

EVALUATION OF DIFFERENT EDUCATIONAL PROCEDURES
IN THE TREATMENT OF PATIENTS
WITH DIABETES MELLITUS

by

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EVALUATION OF DIFFERENT EDUCATIONAL PROCEDURES
IN THE TREATMENT OF PATIENTS
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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction.

The immediate aim of this study was to determine the value and use of education as a tool in the treatment of the patient with Diabetes Mellitus. It is hoped that more definite and meaningful data may be made available to students of Diabetes Mellitus in order that some reconciliation of conflicting ideas of the role of health team members may be brought about and that possibly a contribution may be made to the more effective use of education as a tool in the treatment of Diabetes Mellitus.

This chronic disease is a public health problem (15, p.567). Scheele (85, p.1) pointed out in 1950 an important educational need of the diabetic patient when he wrote:

Health education of persons with diabetes is an important task. It requires the best talents of many members of the public health and medical teams. If the diabetic patient is to live comfortably and successfully with his disease, he must develop some specific skills and acquire certain health habits.

Instruction, motivation, and development of attitudes, skills, and habits are educational functions. Therefore, medical and public health personnel who have diabetic patients under their supervision will find their task much easier if they take advantage of modern educational methods...

Of far greater importance is the individual instructor--and the resourcefulness, understanding, and

✓
sympathy which he brings to his task of helping patients live with diabetes.

Felt Need for Educational Procedures.

Since the discovery of insulin, in 1921 (79, p.60), accentuated the needs of patients being educated in the care of their chronic disease, many organizations, but each small, have arisen to meet these educational needs. The demand for educators of the diabetic patient has become a felt need with the increasing recognition of this disease (52, pp.213-216).

Organizations in both the United States and Canada have done what the recently organized Provincial Diabetic Association of Toronto (66, p.11) aims to do, that is, "to provide better educational facilities for the diabetic." Mills (66, p.11) recognizes the fact that, though the organizations for the education of the diabetic have recently implemented educational facilities, the effectiveness of certain aspects of teaching the diabetic patient are still restricted: "At the present the teaching of the new diabetic is often indifferently done. Physicians are too busy to give the many hours of instruction which are necessary." Concerning physicians, Gebhard (44, p.1594) wrote: "Many physicians are not aware of the fact that the term 'doctor' means a teacher."

Joslin (58, p.302; 59, p.13) places emphasis on education of the family of the diabetic. He says to the

physician: "How are you going to treat these additional million diabetics? By education of the patient. You cannot do it yourselves; you must have somebody to help you; you must have secretaries or nurses or nutritionists or dietitians."

Statement of the Problem.

The study of the evaluation of different educational procedures in the treatment of Diabetes Mellitus is the problem. The criteria used in the educational procedures has been in conformity with the American Diabetes Association (7; 8, Vol. 5, pp.30-31; 28) and the Diabetes Section of the United States Public Health Service as reported by Scheele (85, pp.1-6) and Ford (43, pp.527-530). The 1952 study by Guntert and Henry (46, p.5) also reported (1) the patient should learn basic concepts of the treatment of diabetes in adult education classes, (2) how, when, and where these basic concepts should be taught, and (3) the type of learning situations best suited to meet the needs of the patient.

Purposes of This Study.

The purposes of this study were of a twofold nature: First, to evaluate the effectiveness of an educational program begun in 1951 at the White Memorial Hospital and Clinic, College of Medical Evangelists, Los Angeles, California, and second, to develop an organization designed

to eliminate present difficulties in instruction and to improve health team educational procedures.

Scope.

This study presents specific educational procedures used in the treatment of the patient with the chronic disease Diabetes Mellitus. The contribution of the medical and para-medical personnel to the instruction of the patient with Diabetes Mellitus defines the scope of this study.

Method.

In order to determine the role of the physician, the nurse, the medical social worker, and the dietitian or nutritionist in the instruction of the diabetic patient and his family, a questionnaire (APPENDIX A) was sent to professional organizations, physicians, dietitians and nutritionists, and registered nurses. The letter which accompanied the questionnaire and the list of respondents are given in Appendix A. The investigator made a search of titles for previous investigations of the education of the patient with Diabetes Mellitus. Titles which were germane (8; 28) were sparsely scattered in the literature on this chronic disease.

Subjects Used in the Study and the Educational Procedures.

Two groups of diabetic patients were used in this study.

1. Group I, consisting of 590 members was given no formal, organized instruction.
2. Group II, also consisting of 590 members, received formal, organized educational instruction, and was classified into the following four categories:
 - a. Large group classes. Twenty-five patients attended a planned series of ten classes. Family members accompanied these patients to these voluntary classes.
 - b. Small group classes. Twenty patients and family members or relatives were required to attend small group classes at the time of each appointed visit to the White Memorial Hospital and Clinic. Weekly clinics were conducted.
 - c. Special classes for patients. Guidance programs were arranged for the exceptionally overweight patients. Maternity classes were provided for the expectant mothers in cooperation with the obstetrical division of the outpatient department.
 - d. Other educational activities. The other educational activities differed according

to the needs of the patients. All patients were given individual interviews. When necessary, as in the case of home-bound blind patients, home visits were made by the public health nurse. All new patients, as well as those with language difficulties, were given extra individual orientation. When patients first entered the diabetes clinic, they were introduced to health education materials, medical team personnel, and clinical facilities.

When appointments were not kept, the social worker and the appointment secretary of the diabetes clinic made follow-up visits or studies. Periodic consultation services were available to those patients with unique problems. Physicians in internal medicine held case conferences.

The patients in Group II were classified further on the basis of fasting blood sugar determinations by the Folin-Wu method (49, pp.520-524).

Definition of Terms Used in This Study.

For the purpose of this report, the term diabetes will always mean Diabetes Mellitus.

Diabetes. Joslin (54, p.9) indicates diabetes "is a disease in which part of the food escapes use by the body and appears as sugar in the urine... Diabetes is hereditary."

Diabetic condition. According to the American Diabetes Association (7, p.40) the diabetic condition is a "tendency to excrete more or less sugar at varying times during the day."

Diabetic syndrome. Sherry furnishes (87, p.212) a broad definition of the diabetic state:

A consideration of the hormonal effects on the metabolism of carbohydrate leads to the development of two new concepts. The first is a clinical differentiation of the diabetic syndrome and diabetes mellitus. If we define the diabetic syndrome as hyperglycemia with glycosuria associated with an abnormal carbohydrate tolerance, then diabetes mellitus refers to only those cases exhibiting the diabetic syndrome in which the etiology is still unknown... The fact that insulin can control the disease does not in any way prove that we are dealing in diabetes mellitus with a pure and simple pancreatic insulin insufficiency... Another concept that has evolved is that we should think in terms of hormonal balances existing about a reaction, rather than of the concentration of a single hormone.

Following the definition by Cheng (23, p.1533):

"Diabetes Mellitus is ordinarily regarded as a permanent, constitutional defect."

Diabetes clinic. At the White Memorial Hospital and Clinic, the diabetes clinic is a part of the internal medicine division of the outpatient department of the College of Medical Evangelists, and conforms to the criteria set up by the Committee on Clinics (8, Vol. 5, pp.30-31) of the American Diabetes Association.

