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THE ECONOMIC BURDEN OF DIABETES

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Diabetes is a major medical problem affecting people in all countries of the world. It is a significant disease not only because of its deleterious effects on the quality of life of those affected, but also for the heavy economic burden it imposes on the cost of health care. Diabetes is a serious disease; people with diabetes are at 2 times higher risk for heart attack and stroke, 17 times more prone to develop kidney disease, 5 times more prone to gangrene. Fifty percent of non-traumatic amputations occur in people with diabetes. Diabetes is a leading cause of new cases of blindness; it also accounts for 25% of new cases of end-stage kidney disease. Seventy five percent of deaths among diabetics are due to atherosclerosis. Diabetes is a costly disease. In the USA, US $ 105 billion is spent for diabetes care. Ironically only 10% is spent for direct metabolic treatment and 90% is spent for the treatment of diabetes complications. The costs for diabetes care includes:

a) Direct Cost - the cost for care and prevention of a disease and its complications.

b) Indirect Cost - loss of productivity and income

c) Other Costs - psycho-social or intangible costs like stress, pain, anxiety and loss of quality of life.

Patients with diabetes are at 1.5 times greater risk of hospitalization than non-diabetic patients. They are at 11.7 times more likely to be hospitalized because of amputations. Patients with diabetic complications (heart and kidney disease, stroke, blindness, amputations) were hospitalized an average of 2.8 days longer than non-diabetics with the same problems. The annual cost for blood glucose management in patients with Type 1 diabetes in the USA is $ 1,700 per person per year for patients seeking traditional levels of glucose control. It costs $ 3,700 per person per year (120% increase) to achieve stringent glucose control.

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CAMP *diabetes* COPE III

Camp Cope III started out with a pre-camp leadership orientation at the Mezzanine 1 & 2 of the Makati Medical Center on May 9 at 7:30 PM. Camp Cope proper was held at the Los Banos Forest Club, Barangay Masaya, Puypuy, Laguna from May 14-17, 1998. It once again proved to be a successful endeavor of the Philippine Center for Diabetes Education Foundation Inc. It helped 23 diabetic children and adolescents learn more about their disease and cope with this chronic illness. The participants came all the way from Bacolod City, Cavite, Bataan, Batangas, Laguna and Metro Manila. The youngest camper was 7 years

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Learning how to save a life at Camp Cope.

The DCDCP Preliminary Philippine Country Report

The Diabetes Care Data Collection Project (DCDCP) is a survey study on diabetes management and complication status in Asian countries. It is a joint project of the International diabetes Institutes, the WHO Collaborating Center, national Diabetes Associations and Novo Nordisk Health Care. The countries include China, Indonesia, Malaysia, Thailand, Vietnam and the Philippines.

Its many aims include:

a. To provide an overall picture of each country's diabetes population, treatment and management status;

b. To provide diabetes clinics with structured reports on their diabetes management with results compared to the country average;

c. To provide a national measurement tool to assess local interventions to improve diabetes care standards; and

d. To establish a data base which can generate data on causal relationships between parameters registered.

Twenty-five diabetic centers for each country were enrolled beginning May 1, 1997. Approximately 200 patients were included from each center. Preliminary data from 19,713 patients in the region showed that 95% of patents were Type 2 diabetics. The majority, 60 %, had poor glycemic control based on the blood glucose or glycosylated hemoglobin measurements. (Only 20% had HBA1 measured in the last year). The prevalence

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Your President Speaks . . .

Lina C. Lantion-Ang, MD
PDA, President

PATIENT EMPOWERMENT

Patient empowerment in Diabetes Mellitus is the ACTIVE participation of the diabetic patient and his family in the management of his diabetic condition. It is SHARED CARE between the Diabetic patient and his family and the Diabetes Health Care Team. Through diabetes education and supervision from a caring and competent Diabetes Health Care Team, the diabetic patient acquires the confidence and necessary skills to LIVE with his disease, the end result of which is a better quality of life at the lowest cost possible.

Patient empowerment must begin at a time when there are NO or minimal diabetic complications. It is here that proper nutrition and increased physical activity are the cheapest and most effective method to maintain normal body weight, blood pressure and blood sugar levels. The patient can monitor his weight at home. He can measure his waist and hip circumferences. His physician can monitor the blood pressure in the clinic. A very important responsibility of the diabetic patient is Foot Care. He must inspect his feet daily and keep them clean and free of ulcerations. Foot Care also includes wearing well-fitted and comfortable shoes. Here the patient's choice of shoes is his own decision.

With the onset of diabetes complications, patient empowerment MUST continue. Under the guidance of his physician and the Diabetes Health Care Team, the diabetic patient is given more responsibility in some decision making regarding his disease. By this time the patient should be able to cope up during sick days, recognize symptoms of low and high blood sugars and to call his Doctor when necessary. SMBG (Self-Monitoring of Blood Sugar) and insulin adjustment are reserved for the diabetic patient who is well motivated and self-disciplined. Here again, the commitment of a compassionate and dedicated Diabetes Health Care Team can sustain patient empowerment.

The Philippine Diabetes Association is committed to improve diabetes care through Diabetes Education and Patient Empowerment.

The DCDCP...

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of severe late complications such as blindness, renal failure, cardiovascular morbidity ranged from 1-6%.

PHILIPPINE COUNTRY REPORT

In the Philippines, 3,779 patients recruited from 30 centers from Metro Manila (20), Luzon (4), Visayas (4) and Mindanao (2) were registered. Some 20 % were excluded because of inadequate data and 3,029 patients were finally studied.

Baseline characteristics:

Age: 58.6 ± 13.4 yrs
Mean duration of DM: 8.9 ± 7.7 yrs
94 % Type 2 DM
62% BMI < 25 kg/m2

The level of educational intervention was relatively high, 94%, although the levels differed from center to center. Some 99% received information on the proper diet. Eighty-six percent were warned about the dangers of hypoglycemia. 90% were told about diabetic complications and in 88%, foot care was emphasized.

