: blood glucose levels, glucosurias, ketonuria, HbA1c, lipidic profile
c. Attitudes: self glucose monitoring, treatment adherence (i.e., nutrition, exercise, etc.)
d. Use of health care services.
e. Psycho-social aspects such as: health beliefs, level of family/social support, socioeconomic level, program satisfaction, and learning barriers

Addendum

The sixteen standards described in this paper should be met by every diabetes education program desiring to achieve excellence, especially if it serves not only for the education of the people with diabetes but also for the training of diabetes educators. But such a program requires a high level of structural development and resources (human and economic) It may be rather easily implemented in a Diabetes Center as defined by WHO[1]. A Diabetes Center would provide a comprehensive range of health care services by means of a multidisciplinary approach. Its personnel should include "at least one

diabetologist/endocrinologist, two professional educators of different disciplines, physician specialists able to make early diagnosis, prevention and treatment of diabetes complications, and representatives from two additional health professions with complimentary expertise." Unfortunately, the possibility to develop Diabetes Centers in Latin America and the Caribbean is limited. They may serve as tertiary care referral facilities, connected with teams or units at the primary or secondary level of service delivery which have been also defined by WHO [1].

At the primary level of care, the minimal level of service could be given by medical or paramedical staff capable of doing basic diagnostics, provide essential drugs and organize a simple education program which should meet at least the standards 4a, 7, 8, 9, 10, 11, 12, 14 and 16. It would be optimal at this level of care to have a Diabetes Team, comprised by a physician with interest and experience in the control and treatment of people with diabetes and a professional educator. Such a team could create an organization with the physician acting as coordinator, which would additionally meet standards 1, 2, 4b, 5 and 13.

At the secondary level of care having a Diabetes Team would be desirable but a Diabetes Unit would be optimal. Its staff should be comprised by "a diabetologist/endocrinologist, or an internist with special diabetes training, a professional educator and at least three additional interdisciplinary diabetes care professionals who work in close proximity and provide coordinated health care." With that personnel, the education program could probably meet all the standards although its advisory committee might find standards 15d, e, f and g difficult to accomplish unless the Unit expands and eventually becomes a Center.

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