Medical team or clinical team. The personnel in this team are the physician, the nurse, the dietitian, and the medical social worker. These four act as the instructors principally concerned in the different educational procedures for the patient with Diabetes Mellitus.

Health team. The personnel is the medical team with the addition of a fifth person, the health educator.

CHAPTER II

REVIEW OF LITERATURE AND SURVEY OF EDUCATIONAL PROCEDURES
USED IN THE TRAINING OF THE HEALTH TEAMIntroduction.

In 1898, Joslin initiated the use of education in the treatment of Diabetes Mellitus (59, p.14), and physicians have been instructing patients in this chronic disease control a long time. Patient-centered, medically supervised and controlled instruction (59, p.15; 91, p.482) places other clinical services in a secondary rank. This chapter reviews the education and the role of the clinic team members.

There are an increasing number of agencies (85, pp.1-5) involved in, or primarily concerned with, the education (82, pp.959-961) of the diabetic patient. Physicians, nurses, medical social workers, and nutritionists or dietitians (46, pp.5-6; 43, pp.527-530) contribute in the education of the patient with Diabetes Mellitus. It is not a matter of accident that health educators have but recently been added to the medical team. The value and use of education did not become a major concern of professional organizations and hospital administration until recent studies (15, p.567; 106, pp.209-216; 107, pp.1322-1329) pointed out the increased incidence of diabetes in our aging population.

Recent Trends.

The prevalence of diabetes (16, pp.432-436; 38, p.30) is increasing. Enterline (APPENDIX A) reporting on morbidity statistics from the Department of Health, Education and Welfare, cites the following:

The prevalence of Diabetes was estimated by this Division for the United States as of 1949 as 2,230,000. This figure includes an estimate of over 1,000,000 unknown cases. These estimates are based on the findings of the Oxford, Massachusetts study in 1946-1947.

On the basis of this estimate of prevalence and various studies which allow for an estimate of the duration of the disease, we estimate that at present a minimum of 100,000 new cases of diabetes occur annually.

Sindoni (89, p.33) stresses the widespread nature of the disease, "no person living is exempt from diabetes, a disease widely scattered through all groups of workers from the lowest laborer to the highest white-color worker."

Harwood (47, p.43) brings out the fact that the medical profession and the public health agencies have been alerted "to the magnitude of the challenge which is presented by the estimated 'million unknown diabetics' in the United States." This means that approximately two per cent (106, pp.209-216; 66, pp.10-11) of the population (7, p.9) have a special need for education on this chronic disease. The more than a million and a half known diabetics and perhaps an equal number as yet undiscovered (58, pp.302-306) make necessary the training of the medical team, as educators

of the diabetic patient.

There is no consensus of opinion (8; 28) as to which is the most desirable method in teaching the patient. In 1950, a joint committee of the American Diabetes Association, American Dietetic Association, and Diabetes Section of the United States Public Health Service made available the set of instructional materials (85, pp.1-15) called Taking Care of Diabetes. In 1947, Rosenberg (84, pp.45-47) and Ford (43, pp.527-530) reported concerning schools and education for the diabetic patient. Guntert and Henry (44, p.5) summarized, in 1952, their concept of learning situations for the diabetic patient. Mills (66, pp.10-11), in 1953, pointed out the need for helping diabetics to help themselves by enlarging the educational facilities.

In 1947, Allen (2, pp.119-120) reporting for the Committee on Education at the Seventh Annual Meeting of the American Diabetes Association, stated:

At the time of its organization, the founders of the American Diabetes Association had pre-eminently in mind the responsibilities and opportunities for education which lay before it. In reading the constitution, it will be noted that three of the six stated objectives of the Association are concerned with educational activities.

The three educational objectives in the Constitution of the American Diabetes Association (37, pp.73-74) read:

1. To disseminate among physicians information relative to the diagnosis and treatment of diabetes by means of meetings, bulletins,

publications of papers in scientific journals, and through a central office which would at all times make available information concerning various aspects of diabetes.

2. To educate the laity in the early recognition of diabetes and in the realization of the importance of medical supervision.
3. To secure and coordinate the active cooperation of associated groups acceptable to the Council in the educational and organizational phases of the Association.

Existing types of teaching personnel as noted may be separated into these six major classifications:

1. The practicing physician (91, pp.481-487; 7; 54; 89) as the patient's instructor
2. The physician assisted by the nurse, who aids in carrying out his directions (46, p.5; 43, pp.527-530; 84, pp.45-47), and who in turn is assisted by members of the patient's family
3. The physician and the laboratory technician (74, pp.37-42; 108, pp.2-3; 71, pp.275-299) in detection and education campaigns
4. The physician and the dietitian (100, pp.681-683; 80, pp.485-490) and/or the social worker.
5. The physician, the nurse, the dietitian, and the medical social worker (85, pp.1-5; 82, pp.959-961)
6. A team (2, p.119; 8, Vol. 5, pp.30-31) of physicians, nurses, dietitians or nutritionists, medical social workers, technical and laboratory assistants.

Education of the Physician and His Role in the Education of the Patient with Diabetes Mellitus.

In 1947, the Committee on Education of the American Diabetes Association (8, Vol. 6, pp.29-34; 8, Vol. 7,

pp.119-123; 8, Vol. 5, pp.30-31) took steps to prepare the physician for his role as an instructor of diabetic patients and published in 1950 Diabetes Guide Book for the Physician. The diabetes section of the United States Public Health Service, in 1950, provided him with (85) Taking Care of Diabetes. The duties of the physician in the instruction of the patient are outlined by textbook writers such as Joslin (54; 59), Sindoni (88), Barach (12) and others (4; 28; 31). His duties as an educator include assisting in group classes (33, p.4; 43, pp.527-530) and conducting case conferences (52, p.213) or individual interviews (70, p.79).

The education of the physician includes undergraduate, graduate, and postgraduate courses as stated by Stieglitz (91, pp.482-486):

Education in matters of health...should be the responsibility and under the direction of physicians who know what is being taught. Over-simplification can be disastrous by fostering overconfidence, self-diagnosis, and self medication.

Education of the Nurse and Her Role in the Education of the Patient with Diabetes Mellitus.

The education of the nurse (34, p.695; 18, pp.183-186) is planned by the nursing schools cooperating with the National League for Nursing. Plans for pertinent courses for the nurse (8, Vol. 5, pp.30-31) were made as early as 1945 by the Committee on Clinics of the American Diabetes

Association. Tibbits and Donahue (93, pp.202-217) and Streeter (92, pp.818-820) suggest that the nurse must have the ability to teach the older age group, of which the diabetic patient is an example. The nurse conducts classes (46, pp.1-5; 43, pp.527-530) and works with the other members of the medical team in instructing the patients who need the home visits by the public health nurse. She assists the dietitian (21, p.687) by interpreting the diet to home-bound patients. She conducts (92, pp.818-820) individual conferences with expectant mothers and the newly diagnosed diabetic.

Education of the Medical Social Worker and Her Role in the Education of the Patient with Diabetes Mellitus.