Glycosylated hemoglobin testing was available in 19 of 30 centers, but only 29% had it checked in the last year. This is higher than the regional average, 19%. The average level for Filipinos was 8.6 ± 2.0%, and 67% had HBA1c of > 7.5%, indicative of poor control.

The average fasting blood glucose level was 8.8 ± 3.6 mmol/L. Fifty one % of patients had FBG of > 7.8 mmol/L.

Other metabolic parameters measured included triglycerides (60 % TG < 1.7 mmol), total cholesterol (85% TC < 6.5 mmol), and HDL cholesterol (61% HDL > 1.1 mmol). Cuts off levels used are from European targets of good control.

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MEANDERINGS.....

Augusto D. Litonjua, MD
Chairman, Dept. of Medicine
Makati Medical Center

Sound the alarm! The epidemic is here.

An epidemic is very significant increase, within a short period of time, in a number of people afflicted with a disease in a community. This is what the spread of diabetes mellitus around the world is being called by the World Health Organization and International Diabetes Federation. It is estimated that by the year 2010, more than 215 million people worldwide will suffer from the Type 2 diabetes mellitus (or what was called by its older name, non-insulin dependent diabetes mellitus). For the Philippines, the estimate is 3.5 million in that year. This is indeed a tremendous burden for individuals, societies and countries to bear. Is there anything that can be done?

The first step is to protect the susceptible individuals by modifying their environmental and behavioral risk factors. This is not too hard if there will be a concerted effort of all concerned to rally to a battlecry: EAT LESS, EXERCISE MORE!

For indeed, the proliferation of fast food eateries has made all too easy the eating of very fatty foods (they can be delicious, but dangerous) and items that contain a lot of refined sugars. Studies have shown that these types of diets, coupled with a sedentary lifestyle, have increased the incidence of diabetes mellitus. Thus, an education campaign that maintains interest with a sustained effort, to encourage people to hue to a healthier type of diet and exercise more can do a lot towards preventing the occurence of the disease. Specially so, in those who are susceptible to develop diabetes, such as: 1) obese people, 2) those with a first degree relative with diabetes, 3) have delivered a baby weighing more than 8 lbs, or have been diagnosed to have high blood sugar during their pregnancies, 4) have high triglycerides in their blood and low good cholesterol (low HDL), and 5) those who had slightly elovated blood sugars on previous tests.

A next step would be to detect diabetes early enough in those susceptible for the disease. Early detection can prevent the progression of diabetes. In fact, there is a stage in the evolution of the disease where the high blood sugar state can be reversed! So, if you are a susceptible individual, then see your physician right away for the proper testing procedure.

Once somebody develops diabetes mellitus, the so-called 'tertiary prevention' aims to prevent the complications arising from diabetes. Education, optimization of the blood sugar control, keeping the blood sugar normal always, correcting the abnormal fat content of the blood, having regular eye checkups, and being compliant to the doctor's advise, all can prevent the ravages of the disease.

Thus, all is not lost. The destiny of having the disease by virtue of genetics and environment can be prevented in most cases by the simple expedient of changing one's lifestyle - adhere to a healthier type of diet and increase one's physical activities.

RESEARCH IS ON...

One of the many goals of the Philippine Diabetes Association is to support and encourage continuing investigations in various aspects of diabetes mellitus in the country. In this era of evidence-based medicine, gathering solid local data will certainly be most appropriate and helpful in the clinical practice of diabetes. Recently, the Philippine Diabetes Association (PDA) together with other organizations has embarked in several nationwide studies to fulfill this goal.

The SPIN program, a joint project of Bristol-Myers Squibb (BMS), AETNA and the PDA, aims to do a surveillance of proteinuria in NIDDM which will provide a good local data in the prevalence and progression of proteinuria in the diabetic Filipino. The success of this project will significantly contribute to the information needed by physicians in our day to day practice.

Equally important and a big project of the PDA is the joint FNRI (Food and Nutrition Research Institute), PLS (Philippine Lipid Society) and PSH (Philippine Society of Hypertension) program which will look into the prevalence of the different diseases of lifestyle in the Philippines. FNRI is an institute mandated by legislation to conduct nutritional survey and was previously concentrated into the nutritional state of children under 10 years old. Recently, however, it has shifted interest to the diseases of lifestyle like Diabetes Mellitus, Hypertension, Dyslipidemia and Obesity. With the help of the 3 national organizations, this project will look into the anthropometric measurements, blood cholesterol, blood glucose, triglycerides, and lipoprotein levels of 6000 adults over 20 years of age from different barangays nationwide. This project will start in June 1998 and last for 4-5 months. Results are expected to be available by year 1999.

TRAINING COURSE OF PHILIPPINE CENTER FOR DIABETES EDUCATION FOUNDATION, INC.

The Diabetes Center will hold its 10th Training Course for Diabetes Trainors on June 22 - 27, 1998 at Mezzanine 1 and 2, Makati Medical Center. For this year, we will have the following teams:

1. Apalit Small Christian Community (ASCOM)-DLSU Medical Friendship Hospital, Apalit Pampanga
2. Rosendo Diagan Hospital
3. Ago Medical & Educational Center, Legazpi City
4. Davao Doctor's Hospital, Davao City
5. East Avenue Medical Center
6. Ilocos Norte
7. SGV Clinic

The Economic...

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A PATIENT'S VIEW OF THE COST OF DIABETES

Costs are not only financial, but include psychological costs of everyday living as well. There are fees for the diabetologist, opthalmologist, podiatrist and dietitian. More fees for laboratory examinations, purchase of drugs, blood glucose meters and strips, and added expenses for insurance and diabetes education. A patient with diabetes faces psychological problems like job discrimination; their lifestyle is limited and restrictive.