Walsh (100, pp.681-683) gives the professional background of the medical social worker as "the educational preparation for the social work is a two-year graduate professional program leading to the degree of Master of Arts in one of the schools of social work which has an approved curriculum in medical social service." Pragoff (80, p.485) adds: "this preparation is planned to give her a knowledge regarding health and disease; the role of the emotions and meaning of behavior in illness; and the relationship and influence of economic and social factors on ill health and disability, as well as an ability to utilize the services of those community resources best suited to the needs of

the individual and his family."

The functions of the medical social worker are two-fold according to Walsh (100, p.683), "first, an understanding of the meaning of the situation as the patient, and second, the considered use of a personal relationship in the process of helping." The social worker assists the physician in making follow-up studies and cooperates in mutual problems (80, pp.485-490) with the nutritionists.

The Education of the Nutritionist or Dietitian and Her Role in the Education of the Patient with Diabetes Mellitus.

The American Dietetic Association (9, p.1) regulates the academic requirements for active membership in the American Dietetic Association and entrance to dietetic internships approved by the executive board. A joint Committee on Professional Education, American Public Health Association (24, pp.41-44) and American Dietetic Association defined the educational qualifications of nutritionists in health agencies. The dietitian or nutritionist provides patients with the best possible nutrition education (19, pp.575-583) and food instruction. She organizes dietary materials (20, pp.169-171; 21, p.687) and calculates diets upon the order of the physician. For the obese patient (22, pp.725-731) there are group classes (45, pp.905-911; 69, pp.833-836) conducted jointly by the physician and nutritionist. She (42, pp.901-904) supervises menus in the summer camp for the diabetic children

and holds conferences (66, pp.10-11) with parents of the diabetic individual. The dietitian assists in the teaching of medical students and nurses.

CHAPTER III

DATA AND DISCUSSION OF FINDINGS

Introduction.

Education of the patient with Diabetes Mellitus (8; 85) and education of his family (58, pp.302-306) is paramount and constitutes an integral part of good diabetic control (60, pp.581-586) according to the medical management and treatment of Diabetes Mellitus discussed in the previous chapters.

Statement of the Problem.

Evaluation of different educational procedures in the treatment of patients with Diabetes Mellitus was used as a means of determining the value and use of education. The investigator sought to determine the effectiveness of an educational program begun in 1951 at the White Memorial Hospital and Clinic, College of Medical Evangelists, Los Angeles, California.

Purposes Served by Such a Study.

The first question that these specific quantitative data sought to answer was the value and use of different educational methods and the considered use of these approaches by the health team personnel in the instruction of individuals with chronic diabetes.

The second purpose of this study was to develop an organization which would present concepts of what the patient should be taught; how, when, and where the instructional material should be taught; and under what conditions most learning took place. The paucity of the literature on the exact methods of instruction by clinical teams showed the need for such a study.

Variable in This Study.

The variable in this study was in the different types of educational procedures used by the personnel principally involved in the education of the patient with Diabetes Mellitus.

Methods of Investigation and Subjects Used in the Evaluation of Different Educational Procedures.

Two groups of subjects were used in this study. The investigator undertook the study of a sample of the 170,000 diabetics (67, p.57) in California by using a selected sample of outpatients in the largest private clinic on the west coast. The two groups were registered in the White Memorial Hospital and Clinic. Group I members, consisting of 590 patients (Table 1) registered by 1950. Group I was given no formal, organized educational plan. Between July 1, 1944 and December 31, 1950, the investigator interviewed the Group I members as the clinic dietitian.

Group II members (Table 1), also consisting of 590 members, registered in the diabetes clinic. During the basic period, 294 patients became the nucleus for the continuing group, Group II, who were given formal, organized instruction by the methods to be described subsequently in the chapter. The total group of 1180 members was part of a population of some 305,000 patients registered between 1933 through 1953, in the diabetes clinic. Table 2 provides the random sampling of the diabetes patient visits in the total patients treated at the White Memorial Clinic, diabetes clinic.

TABLE 1

REGISTRATION OF DIABETIC PATIENTS, 1933-1953, BY GROUPS

Year	Group		Year	Group	
	I	II		I	II
1933	22	27	1944	51	17
1934	7	8	1945	63	13
1935	2	7	1946	83	21
1936	11	12	1947	51	25
1937	14	5	1948	64	14
1938	15	6	1949	78	29
1939	20	12	1950	31	46
1940	13	14	1951	0	104
1941	20	9	1952	0	137
1942	16	16	1953	0	55
1943	29	13	Total No. =	590	590

Each group of 590 diabetic patients was approximately the same in sex distribution (Table 3), mean age at the time of the initial visit to the diabetes clinic (Table 4)

and socio-economic status. The two groups were further divided on the basis of the presentation of fasting blood sugar determinations by the Folin-Wu method (49, pp.520-524) (Table 5).

As each patient registered in the White Memorial Hospital and Clinic, he was assigned a clinic number and budget rating. Chart numbers and clinic numbers were the same. The initial date of registration determined the clinic number assigned the patient.

TABLE 2
PATIENT VISITS, 1945-1952

Year	Patient Visits to Diabetes Clinic	Total No. of Patients Treated White Memorial Clinic
1945	1138	105,914
1946	1304	104,681
1947	1047	107,004
1948	983	105,183
1949	1223	114,982
1950	1069	111,008
1951	1405	109,357
1952	1795	96,022

TABLE 3
SEX DISTRIBUTION OF SUBJECTS

	Classification According to Fasting Blood Sugar Determinations									
	Group I					Group II				
	Sex		%			Sex		%		
	No.	M	Fe	M	Fe	No.	M	Fe	M	Fe
No fast- ing blood sugar determi- nation	42	12	30	28.6	71.0	51	17	34	30.0	70.0
One fast- ing blood sugar determi- nation	110	37	73	33.6	66.4	155	69	86	45.0	55.0
Two fast- ing blood sugar determi- nations	438	127	311	29.0	71.0	384	112	272	29.0	71.0
Totals	590	176	414	29.8	70.2	590	198	392	33.6	66.4

TABLE 4

AGE DISTRIBUTION OF SUBJECTS IN DIABETES CLINIC

Classification according to blood sugar determination and mean age	Interval in years	Group I	Group II
		N = 590 Frequency	N = 590 Frequency
All patients	85-89	1	1
	80-84	3	5
	75-79	10	11
	70-74	36	44
	65-69	65	84
	60-64	93	86
	55-59	94	83
	50-54	90	113
	45-49	69	73
	40-44	30	33
	35-39	29	15
	30-34	25	12
	25-29	11	8
	20-24	15	9
	15-19	12	9
	10-14	3	4
	5-9	4	0
Mean age		52.719	53.86
Standard deviation		14.368	13.99
	No.		No.
No fasting blood sugar determination,	42		51
Mean age of patients,		47.98	47.0
Standard deviation in years,		16.147	15.0
One fasting blood sugar determination,	110		155
Mean age of patients,		51.52	53.953
Standard deviation in years,		14.88	15.34
Two fasting blood sugar determinations,	438		384
Mean age of patients,		53.484	53.748
Standard deviation in years,		13.2	13.2
Median age		55.37	56.2

TABLE 5

AGE DISTRIBUTION FOR THOSE PATIENTS WITH
FASTING BLOOD SUGAR DETERMINATIONS

Interval in years	High and Low Values	
	Group I N = 438 Frequency	Group II N = 384 Frequency
85-89	0	1
80-84	2	4
75-79	8	10
70-74	29	37
65-69	53	58
60-64	67	53
55-59	68	45
50-54	76	73
45-49	51	35
40-44	14	28
35-39	22	10
30-34	18	7
25-29	12	6
20-24	7	6
15-19	8	8
10-14	1	3
5-9	2	0
Mean age	53.484	53.748
Standard deviation	13.22	13.22

Age of New Patients.