Diabetes is a continual and added responsibility for self care. It also imposes an extra effort and expense from families and the community. The cost of diabetes is various, widespread and growing. Adding up the cost means accounting for the direct cost to people with diabetes and their families, the indirect cost to society and the direct costs to the health care sector.

Diabetes care can take up 10% of a nation's health budget. However 25% of the world's nations have no specific provision for diabetes care. Today there are about 120 million people with diabetes worldwide. This number is predicted to rise to almost 300 million by the year 2025. A diabetes epidemic is already underway and is forecast to grow over the next century. More than 50% of people with diabetes in 2010 will be in Asia. The populations of most countries are aging. Diabetes is particularly common in aging populations and is increasing in proportion to the number of people living longer. In 2020 about 20% of the population aged 65 years and over will be located in Asia and the Pacific Region. There are limited resources available for health care. Annual per capital expenditure on health ranges from a minimum of US $ 1 in some African countries to a maximum of US $ 2,600 in USA. Medical advances and new treatments create continual demands on limited resources. Many individuals have limited access to adequate health care, and many countries are unable to provide it universally. Access to health care in Asia and Oceania is very variable both within and between countries in the region. Diabetes is a high priority of National Health Care plan in China, Singapore, Malaysia, Taiwan, Hong Kong and Australia. It has low priority in the Philippines, Korea and Fiji. The costs borne by individual are high.

The Epidemiology of diabetes according to a survey of the Ministry of Health in 1982-1983 showed a prevalence of 4.1% nationwide, Metro Manila 8.4% and the rural area at 2.5%. We conducted a survey on the Economic Burden of Diabetes Care in the Philippines in 1997. A total of 2223 patients were included in the analysis. 992 (44.6%) were males and 1231 (55.4%) were females. Age range from 20-70 years with a mean age of 56.0 and SD 13.09. 193 were Type 1 and 2030 were Type 2.

1121 (50.4%) were unemployed and

1019 (45.84%) were employed

83 (3.7%) did not give employment data

Income Bracket	No.	%
<5,000	494	34.43
5,001-10,000	292	20.35
10,001-15,000	276	19.23
15,001-20,000	162	11.29
>20,000	211	14.70

Thirty eight percent of patients paid for their own consultations and 26% relied on their families for help. This was fol-

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The Economic...

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lowed by government (18%) and industry (14%). Medical insurance paid for 1% of the consults.

The patient's families in 44% of cases shouldered medications. Forty two percent paid for their own treatment, while 11% relied on industry support. Insurance paid for only 1% of treatments.

Five percent of patients were on diet alone. Fifty five percent of patients were on sulfonylureas, 32.6 % were on biguanides and 21 % were on glucosidase inhibitors. Twenty three percent required insulin therapy. Twenty eight percent were on anti-hypertensives and 12 % needed lipid lowering drugs.

Less than 1% of patients were on dialysis and only 1 patient had undergone kidney transplantation. Four percent of patients had undergone some kind of eye surgery and 1.2% had undergone either coronary angiogram, angioplasty or bypass.

Complications of Diabetes:

Cataract	-	262
Foot Amputation	-	23
Blindness	-	102
Leg Amputation	-	30
Retinopathy	-	290
Cerebral Stroke	-	46
Anginal Pain	-	184
Peripheral Neuropathy	-	525
MI	-	52
End Stage Renal Disease	-	39
Foot Ulcer	-	96
Pulmonary TB	-	100

The human and economic costs of diabetes could be effectively reduced by investing in prevention, particularly the early detection and prevention of diabetic complications.

Primary Prevention - prevent the development through modification of environmental and behavioral risk factors or specific therapeutic intervention.

Secondary Prevention - early detection with focus upon reversing or halting its progression.

Tertiary Prevention - minimize the consequences of diabetes and rehabilitation.

Public and Professional Awareness of the risk factors for and symptoms of diabetes are an important step towards its control and prevention. Without appropriate training of primary health care professionals, the cost effectiveness of diabetes prevention is not sustainable. Training is therefore crucial to the cost-effectiveness of preventive diabetes care. Without effective intervention, the diabetes epidemic will continue to grow. Effective intervention means prevention. Prevention means cost-effective health care. The most effective way of preventing the immediate and long term microvascular and macrovascular complication of diabetes is by achieving good metabolic control through intensive self care. Improved glycemic control is an important means of reducing costly hospital in patient care of people with diabetes.

Measures to Reduce the Burden of Diabetes Care:

1. Philippine Diabetes Association, Inc.
   - conduct diabetes workshop in different regions of the country
   - annual and mid year convention for physicians, paramedical personnels and lay group

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The Psychosocial Burden of Diabetes Mellitus

Mary Anne Lim-Abrahan, MD
UP-Philippine General Hospital

The diagnosis of a chronic disease is a stressful experience for the patient. The more common chronic diseases include hypertension, asthma and diabetes mellitus. In diabetes, the diagnosis and treatment often cause a disruption to a patient's life and well being. This disruption can lead to emotional, cognitive and behavioral reactions, which may be transient (temporary) or chronic (persisting for a long time). Unlike other diseases, diabetes is permanent, causing continuous aggravation to the patient with a burden that increases as the disease progresses.

Also affecting the diabetic patient's psychological state are two psychological processes. The first process involves becoming accustomed to the stresses of diabetes with time, knowledge and skills, so that diabetes care is integrated into daily activities (i.e., eating the appropriate food, timing of meals, medications and injections, visits to the physician, urine testing, blood sugar testing). The second process involves experiencing the continuous and growing stress of diabetes, which frequently leads to emotional reactions, tiredness, resentment or depression (gangrene needing amputation, blindness, and renal failure needing dialysis).