Table five is of particular interest to students of gerontology since many patients in the diabetes clinic are in the middle age and aged classifications. In Group I, the ages of individual patients at the time of their initial visit to the clinic are listed in Appendix B. The investigator observed in Group II that fifty per cent of all new patients fall into the 50-60 year group. Only one-fifth of the patients new to the clinic were under forty years

of age, in Group II, at the time of their initial visit. Children under 12 years of age are seen in the pediatric clinic.

Race.

Table six furnishes the percentage of each of the three major races for the patients seen in the diabetes clinic.

TABLE 6
RACIAL BACKGROUND OF SUBJECTS

	Caucasian per cent	Negro per cent	Mongolian per cent
Group I	81.0	18.33	0.66
Group II	80.0	19.0	1.00

Occupation.

Table seven is an identification of the subjects in Group II by occupations. Similar information is given in Appendix B for Group I. The cultural backgrounds of the individuals are closely linked with their nationality and race. Of the Caucasians fourteen per cent were of Mexican extraction, and twelve per cent of Jewish background.

TABLE 7
OCCUPATIONS OF GROUP II MEMBERS

Occupation	Fre- quency	Occupation	Fre- quency
Housewife	243	Carpenter	2
Retired pensioner	34	Clothing industry worker	11
No occupation or unemployed	94	Tailor	1
Caddy	1	Nightwatchman	2
Farmer	3	Plasterer	5
Real estate agent	5	Painter	2
Nurses aide	7	Food handler	14
Professional nurse	1	Cook	5
Teacher	1	Leather cutter	4
Student	18	Seamstress	5
Common day laborer	9	Waitress	3
Janitor	16	Presser	2
Truck driver	16	Bookkeeper	1
Clerk	21	Mechanic	12
Domestic help	11	Barber	2
Merchant	7	Red cap	1
Industrial plant worker	31		

Questionnaire.

Forty-eight responses from professional organizations, physicians, nurses, and dietitians or nutritionists are provided from the Questionnaire (APPENDIX A). The abstracts provide a wide range of individual differences in the education of the patient with Diabetes Mellitus. As a former president of the American Diabetes Association, Palmer (APPENDIX A, 46) illustrated the role of the physician in the instruction of the patient:

What Knowledge Should Be Provided? 1. The patient must be instructed in a simple explanation of the reason that diabetes has developed, contrasting the normal use of sugar in the body with

what happens to sugar in the diabetic with disabled sugar mechanism. 2. They must be instructed in the influence and effect upon diabetic control of associated illnesses. 3. They must be instructed on the possible complications of diabetes and how they may be avoided. They must have full instruction on insulin, its nature, strengths, measurement and administration and its application regardless of whether insulin is necessary in the current program or not.

What Attitudes Should Be Formed? The patient must accept the diagnosis when based upon unequivocal evidence; if the condition is borderline, he must agree to remain under observation until a final decision for or against can be made; he must accept the fact that diabetes is a chronic disease and that once developed it will always be present, that we control diabetes but do not cure it, and that therefore the treatment consists of a manner of living; there must be a philosophy of the diabetic life formed by the patient which enables him to accept the situation and to follow the advice given for its control.

What Practices Should Be Developed? All practices of living must be followed which conform to the diabetic program and this diabetic program of living must be given priority under any and all circumstances.

What are the Expected Total Behavioral Outcomes? Some patients accept the situation from the beginning. Others are rather disturbed psychologically but after a thorough understanding of the problem accept it and cooperate in an efficient and effective manner. There are a few patients who continue to be resentful and thereby forego attaining their lifetime objectives which were set up in many instances before diabetes developed. This latter course is a course entirely unnecessary.

What are the Reference Sources in Setting Up These Objectives? The problem of diabetes is a joint problem of the patient and the doctor. Close liaison between them is absolutely essential. Appropriate textbooks and literature are available in many forms.

How are Evaluations Made as to Whether These Objectives are Being Met? Daily testing of the urine by the diabetic patient, occasional checking of the blood sugar by the doctor, periodic complete physical examinations and evaluations by the physician to determine what price diabetes is extracting.

Changes in Behavior Come as a Result of Growth in Knowledge, Attitudes, and Practices in What Specific Areas? What are the Objectives for the Home, School, Community, Society Church and Industry? As to the second part of your questionnaire, the diabetic individual should fit into the home, and home routine should not be disturbed to any greater degree than necessary. School teachers should be aware of the presence of diabetes in children. As to the community and society and the church, I know of nothing special that diabetes imposed upon the relationships of the diabetic in these regards. As to industry, it is of note at the moment that there are some corporations who are willing to employ diabetics under certain set requirements on the part of the individual, namely that he be informed and cooperate regarding his trouble and report periodically to his physician. On the other hand there are many corporations who do not appreciate that a diabetic can be not only a fully normal but even very excellent employee which still adhere to the old impression that a diabetic cannot be a good employee. Much work needs to be done by lay diabetes associations in producing a more lenient viewpoint on the part of industry.

What Instructional Team is Used? Clinic or Medical Team? As to the final question in your second section of your Questionnaire, clinic or medical team, I presume that you refer to whether or not a diabetic is better off in the hands of an individual doctor, or in the hands of a group of physicians practicing together. Regardless of which way the diabetes is handled it still is an individual responsibility of an individual doctor. The facilities in a diabetes clinic where a large number of diabetics are seen for teaching are usually a little greater than they would be in the hands of a single physician. In most diabetes Clinics, you will find two or three or more physicians handling diabetics together.

At any rate after the patient is what we call educated or indoctrinated, any physician who is in possession of sufficient knowledge of diabetes should be able to competently direct the patient's welfare.

How Do You Measure Your Progress in Instruction? I am interested in knowing whether you think that the more education that the diabetic patient has the better chance there will be of lowering the blood sugar, all other things being equal?

Your question concerning the height of the blood sugar of course cannot be answered simply, because what are acceptable blood sugars vary under different conditions. The answer to the amount of education the patient should have of course can be answered that one as a diabetic layman never knows too much about diabetes, and that this education comes through a primary course of class instruction followed and amplified by further study and contacts with the physician.

Sindoni (APPENDIX A, 58) makes the following suggestions:

I agree with you that the individual and group education pay off and that the method of education is of paramount importance. It is my belief as well as my experience that the public today are more conscious of diseases, their causes and especially the newer therapies. I am also aware of the fact that there exist diversified opinions in the treatment of many medical conditions. In the educational program I believe that the teachers should express the opinions of the various schools of thought concerning the background of diseases and their treatment.

Haunz (APPENDIX A, 21) recommended the following:

I very definitely feel that education of the patient will result in better care on the part of the patient. I also strongly feel that as a consequence of good control there will be far less complications of diabetes. At our clinic

we combine both individual and group instruction. We have a dietitian on our staff who instructs the patient in total care of his diabetes. This has been so successful that we have not encountered a case of true diabetic coma among our several hundred diabetic patients in five years.

Joslin (APPENDIX A, 27) remarks:

The present greatest problem is the development of serious complications in the eyes, kidneys, and arteries after the diabetes has existed for some fifteen years, more or less. We believe in young people that could be postponed or avoided if the potentialities of the disease were driven home more closely to them and if they were made to realize they could avoid the same if they would follow the diet.

Pote (APPENDIX A, 53) indicates:

...on the basis of the things we learned we have decided to have a diet talk each week and orientation with new patients only each week, and reemphasize Social Service Assistance.

Harwood (APPENDIX A, 20) noted:

There is no question that education is an important part in the management of diabetes and I suppose it is possible to say that the poorer the education of a large group of diabetics, the higher the blood sugar will be. But you should understand that the blood sugar is a highly variable figure, and in the individual case, may deviate upwards or downwards as much as 200 or 300 mgs. in the space of a few hours. The severity of the diabetes also has a bearing on this. For example, most of the mildest type of diabetics will have a normal fasting blood sugar with only slight dietary restrictions or even without any diet restrictions at all. High blood sugar on a given day may be the result of anxiety or anger, a celebration, such as a wedding anniversary, an infection, such as the common cold, a mistake in insulin dosage, and many other factors. Such a high blood sugar would, therefore, not necessarily reflect the efficacy of any

educational program. There are other variables to be considered. For example, the doctors treating a group of patients may have become more lax or more rigid in their demands on the patient over a period of years. Hence, the blood sugar might be lower because the doctor had increased the insulin dose rather than because the patient had been educated better.

Caso (APPENDIX A, 7) states:

We do not feel that this group instruction should completely take the place of individual instruction. It is our belief that every new diabetic should receive initial individual instruction in order that we may know more about the patient's background and adjust the instruction to the patient's particular situation. Following this individual instruction we have found that if a group of patients come together and have an opportunity to discuss informally their common problems that they themselves can often help to solve their own questions and receive support from one another. I am sorry to say that at the present time we do not know of any long-term study which has been undertaken to determine the relative value of either method. We anticipate beginning such a study in the near future and have worked out some fairly satisfactory methods for evaluating the effectiveness of group teaching which will be used in this study.

Jones (APPENDIX A, 28) remarks:

As far as the Diabetes Detection program in Dallas is concerned, for the last three years we have had a Diabetes Detection Unit sponsored by the U. S. Public Health Service on an experimental basis, in an attempt to determine if enough good is accomplished by such a procedure to warrant the great expenditure of funds involved. This unit is now being discontinued. It is my personal opinion that for the amount of money spent from federal funds the program conducted here was much too expensive for the amount of good accomplished. I am sure that my opinion fits in with the general opinion of others here. As far as the diabetes education program is concerned, the Lay Society of the Dallas Diabetes Association has several meetings a year, with well-known guest

speakers presenting a free program for the public and of course this society will sponsor the Diabetes Detection Week scheduled annually in November, at which time a considerable amount of publicity will be given urging that everyone have a routine urinalysis for sugar.

I agree with your statement that it is important to the patient to have proper instruction and adequate facilities for this individual patient instruction are available in Dallas. I do believe there is probably a relationship between the kind and amount of educational help and the average height of the blood sugar level, but this does not apply to any one blood sugar level made at any one time. This is true because there are too many variable factors in any one specific blood sugar level. Unfortunately we have no specific printed material showing the kind of a program that has been carried on in the past or the kind that will be carried on now and for that reason it will be impossible to mail you those materials.

Hoxie (APPENDIX A, 23) remarks:

You no doubt know that I believe that education is essential in the patient's acceptance of his disease, especially a chronic disease of the nature of diabetes. This is a disease in which it is most important that the patient understand how to care for himself. The consciousness that he is able to care for himself is a great aid in avoiding complications as well as anxiety.

Goldman (APPENDIX A, 17) reports:

In our diabetic clinic, we use the exchange plan diet sheets, the posters and the film strips prepared by the Federal Security Agency--Diabetes Branch, the American Dietetic Association and the American Diabetic Association. We have wax food models to illustrate the size of portions and exchange values. We hold group classes for our diabetics at irregular intervals depending upon the enrollment of new patients. The response of our patients to this program

has been gratifying.

Grover (APPENDIX A, 18) states:

We make use of individual instruction of our diabetics almost exclusively. We do this for the simple reason that a group instruction is not particularly suitable for the type of practice we maintain. Our patients are scattered over a wide range of territory. A major portion of our educational program includes the hospitalization of the previously undetected diabetic for periods averaging five days during which time intensive education is conducted. Also, whenever possible we domicile diabetics regardless of state in the same section of the hospital so that they can benefit from each other's experience.

Geiger (APPENDIX A, 15) noted:

I agree with you that health and nutritional education may help to recognize and control early diabetes.

Colwell (APPENDIX A, 9) commented:

We agree with you about the importance of educating diabetic patients to care for themselves. We do not conduct this work in groups because there is too much difference between individual patients. It is done individually by the doctor, nurse, and dietitian. The only materials which we use are foot lists, urine testing outfits, insulin instruments and food scales.

Baldwin (APPENDIX A, 3) remarks:

Our program of instruction for the patients is individual as well as group. I ask the patients to study Wilder's Diabetic Manual and write out the answers to the questions at the end of each of the chapters, then I go over their answers with them. We have the patients together in the classroom, where they are given demonstrations, and also discussions centered around the questions at the end of the chapters. We have a tray set up to show how the patients should keep their materials at home. I also use the colored posters made by the Health Publications Institute,

as well as their small booklets. A fairly large proportion of our patients are unable to learn much from printed material. We have to rely on verbal instruction for them.

Barach (APPENDIX A, 4) wrote:

We do have group classes for instructing patients at this clinic for clinic patients. In private cases we give individual instructions. We are convinced that proper instruction of the diabetic patient will determine the patient's welfare now and in the future. We have made many and repeated surveys of our cases and we are convinced that a properly instructed diabetic will show lower blood sugars because he knows how to manage with his diet, and because of that he manages more carefully.

Allen (APPENDIX A, 2) reported:

The diabetic patient receives individualized instruction in urinalysis and diet by the dietitian and in insulin technic and adjustment by the physician. The only instruction given to diabetics as a group is a series of five lectures on diabetes. Film strips are used as a part of the lecture. Four lectures are given by physicians and one on diet by the dietitian. We teach both quantitative or weighed diets and equalitative or measured diets. The physician who orders the diet designates total calories and the type of diet, weighed or measured, that he considers advisable.

Bowden (APPENDIX A, 6) remarked:

In my department I still continue with the individual instruction as we see diabetic patients. I have not found the exchange system practical and have continued with our former plan of teaching. I use a simple table for teaching the composition of foods and substitution lists as we have outlined them in our manual.

Colley (APPENDIX A, 8) stated:

At this hospital, there is a graduate nurse assigned to the metabolic service, who gives

group instruction on diets and insulin giving, one hour per week. In addition to this, the patients are advised to purchase a textbook by Dr. Bearwood, the chief of the diabetic service at this hospital. If necessary, our nurse also gives individual instruction to patients.