Patients attempt to come to terms with diabetes and its accompanying psychological stresses through a process of adaptation. Several authors (JP Assal) have compared this process to stages of grief – from denial through anger, bargaining and depression to a state of acceptance. This process is not always short and easy. In some patients it can take their whole lifetime, while some remain in one stage for a prolonged period, occasionally being unable to move on to the next stage towards adaptation. Diabetes has been known to aggravate pre-existing psychological problems in adults.

The psychological burden of diabetes has various causes that are often interrelated. The diabetes (disease) itself, the treatment and also the acute and chronic complications may lead to restrictions in quality, perspective or exceptions of life. There may be problems associated with the diabetic individual's social environment (problems of identity, self-esteem and coming to terms with other people). Some individuals become more sensitive and irritable in general. There maybe reactions of prolonged grief due to lost opportunities of professional and social progression because of diabetes associated regulations, laws or discrimination (employment). Finally, there may develop specific psychological problems in otherwise unaffected people (other members of the family, friends or co-workers), for example injection phobias and anxiety arising from fear of hypoglycemia.

Another source for the increased psychological burden of diabetes may be the health-care workers caring for the pa-

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COOLING IT ON A HOT DAY!

Ma. Imelda Q. Cardino, RND
Diabetes Educational Clinic
Makati Medical Center

"Batong-bato na ba kayo sa inyong pang-araw-araw na pagkain?" Well, here are some tips to cool off your hot, dry days. It is hoped that the following foods will perk up your days while keeping your carbohydrates and calories within count.

Have a Happy, Healthy and Fun Vacation!

SAGO COOLER

- 2/3 cup plain boiled sago
- sugar-free gelatin or gulaman (flavor of choice) cooked according to package instructions and cut into cubes
- artificial sweetener
- ice cubes or shave ice

Mix all ingredients in a tall glass, adding enough artificial sweetener to taste.

EQUIVALENT: 1 rice exchange (23 gm carbohydrate)
100 calories

MAIZE CON HIELO

- ½ cup level canned whole kernel corn
- 4 tbsp. level non-fat (skim) milk powder or 8 ounces liquid skim
- shave ice
- artificial sweetener

OPTIONAL: ¼ cup level plain cornflakes as topping

Except for the topping (optional), mix all the ingredients in a tall glass. Some flavors may be added if desired (like mint or vanilla).

EQUIVALENT:

No Topping: 1 rice exchange (23 gm carbohydrate)
1 skim milk (12 gm carbohydrate)
180 calories

With Topping: 1¼ rice exchange (29 gm carbohydrate)
1 skim milk (12 gm carbohydrate)
205 calories

MELON SHAKE

- 1 cup cubed fresh melon
- 4 tbsp. non-fat (skim) milk powder or 8 ounces liquid skim ice cubes

OPTIONAL: fresh kalamansi or fresh lemon for flavor

- artificial sweetener

Blender all ingredients and serve right away. Sprigs of mint or lemon wedges may be used to garnish.

EQUIVALENT: 1 fruit exchange (10 gm carbohydrate)
1 skim milk exchange (12 gm carbohydrate)
120 calories

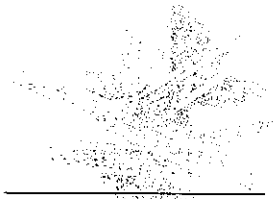
PAPAYA SHAKE

- ¾ cup level fresh ripe papaya
- ¼ cup level sugar-free frozen yoghurt (flavor of choice)
- artificial sweetener

Blender the ice cubes and fresh ripe papaya plus the artificial sweetener. Pour in a glass. Top with the sugar-free frozen yoghurt and garnish with fresh mint leaves or fresh lemon wedges.

(If desired, the frozen yoghurt may also be blenderized with the rest of the ingredients.)

EQUIVALENT: 1 fruit exchange (10 gm carbohydrate)
1 serving yoghurt (about 10 gm carbohydrate)
95 calories



Roberto C. Mirasol, MD
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Everything you always wanted to know about DIABETES...

(but were afraid to ask!)

This issue of Diabetes Watch will answer your questions on the more common type of diabetes, which is Type 2 diabetes. This is the type of diabetes commonly seen among adults.

What is Type 2 diabetes?

Type 2 diabetes was previously called non-insulin dependent diabetes and also maturity onset diabetes because it affects people over the age of 40 years. Nine out of ten cases of diabetes are of this type. When you have this type of diabetes, your body does not make enough insulin or your body still makes insulin but can't use it. Without enough insulin, your body cannot move blood sugar into the cells. Sugar builds up in the blood. And this can produce problems.

What is the cause of this diabetes?

Scientists and researches do not know the exact cause of Type 2 diabetes. What is known, however, is that diabetes mellitus runs in families. A person can inherit a tendency to get type 2 diabetes. But it usually takes another factor to bring on the disease.

What will bring out the disease?

Aside from your positive family history, other factors which may increase your risk are: race, obesity, stress, multiple pregnancies, previous history of impaired glucose tolerance (blood sugar elevation not diagnostic for diabetes) or gestational diabetes (diabetes occurring only during pregnancy), or drugs which may increase blood sugar (e.g. beta blockers, diuretics, etc.) If you have any of these, you must have your blood sugars checked more often.

Since this does not require insulin initially, is this the milder from of diabetes?

There is no such thing as mild diabetes. If you do not put extra care in controlling your blood sugar then this type of diabetes will produce complications.

What are signs and symptoms of Type 2 diabetes?

This type of diabetes often develops slowly. Most people who get it are thirstier and urinate frequently. Some people have a bigger appetite but they lose weight. Many feel tired, irritable and generally weak. Other signs and symptoms are: hard to heal infections of the skin, itchiness of the vagina, blurring of vision, tingling or loss of feeling in the hands or feet, or dry, itchy skin. These symptoms can be very mild, most people don't even notice them. Half of those with diabetes do not even know that they have it.