Forbes (APPENDIX A, 13) commented:

You are already aware that our book Diabetic Care in Pictures is the basis for educating diabetic patients in our clinic. This book, which has been written for the patient, is considered part of the patient's equipment - just as his needle, syringe, etc. This means that all patients who require insulin have a copy of the book. You may also be familiar with the posters and film strips prepared by the U. S. Public Health Service. These strips follow very closely the procedures and methods we use in teaching with Diabetic Care in Pictures and are most suitable for group teaching. The individual instruction of patients is reinforced by small teaching exhibits set up on the days of diabetic clinic.

Hunter (APPENDIX A, 24) stated:

The system that we use for diabetic diets is similar to the Exchange Lists recommended by the American Dietetics Association. The only difference is that our foods are classified according to the teaspoons of sugar value. The patients are given individual diet instructions by the dietitian. In the past, group classes were held for the hospital patients, but due to the fact that such a few of the patients were ambulatory, the classes had to be discontinued. These classes consisted of a series of six lectures, two by the dietitian, one by the nurse, and three by the physicians. In the outpatient department a similar series of classes is held for those patients.

Kydd (APPENDIX A, 30) remarked:

Personally I am not particularly in favor of group instruction of patients. What applies to one patient may not to another. In fact, harm may be done if information be interpreted incorrectly by a patient to whom such facts do

not pertain. Group classes are held to be sure, and these are of quite general content and the patients attend only after they have been individually instructed. The forms we use are simple outline diet sheets, the allowed amounts of each item being individually supplied, using simple household measures.

Kingsley (APPENDIX A, 29) stated:

There are several pamphlets and other printed materials which are used in educating a newly discovered diabetic patient regarding his condition. Among them are the bimonthly magazine "Forecast," and "Good News About Diabetes" by Herbert Yahraes. These were prepared cooperatively by the American Diabetes Association and the American Dietetic Association. They are available only through the request of a physician.

Leach (APPENDIX A, 33) said:

Our diabetic instruction booklet we give to each of our patients when they first enter our clinic. Each patient receives individual instruction, using this book as a basis during their stay in our clinic. At the present time, we feel that individual teaching allows better control of our patients, since our patient group varies in intellectual ability and economic standing. We are convinced that there is a direct relationship between the amount of personal instruction the patients receive and the levels of the blood sugar. As in all diabetic clinics, we have a fair number of patients who refuse to take dietetic instruction, but we hope to decrease the size of this group in time.

Lockerbee (APPENDIX A, 35) wrote:

We agree that the more education a diabetic has in regard to his disease and to the management of it the better controlled he is. And for a diabetic to live a normal, active, and happy life he must be well controlled. There are very fine clinics and classes held at the various city hospitals. In the small hospitals the dietitians give individual teaching, but the facilities

aren't usually such that teaching can be done in a classroom.

Ligon (APPENDIX A, 34) commented:

We have diabetic clinics one morning each week, at which time the patient sees the doctor and dietitian. Our instruction is done individually. It is hard for us to have group instruction since we have so many coming in at different hours. We use the diabetic exchange method for calculating the diets of the more intelligent individuals. For the others, we have a very simple method. The dietetic interns make home visits and give additional instruction. There is a diabetic group here in the city, who have regular meetings and a dietitian usually attends to answer their questions. These people, for the most part, do not attend our clinic.

Moseley (APPENDIX A, 39) remarked:

From the standpoint of the educational program that we use at our hospital and outpatient clinic for diabetics, we employ both individual and group instruction. Individual instruction is based along the lines of personal hygiene, the necessity for certain particular factors to be outlined, such as personal urine examinations and instruction as to the meaning of certain symptoms which may be experienced by the patient when his disorder is not well regulated. Group classes re-emphasize the care of feet. Matters of personal hygiene and dietetic instruction are given to the group, as well as individual, by means of a recheck on each clinic visit as to how the patient is constructing the diet previously prescribed. Patients are requested to bring in diet diaries over a period of two or three days prior to the clinic visit for purpose of checking with the patient. Diet outline sheets and certain instructional sheets are the only educational needs that we employ.

Macy (APPENDIX A, 36) noted:

The clinic meets once weekly for lectures lasting one hour. These lectures are alternated with dietetic lectures, given by the

dietitian and accompanied by demonstrations of food exchanges, etc. Medical lectures are given by one of the physicians. The food exchange plan for simplified diets is used. Each patient has these exchange lists as well as his or her diet in terms of such lists. Lecture periods are utilized for quizzing of patients and also to answer patients' questions; during this time, news items on diabetes are analyzed for the patients. Strictly individual problems of either diet or management are handled individually. Whatever time may be required to insure complete understanding and cooperation of the patient is devoted to that patient. In addition, our patients are encouraged to attend the lectures and movies given by the Philadelphia Metabolic Association and the visiting nurse association in this area. These measures have proven effective - there has not been a case of diabetic coma in one of our regular clinic patients in ten years or more to my knowledge; there has been only one amputation for gangrene in that time. The least effective portion of our program is weight reduction. Weight reduction is best when we segregate the overweight patients and lecture to them separately every other week, but even then it is not as good as it should be.

Moss (APPENDIX A, 40) indicated:

The clinic at Georgetown University Hospital follows the program that uses the film strips, posters and records published by the American Diabetes Association in training the clinic patients with diabetes.

Moore (APPENDIX A, 38) stated:

We use the accepted exchange type of instruction now accepted by the American Diabetic, Dietetic and Medical Associations. We present our material to the in- and out-patients through individual conference type instruction. Group teaching is given on an average of once weekly to ambulatory in-patients. Visual aids from the U. S. Department of Health are used for this instruction. We have been able to regulate most of our patients admitted to this hospital with uncomplicated diabetes. Control subsequent to discharge is possibly less successful. Whether

the type of diet instruction used is responsible or some other fault (failure to follow instructions for insulin injection) we cannot say. We have not made any comparison studies on the lowered blood sugar levels with this type instruction compared to the type used before we employed this method.

Oursler (APPENDIX A, 45) commented:

We plan in the near future to start diabetic classes using the slides and material of the American Diabetic Association and there will be instructions by the doctor, nurse, dietitian, and social worker. We are now giving all individual instructions and plan to continue individual instruction, when necessary, along with the classes.

Pollack (APPENDIX A, 52) stated:

The emphasis on the educational program should be towards giving the patient an understanding of his problems and a full explanation of his part in the care of the diabetes. Perhaps, no part of the educational campaign is as important as the prophylaxis and prevention of infections. Patients must be taught not only to give themselves insulin but how to avoid errors in administration. Our own experience has been very similar to those of other clinics where intensive clinical work is carried out. That is a lower incidence of ketosis and a practical absence of amputations amongst our best-trained patients.

Peters (APPENDIX A, 49) remarked:

I do not hold group classes to teach my diabetics, although I believe that education is a most important part of the medical treatment. Since this involves regulation for the total life of the individual, and I think should interfere with normal life as little as possible, it is my firm conviction that a patient should be taught individually, and that education should involve careful analysis of habits, occupation and activities in order that treatment may be adapted to the mode of life. I do not believe this can be done by class work. I am interested in seeing that all patients are as nearly as possible at

optimum weight. Obesity is discouraged as far as possible. You are right in believing that the disease is far more frequent among women.

Perkoff (APPENDIX A, 48) said:

We do not use group education here because of the large volume of indigent practice at our clinic. Each patient is taught a brief calculating system patterned after the American Diabetes Association Meal Planning and Exchange Lists. This has been valuable in our hands as a simple means of encouraging regular dietary habits. Other than its salutary effects on overall management of the patient, it seems unlikely to me that these educational procedures have any specific effect of blood sugar.

Perera (APPENDIX A, 47) commented:

Our methods of teaching diabetics include the usual instructions regarding diet as prescribed by the physician, cautions on avoiding infection, instructions in urine testing, etc. Although stressful situations are known to have small effects on carbohydrate metabolism, this plays little part in routine management.

Ricketts (APPENDIX A, 54) noted:

I hope you will not mind a word of caution as to the reliability of blood sugar tests as an index of control. They represent concrete figures and therefore give the impression of validity which I am not sure is always to be counted upon. In many patients they are quite variable from day to day. Furthermore, the fasting blood sugar does not reflect the effect of meals and it is in the latter connection that much of the variability in the state of diabetes control occurs. A valuable adjunct to the blood sugar levels is the determination of 24-hour excretion of glucose in the urine and I hope you will take this into account in your studies.

Smith, E. R. (APPENDIX A, 59) remarked:

Our educational program in diabetes is largely directed at the middle-aged individual. We emphasize the unknown diabetic and the dangers of having diabetes undetected. We also point out the

increased frequency of diabetes among relatives of diabetics and the obese. Actually we almost find ourselves compelled to use a modification of the "fear technic" to drive people to medical attention.

Shuman (APPENDIX A, 56) stated:

Our patients receive individual instruction in the care of diabetes, and in the diet. For the latter, we employ the food exchange system with the lists being obtained from the Health Publications. We have attempted group classes but find that individual teaching is more satisfactory. If large numbers of patients need to be seen, classes would be a more efficient method. The problem of weight loss is dealt with by the dietitian and physician who see the patients on their repeated visits to the clinic. Probably a film strip or other teaching methods would be more impressive to the patients.

Shutsky (APPENDIX A, 57) noted:

When patients are referred to the Diabetes Clinic after their examination in the Medicine Clinic they are given diet sheets and instruction in the use of medication as individuals.

Saunders (APPENDIX A, 55) commented:

Our diabetics are all charity cases whom we see through the outpatient clinics of Charity Hospital of Louisiana in New Orleans. Their educational level is uniformly fairly low in most cases, and even the better educated ones, who seem to understand the problems of their disease, are not able to afford the type of diet which is best for them. For these reasons, I cannot draw any conclusions as to the effect of education on blood sugar levels.

Toews (APPENDIX A, 62) remarked:

We use the booklet "Meal Planning with Exchange Lists" in instructing the diabetic patient. We have meetings including demonstrations of the diabetic diet. We are not able to say this affects the blood sugar.

Woodward (APPENDIX A, 66) wrote:

In the autumn and spring, the Philadelphia Metabolic Association has an Open Forum at the County Medical Society to which the public is invited. The autumn one is on the day the Detection Drive begins. As you know that Drive is national. A physician on our Board takes charge of it in Philadelphia and twenty-nine hospitals and some large industries cooperate in giving free urine and blood sugar tests. These tests are for relatives of diabetics or for people who think they may have it. Our Forums are conducted by one of the physicians on our Board. There is usually a speaker who gives a talk on some aspect of diabetes, occasionally a diabetic movie, and then the Forum, when the audience ask questions which are answered by a panel of physicians who are on our Board. The Forum notices are sent to all members and a large mailing list. The Philadelphia Dietetic Association always exhibits menus and recipes. The largest audiences come for a movie.

Jenne (APPENDIX A, 31) remarked:

We have never attempted to measure the effect of our program and I believe that your project will be most valuable. I rather suspect that the individuals who participate in the educational programs are those who would do the best job of regulating their diabetes under any circumstances.

Wilkins (APPENDIX A, 96) stated:

The more educated the individual is (that is diabetic education, not necessarily school education) does bring about a better controlled diabetic. We attempt to make diabetes as simple as possible to eliminate any feeling of insecurity.

Walton (APPENDIX A, 94) noted:

You are probably well acquainted with the teaching program conducted by Dr. E. P. Joslin and his staff. I saw there the finest teaching program for diabetic patients that I have seen anywhere. Dr. Joslin has been, of course, an outstanding leader and has the ability to teach but it seems to me that his concern for the welfare of the diabetic patient has prompted him to

devote considerable time and effort in developing a teaching program that has enabled a large number of diabetic patients to become very intelligent in personal care. In fact, Dr. Joslin uses diabetics who are well informed to teach other diabetics.

Peterson (APPENDIX A, 68) stated:

If one would go "full circle" with the question you propose, I think you would conclude that diabetic patients teach doctors how to teach other diabetics, how to manage their care. Two sidelights on this might be that for the most part physicians who care for diabetics have been taught by other physicians who have had some experience in this field. A second sidelight is based on my own experience in that much of what I have learned has come from other patients who have helped me from their mistakes and from mine. I am becoming more certain as time passes that one of our prime responsibilities in the medical school is to teach students how to observe carefully and to think about what they see so that they can learn from whatever situation they encounter. If this is well done, there should be no end to their instruction as they continue to practice.

Gates (APPENDIX A, 18) remarked:

We do not conduct group classes for diabetic patients. We had them in the past and they were discontinued because of difficulty in scheduling them at a time convenient for both patient and doctor, not to mention the dietitian. We have no data concerning the results of the fasting blood sugar level of the patients who attended our classes.

Nelson (APPENDIX A, 58) said:

Our basic degree students in giving total nursing care must be teachers of health to every patient. We use many methods in helping a student of nursing how to teach the patient to care for himself. Class room, clinics symposia and panel discussion are methods used. In the sophomore year study guides give direction to the student in both study and health teaching. In

the senior year each student prepared a health teaching manual on a topic pertinent to a condition for some literate patient.

Larsson (APPENDIX A, 44) remarked:

Pregnancy in a diabetic is always a hazard, particularly for the infant. Vascular disease is common in the diabetic woman and vascular disease predisposes to toxemia and eclampsia. When a diabetic comes to me for maternity care, I always have an internist take care of the diabetes as that is one of the important features for the successful outcome for mother and child.

So many of the diabetic infants die in utero the last two to four weeks of pregnancy, therefore, we feel the pregnancy should be interrupted somewhere around the 36th or 37th week of gestation, either by induction of labor or by cesarean section. The immediate care of the infant is of greatest importance and is usually done by a competent pediatrician.

Dukelow (APPENDIX A, 13) stated:

When one is considering a team that can be concerned with the health appraisal of school age children the team must include not only the physician and the nurse but also the school teachers and administrators and the parents. Both teachers and parents are able to make observations and to detect behavior that is different from what could be considered normal. Though they may be unable to make a diagnosis, their accurately recorded observations are valuable to the physician who can make a diagnosis. They also can be of considerable assistance in carrying out any corrective measures if the physician, either directly or through a school physician, is able to interpret to them their role in the improvement of a given child's health.