Can I still live a happy and normal life, despite my diabetes? Of course, a happy and normal life is possible. The key is to follow a diabetes treatment plan. The goal of which is to keep blood sugar levels as close to normal as possible. Your physician will prescribe a healthy diet plan as well as advise you about an exercise regimen. You may need medicine-either pills or insulin to control your diabetes. If you follow this then your diabetes will get better.

Is controlling my sugar the most important thing to do?

Blood sugar control is important, but other metabolic factors must be also controlled. If you are obese, then you need to control your weight. Your cholesterol must be checked and treated if elevated. If you have high blood pressure it also must be stabilized. And if you have other risk factors, then these must all be taken in consideration.

What happens if my diabetes is out of control most of the time?

Out of control means not following your meal plan, not exercising regularly, not taking your medications and not following your doctor's advise.

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Everything...

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Diabetes will then cause problems for you. You may have problems with your vision. Your kidneys can be affected. You may have nerve problems producing numbness and loss of sensation in your hands and feet. You can get foot problems which eventually will lead to amputation and gangrene. You also will have an increased risk in developing heart disease and strokes.

Diabetes is such a devastating disease, can we prevent it?

There are on going trials in the U.S., trying to look at ways of preventing this disease. Results of this study will be available in 4-6 years.

We welcome your comments, suggestions and queries. Fax them at PDA office 531-1278.

The DCDCP...

(from page 2)

Seven percent of patients had serum creatinine > 180 mmol/L. The patients had low response rates to the determination of microalbuminuria (12%). Of those measured, 56% had normal values, 43% had microalbuminuria, and 13 % had frank proteinuria.

Other complications studied included neuropathy (34%) and amputation (2%). Five percent of patients already had macrovascular complications such as stroke (5%) or CABG or angioplasty (3%). One percent of patients were blind from their diabetes, and another 1% had renal failure.

This data, already valuable as a tool for diabetes management assessment, is still undergoing further statistical analysis, and will be reported in the DCDCP Country Report II. Phase II of the study will start in July 1998.

Camp...

(from page 1)

old and the oldest 23. Everyone enjoyed the learning and growing experiences they gathered in the 4-day activity.

The organizing committee headed by Dr. Augusto D. Litonjua, adviser; Dr. Roberto Mirasol, Camp Administrator; Dr. Elizabeth Paz-Pacheco, Camp Medical Director; Mr. Noel Zabala, Program Director; Nurse Coordinator Mrs. Susan B. Trinidad and Dietitian Coordinator, Mrs. Imelda Q. Cardino made this camp possible. Fellows of the Makati Medical Center, Drs. Leilani Gail Magtolis and Jose Carlos Miranda, UP-PGH Drs. Emilia Patirana, Imelda Lagula and Warren Liongcheng assisted this project. From St. Luke's Medical Center came Drs. Georgina Guinto and Reynaldo Rosales. The nursing staff who guarded the kids from hypoglycemia or hyperglycemia were Ms. Faith Yrac (CSMC-Diabetes Care Clinic), Jacqueline Oreal (Diabetes Center), Chiqui Onis (UST Diabetes Center) and Haydeliza Geraldez (Medical Center Paranaque). Ms. Liza Mallari and Elizabeth Cruz from the Makati Medical Center supervised the diets. Guest lecturers who handled some important issues of adolescent diabetics were Drs. Sioksoan Chan Cua, Rosa Allyn Sy, and Cynthia Halili-Manabat. Many thanks to the Pharmaceutical companies and to Mr. & Mrs. Tony Mercado who helped make this project a success.

EXERCISE AND YOU

Rosa Allyn G. Sy, MD
Cardinal Santos Medical Center

One of the most difficult challenges in life is to accept the things you cannot control. Definitely, no one wants to have diabetes, not only because it is a lifelong disease but also because it is a disease which requires daily treatment and care. Sometimes it is a challenge but most of the time it is a burden. However, the good thing about diabetes is that it can be managed and complications minimized if one practices a healthy lifestyle.

What is a healthy lifestyle? It is simply a way of life that entails healthy eating habits combined with regular exercise.

Exercise is a key ingredient in diabetes care. It improves one's fitness level which affects body metabolism i.e., its ability to use energy. With regular exercise, blood glucose levels of diabetic patients are kept at a lower level by increasing energy and glucose utilization by the muscles. Whether you have type 1 or type 2 diabetes, benefits you get from exercise are varied. You have more energy. It improves your circulation, your breathing capacity, blood pressure, cholesterol and triglyceride levels. It strengthen your muscles especially your heart, it lessens stress and may delay the effects of aging. These are all the reasons why you should exercise, but there's actually only one reason to make it a habit - it makes you feel good and look great. Besides exercise is fun!

READY, SET GO!

Your first step towards a more active lifestyle should begin with a thorough medical examination. Increasing physical activity will definitely provide various benefits but it is also associated with potential risks that can only be reduced with thorough and proper examination by your doctor. Furthermore, this is also the only way to make sure your exercise program suits you. The type of exercise depends upon what your body needs and the presence of associated problems. Working with your health care team will give you the confidence of knowing that you are doing the right exercise.

To further avoid any potential risks of exercise, proper footwear and the use of protective equipment during exercise is essential. It is also important not to exercise in extreme heat or cold; to inspect your feet daily and after each exercise; to avoid exercising during periods of poor glucose control (greater that 300 mgs %); to snack before and after exercise and to have adequate fluid intake.

YOUR EXERCISE PRESCRIPTION

Your exercise prescription should indicate the type of exercise, the intensity, duration and frequency of exercise. It should also advise you where to start.

WHAT TYPE OF EXERCISE?

For diabetics who would want to improve their cardiovascular endurance and glucose utilization by their muscles, aerobic exercises (walking, swimming, running, cycling, and dancing) which use large muscles in a continuous, rhythmical, sustained movement is preferred and is the excellent choice. Resistance training can be added to the program once you have improved your fitness level. This type of activity, which includes weight lifting and use of elastic tubing bands and springs develop muscular strength and endurance. It makes you stronger and gives you more energy. Flexibility exercises should be part of any exercise activity. It helps you increase freedom of movement, decrease stress and muscular tension and reduce risk of injury. Flexibility exercises include stretching exercises.

HOW HARD SHOULD YOU EXERCISE?

You should work hard enough during exercise to increase your fitness without pushing so hard that you expose yourself to unnecessary risks. The intensity level appropriate is determined by the maximum volume of oxygen (VO2 max) consumed during an activity determined by an exercise test. The American Diabetes Association recommends a moderate intensity activity where one consumes 50-70 % of your VO2 max. This is proven to be effective for most people and is safe and comfortable enough that the exercise is not strenuous or painful. If you are just beginning a conditioning program, it's a good idea to start out at a low intensity and duration at 40% VO2 max or lower for 5-10 minutes. This may be gradually increased as your fitness and tolerance to exercise improves. Make it a habit to measure the intensity of your workout by monitoring your heart rate or counting your pulse rate after warm-up exercise (stretching exercises); 5 minutes after start of your aerobic work-out to make sure you are at the right intensity; after completing your aerobic work-out; and after you have cooled down with 5-10 minutes

of gentle stretching. At the peak of any activity, target heart rate appropriate for age and intensity of activity should be achieved to ensure safe and effective exercise. A formula commonly used to estimate target heart rate (HR) is: (220-age) - (resting heart rate x intensity of exercise 50-70%) + RHR. Though this formula can be a practical estimate of our VO2 max, it may not be accurate for patients taking heart medications or those with autonomic neuropathy. It is much better to have an individualized prescription developed for your target heart rate derived from your exercise stress testing than to rely on rough estimation alone.

HOW LONG SHOULD YOU EXERCISE?

The recommended duration of aerobic exercise is 20-45 minutes with additional time needed to warm-up and cool down. Your entire workout should take one hour. For obese diabetics who have never exercised, one can take advantage of the exercise benefits by reducing the intensity to a more comfortable level but lengthen the duration to more than 45 minutes. Periods shorter than 20 minutes may be appropriate if you have certain exercise limitations. Several brief periods of exercise spread throughout the day may be needed if you are unable to exercise for the entire 20-45 minutes.

HOW OFTEN SHOULD YOU EXERCISE?

Most people should exercise 3-5 days per week. Little or no improvement in fitness will be seen with only 1 or 2 exercise periods per week, and injuries become all two common with more than 5 weekly workout sessions. Besides, blood glucose improvements that occur because of exercise last for only 2-3 days so try to spread your workouts as evenly as possible throughout the week. When weight loss is the primary goal 5 exercise sessions per week will get you the best results.

WHERE DO YOU START?

Think of exercise as a lifetime plan. Invest in your health now, start slowly and build gradually. Set a goal that will motivate you to keep on going. It is usually easy to start a program, but sticking with it is more difficult. To improve compliance, therefore, choose an activity you would most enjoy and do it with a training partner. Keeping a schedule of your activity plan will help you stick to your new and more active lifestyle. Remember lost pounds will return, and your blood pressure and blood glucose will soar if you stop exercising!!!

The Economic...

(from page 5)

2. Philippine Center for Diabetes Education Foundation, Inc.

- diabetes training course, team approach composed of a physician, nurse and dietitian
- diabetes awareness week, every 4th Sundays of July and the week that follows
- Camp Cope (Children overcoming Diabetes Problem Everywhere)

3. Institute for the Studies of Diabetes Foundation, Inc.

- masters degree in diabetes
- workshops.

4. National Diabetes Congress - organized by Consortium of Government

- Hospital Diabetes Clinics held November during Worlds Diabetes Day.

TYPE 2 DIABETES MELLITUS (or non-insulin dependent diabetes): *Can it be prevented?*

Elizabeth Paz-Pacheco, M.D.
The Medical City
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It is estimated that type 2 diabetes mellitus or non-insulin dependent diabetes mellitus (NIDDM) occurs about 5-10 years before the onset of clinical manifestations. Although it has previously been considered as a mild form of diabetes, it is now well known that the complications are the same as in type 1 (or insulin dependent or juvenile diabetes). At the time of diagnosis, 10-20% of these individuals can have complications such as blindness, kidney failure, foot amputation, heart attack and stroke. The incidence of type 2 diabetes is increasing and by the year 2000, there will be close to 200 million type diabetics worldwide. Despite the numerous advances in the treatment of this chronic illness, complete cure remains to be elusive. Management of the disease is at best inadequate, and is costly to the patient and his family.

Because of this, what appears to be the best solution is not to allow the disease to happen. Is this possible? The answer is definitely YES!!!

How then can type 2 diabetes be prevented?

Primary prevention or activities aimed at delaying or preventing the occurrence of type 2 diabetes can be done by, first of all, identifying the individuals who are at risk for developing this illness. Who are these individuals? These include: (1) those with a family history of diabetes (2) those who consume high fat in their diets and live an inactive life resulting in obesity (3) women with a history of diabetes during pregnancy, (4) elderly individuals, and (5) a group of individuals with borderline diabetes or what is termed impaired glucose tolerance (IGT). IGT is a metabolic stage between normal and elevated blood sugars, defined as fasting plasma glucose greater than or equal to 110 mg/dl (or 6.1 mmol/L) and less than 126 mg/dl (or 7.0 mmol/L) or a 2 hour plasma glucose after oral glucose loading of greater than or equal to 140 mg/dl (7.8 mmol/L) and less than 200 mg/dl (11.1 mmol/L).

Prevention strategies in all of these at-risk individuals involve modification of the diets and increasing activity level with the goals of achieving near ideal body weight.

Meal plans should focus on the carbohydrate and fat content. Diets that are high in saturated fats and refined carbohydrates and low in fiber have been shown to lead to an increase in blood sugars.

The role of exercise in reducing the risk of acquiring type 2 diabetes has been confirmed by important studies. In a 14 year follow-up of high risk individuals in the University of Pennsylvania Alumni Health Study, an inverse relationship was found between the degree of physical activity at baseline and the subsequent risk of NIDDM, meaning the more active an individual is, the lower the risk of developing type 2 diabetes and vice-versa. The incidence rates almost

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THREE E's OF DIABETES MELLITUS: EDUCATION, EMPOWERMENT, AND EFFECTIVE THERAPY

Josephine Carlos-Raboca, MD
Makati Medical Center

Diabetes Mellitus is a lifelong condition that requires lifetime treatment. Its complications may occur insidiously and may include damage to small vessels in the eyes, kidneys and nerves. Large blood vessels of the heart, brain and legs may also be affected. Prevention of complications has been closely linked to good metabolic control. To achieve this in a chronic illness like diabetes mellitus requires patient education and patient empowerment for self-care and day-to-day management.

Why is education important in the management of diabetes mellitus?

1. Education can help prevent acute and chronic complications of diabetes mellitus. Acute complications result from metabolic decompensation, which leads to either low blood sugar (hypoglycemia) or very high blood sugar (hyperglycemia). Hypoglycemia and the hyperglycemic conditions require emergency treatment or they may lead to coma. The educated patient has a greater chance of avoiding these complications than his counterpart who has not gone through a formal education program. Education gives him the ability to discern warning signs and teaches him to cope in such a situation.

The US Center for Disease Control estimates that with proper education, 50-80% of diabetic complications are preventable. Education can prevent over 70% of DKA while amputations can be reduced by 50% with appropriate foot care.

2. Education can reduce health care costs both for the state as well as the patient. Reduction in health care cost is a result of fewer hospitalizations and complications. Pioneering education programs in Europe have reported significant reductions in mortality, hospitaliza-tions and sick day leaves. Patient education has made ambulatory and home care possible during sick days. The patient is confined only if DKA progresses despite initial home care.

3. Education optimizes diabetes therapy through proper motivation. Management of a chronic illness differs from that of an acute illness. The treatment of an acute illness ends when the condition resolves. In contrast, a chronic illness requires lifetime medication. The patient must be motivated and educated to sustain good therapeutic compliance.

4. Education is a tool for patient empowerment. Empowerment implies being in command of one's life and is a continuing, dynamic process. It enables the patient to participate actively in the management of his diabetes, learning in the process of day to day changes, able to make a choice on modalities suited to his lifestyle with the guidance of his physician. The European Consensus Guideline for the management of Diabetes Mellitus called for patient empowerment as the right of a person with diabetes.

Empowerment enables self

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Three...

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care and day to day management of diabetes. The elements of empowerment are knowledge, behavioral skills and responsibility acquired through education. As a result, the patient develops greater self-confidence.

What are the elements of good patient education?

1. Effective educators and trained personnel are needed. The education of the diabetic patient requires special communication and teaching skills. The diabetic educator must have knowledge and experience in the day to day management of diabetes, as well as special problems that may be encountered. He must have the patience not only to teach but also to listen to the patient's needs, anxieties and perception about diabetes. This way, the patient is able to express his thoughts, fears and beliefs which can be addressed and corrected if necessary.

Communication requires simple language that can be easily understood by the patient. We often presume that the patient understands the medical terms that we use. One study designed to discover if patients understood the meaning of medical terms during a visit to the diabetic foot clinic showed that only 50% understood the meaning of 12 medical terms connected with the diabetic foot such as ulcer, corn, callus, gangrene etc. Twenty two percent did not know the meaning of words used by their doctors. Another 28% thought they knew but in fact had misunderstood. Miscommunication may have serious consequences with regard to treatment or to the prevention of complications.

Who should teach the patient? It can be the family doctor, the community nurse and where available the hospital based care team. In the Philippines, the Philippine Center for Diabetes Education Foundation (Diabetes Center) has trained diabetes teams in 58 diabetes clinics nationwide. The team is composed of the diabetes physician educator who can be medical resident or the endocrinology fellow in training, the diabetes nurse educator and the diabetes nutritionist educator. The shared care is practical where financial resources are limited. The different physicians managing diabetes in the community share the diabetes educational clinic. The set up does not include treatment. The shared facility concept allows for a longer time and a more relaxed atmosphere for patients to learn. In the practitioner's clinic there is always the specter of the next patient waiting in line. This set up encourages doctors to refer to the diabetes education clinic as he is assured of getting his patients back. Education is provided to both hospitalized and ambulatory patients. The diabetes center in other countries may provide other services depending on the needs of the community such as screening for complications, or even initiation of insulin therapy.

2. Education programs must meet the needs of the patients. Various education curricula have been used largely determined by local community factors. A well designed program should consider the waning effect of intensive programs with time, the level of training of the diabetes team and the need to match the program to wide range of individual patient's abilities and beliefs.

The program should aim to enable the patient to self-care and responsibility. At our diabetes clinic at the Makati Medical Center, modules are provided covering nature and complica-

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Three...

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tions, diet therapy, insulin injection and blood sugar monitoring, sick day management, foot assessment, foot care and treatment of the neuropathic foot and special needs in certain situations like gestational diabetes. The referring doctor can request for selective modules or may prescribe the entire course.

Group learning can provide advantages in diabetics of all ages. Lecturing in groups can save and resources. Groups must have similar backgrounds. The added value in group learning is it affords interaction and learning from other patient's experiences. There is also the added morale boost and emotional support achieved from being with other patients. Individual instruction is helpful in certain circumstances like in emotionally disturbed patients or upon patient's request.

3. Education should be a dynamic process. There should be enough contact time between educator and patient. The timing of education is important. The realization that one is diabetic does not come easy. The patient needs time to absorb the impact of a lifetime disease. At present, most patients are referred to our diabetes clinic at the time of diagnosis. The advantage is this is the time the patient hungers for information. However, if the team perceives that the patient is not yet receptive, he is rescheduled for reinforcement at a later date.

Ideally, education should occur in three stages. The initial phase is done at and shortly after diagnosis. This should aim to enable patients to obtain control over the situation or teach him what he must know for survival. These should include correct and supportive information on the nature and outcome of diabetes, self-injection or oral medications, self-monitoring if required by the physician, diet therapy and hypoglycemia.

The second phase may follow in the weeks or months following diagnosis. This gives the patient time to learn and formulate questions as he copes with diabetes. Topics should include complications, associated risk factors foot care, coping with illness and specific topics e.g. pregnancy, travel, sick day guide. The third phase involves long term periodic reinforcement.

At present our diabetes clinic provides education at or near time of diagnosis, given over 1 or 2 days, as most Filipinos are unable to come back after that time. Their respective physician should provide long term education as motivation can wane. If necessary, the patient can be recalled by the diabetes clinic for reinforcement. Patients may also obtain updates for lay given by diabetes associations. People forget and cannot usually master everything the first time.

4. The success of education must be assessed at regular intervals like every 1-2 years. These include biochemical parameters of adequate control that is done by the attending physician. Patient's skills must be reviewed.

In conclusion: education is necessary in order to achieve good diabetes care. As in any chronic illness, education is needed to empower the patient to enable him to self-care and day to day management of diabetes. This assures shared responsibility between physician and patient in long term diabetes control, which is the key to real effective therapy.

Education requires trained health care providers who will both teach and learn continually. Education is a dynamic process that needs a lifetime commitment from both patient and health care provider.

Type 2...

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almost halved as the physical activity increased from < 500 kcal to > 2000 kcal/week. It is therefore recommended that high-risk individuals choose an enjoyable form of aerobic exercise that will allow them to perform this on a regular basis.

People who are already overweight or obese should start diet and exercise programs that would allow them to lose weight gradually, about 1-2 lbs. a week. The advantage of aiming at small amounts of weight loss is that these are more realistic goals and are therefore more readily achievable.

Borderline diabetes or IGT has been recognized as an important category of glucose abnormality. Despite the fact that the blood sugar levels are only mildly elevated, it has been shown that there is an increased incidence of heart disease in this group of individuals. It is also a stage before diabetes. With this in mind, the National Institute of Health of the United States has designed a large scale clinical study, entitled The Diabetes Prevention Trial to determine whether intervention at the time the patient is still at borderline level, or IGT, will prevent progression to full-blown diabetes. Three intervention arms are currently being tested: 1) lifestyle change with a focus on dietary modification and physical activity to promote weight loss; 2) oral therapy with the biguanide metformin; and 3) oral therapy with a new drug troglitazone which is presently available in the United States and will soon be available in the Philippines. We eagerly await the results of this study which should be available in the year 2003.

In summary, Type 2 diabetes is an illness that can be prevented.

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LIST OF ACTIVITIES (YEAR 1998)

FEBRUARY
6 - 8 15th DiabetesWorkshop; Crown Peak Gardens, Upper Cubi, Subic Bay
MAY
9 Camp Cope; Pre-camp Leadership Orientation
14 - 17 Camp Cope III; Los Baños Forest Club, Bgy. Masaya, Puypuy, Laguna
23 Round Table Discussion on Diabetic Foot; Rembrandt Hotel, Quezon City
JUNE
9 - 10 Workshop for the Diabetes Trainors
Makati Medical Center, Mezzanine 1 & 2 8:00 - 5:00 PM
"Diabetes and the High Risk Foot: Current Trends in Management - Multidisciplinary Approach"
13 - 16 58th Annual Meeting of the American Diabetes Association; Chicago, Illinois, USA
22 - 27 10th Training Course for Diabetes Trainors; Makati Medical Center, Mezzanine 1 & 2
28 - 30 16th DiabetesWorkshop; Fort Ilocandia, Laoag City
30 Philippine Society of Endocrinology & Metabolism; Mini Symposium, Fort Ilocandia
JULY *26* **to AUGUST** *1*
Diabetes Awareness Week; Quad Glorietta, Ayala Center, Makati City
AUGUST
7 4th Annual Convention of PASOO
SEPTEMBER
8 - 12 EASD Meeting; Barcelona, Spain
DECEMBER
1 - 2 3rd Joint Annual Convention PDA & PSEM; Century Park Hotel, Manila
3 PDA Lay Convention; Century Park Hotel, Manila

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The Psychosocial...

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tient themselves. They may show unnecessary anxiety or frustration when trying to motivate the patient to do things he is unable to do, or set unrealistic goals (elderly diabetic amputee to walk without assistance). Lastly, the social environment, which includes the microenvironment (partner, family) and society (discrimination) may or may not provide psychosocial support. This may be seen in social gatherings: the host is offended when their diabetic guests partake only of the right food, or enjoin their guests to eat foods that should be avoided or fail to provide appropriate choices for a healthier diet. In the working environment, some employers tend to not to hire diabetics because of a relatively higher rate of absenteeism from visits to the physicians or from the disease itself. Our diabetic patients need to be employed to be able to cope with the economic burden of their disease.

We need to decrease the psychological burden of our diabetics.

Type 2...

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If you know you have risk factors of developing the disease, check your weight and compare it with what it should be. If you exceed that, then you need to re-examine your eating habits and activity level and aim to maintain a good weight and prevent type 2 diabetes and its complications.

The Lighter Side of Diabetes *by Dr. Allan Hernandez*