The reply by April from the Department of Health, Education, and Welfare (APPENDIX A, 1) on group classes, for the patient with diabetes, indicates the stand taken

by state Public Health Departments:

As to the problems of diabetes education, a number of diabetes detection drives which are accompanied by public education campaigns have been undertaken by voluntary health agencies and State and local health departments in co-operation with the American Diabetes Association and/or the Public Health Service. In many cities courses are being given to diabetics and their families. Our own Division of Chronic Disease and Tuberculosis has a consultation team which assists health agencies in establishing diabetes control programs.

Piper (APPENDIX A, 51) enclosed a "list of the location of classes in California, Oregon, and Washington."

<u>California, City or Town</u>	<u>Sponsoring Agency</u>
Los Angeles	L.A. County Hospital
Los Angeles	White Memorial Hospital
Los Angeles	Cedars of Lebanon Hospital
Los Angeles	White Memorial Clinic
Riverside	Riverside County Hospital
San Francisco	St. Mary's Hospital
San Francisco	V.A. Regional Office
Oakland	Highland Hospital
Oakland	Permanente Foundation Hospital
Sawtelle	V.A. Hospital
Fresno	V.A. Hospital
Livermore	V.A. Hospital
Long Beach	V.A. Hospital
San Fernando	V.A. Hospital
 <u>Oregon, City or Town</u>	
Portland	Good Samaritan Hospital
Portland	V.A. Hospital (San Jackson Park)
 <u>Washington, City or Town</u>	
Seattle	V.A. Hospital
American Lake	V.A. Hospital
Spokane	V.A. Hospital
Seattle	V.A. Regional Office

Criteria for Diabetes Clinics.

Summary of proposed criteria on hospital administration in 1945 and conduction of diabetes clinic by the Committee on Clinics of the American Diabetes Association (8, Vol. 5, pp.30-31) is

1. Provision for adequate instruction for nurses in insulin administration, collection of urine specimens, recognition and treatment of hypoglycemia, and of diabetic acidosis.
2. Provision for urine analysis for sugar and diacetic acid so that reports on such specimens may be obtained within a few minutes after the urine is voided. Bedside urine analysis for sugar and diacetic acid should be encouraged.
3. Adequate clinic care of diabetics requires the availability of hospital beds.
4. It is suggested that pamphlets on the following subjects be prepared and distributed on request at cost price:
 - a. Outline for a nursing course in diabetes.
 - b. Manual for the establishment and conduction of a diabetes clinic.

Since the methods used by various diabetes clinics differ so from one another, Mosenthal (8, Vol. 5, p.30) suggested in 1945:

1. The clinics should be operated on an appointment schedule so that each patient or group of patients shall receive adequate attention.
2. A social service department for aid in management, treatment and follow-up of patients should be available.

3. Provision should be made for:
 - a. laboratory for immediate urine analysis.
 - b. instruction in dietetics.
 - c. instruction in insulin administration.
 - d. laboratory for blood sugar determination and other blood chemistry.
4. Manual for the establishment and conduction of a hospital metabolic unit.

Education of the Diabetic Patient and His Family.

Various authorities (8, Vol. 5, pp.30-31; 85, p.1;7) and experts on the education of the patient with Diabetes Mellitus suggest the following ways of evaluating the effect of different educational procedures in the treatment of Diabetes Mellitus:

1. What Should the Learner be Taught?

- a. Attitudes.
 - (1) Palmer (APPENDIX A, 46) - "there must be a philosophy of the diabetic life," (75, pp.351-353; 76, pp.502-507).
 - (2) Stieglitz (91, pp.482-486) - personal-social adjustment for the older adult afflicted with a chronic disease.
 - (3) Tolstoi (94, pp.485-494) - understanding the importance of physician's evaluating the progress of the disease.
- b. Knowledges.
 - (1) Mosenthal (70, pp.79-90) - management of diabetes by present day methods; i.e., diet, exercise, and illness.
 - (2) McCulloch and Zwickel (72, pp.1031-1033) - routine laboratory tests, their use and value.
 - (3) Adlersburg and Dolger (1, p.418) -

nature, strength, dosage, and administration of insulin (77, pp.7-9).

c. Concepts.

- (1) Dietary calculations, alternates for foods allowed and menu planning (85, pp.1-6).
- (2) Control of complications (57, pp.209-213; 41, pp.183-190).
- (3) Urine analysis, blood sugar determinations, and control of the blood sugar levels by adherence to a stipulated program (103, pp.1-459).

2. Where Should the Learner be Taught?

- a. In group classes (85, pp.1-15; 46, p.5; 43, pp.527-530).
- b. In the clinic or outpatient department (59, p.15).
- c. In the physician's office (7, pp.1-79).
- d. In the hospital (33, p.4; 59, p.15; 55, pp.1-9).

3. What Methods Can One use to Teach the Learner?

- a. The paucity of the literature made it important to use different educational procedures by this investigator, and to employ different members of the health team as the personnel principally concerned in the direction of the instruction.

Survey of Educational Procedures Used in This Study.

Group II members were given instruction by members of the clinical team beginning in January 1951, at the White Memorial Hospital and Clinic, College of Medical Evangelists, Los Angeles. Organized education was

classified as: Large group classes, small group classes, special classes, and other educational activities.

Educational Procedures in the Large Group Class by the Physician and the Dietitian as the Personnel Principally Concerned in the Education of the Patient.

Large group classes.

Letters (APPENDIX A) were sent to all patients registered in the diabetes clinic, and twenty-five patients and family members attended a planned series of weekly classes offered for ten weeks. A certificate of attendance at all classes was awarded to fifteen of the initial twenty-five patients.

Ford (43, pp.527-530), in 1947, had reported the results of the Jacksonville project. He had taught 650 patients approximately eighteen months. The first principle he used was simple, non-technical language. A second teaching principle was the stimulation of discussion and group decision among patients. Third, he developed educational aids stimulating not only the auditory, but the visual, touch and motion senses. Fourth, he developed teaching technics by having the patient actually perform the needed tasks. He recommended eleven classes, of one and one-half hours in length, sponsored by the demonstration unit of the Florida Public Health department. The instructors were the physician and the public health

nurse. In this public class there was an informal atmosphere. Drop-outs were noticed after the first six classes. Local practitioners had recommended the class to their patients. The topics covered were five classes on diet, two classes on insulin, one class on complications, and one on chemical tests. Two classes were of a general nature with the recommendation that the patient's greatest need for information was on diet, insulin and care of the feet.

Guiding principles in the establishment of the large group class teaching approach, by the physician and the dietitian in the diabetes clinic, were slightly divergent from those of Ford (43, pp.527-530). The principles of teaching by the medical team were:

1. Use technically exact language and do not talk "lay" terms such as calling Diabetes Mellitus "sugar diabetes."
2. Present an organized, planned, and sequential discussion leading to a grasp of concepts and principles rather than an open discussion for problems of the group. Special problems were discussed with the individual patients.
3. Use multisensory aids, with special attention to the teaching devices for the handicapped in vision.
4. Start with orientation and patient participation, aided by the family members.

5. Maintain a formal atmosphere by holding the class in a room especially provided with facilities of the amphitheatre used by medical students.
6. Announce the classes by letter (APPENDIX A), and class schedule which follows.
7. Restrict the classes. No private patients of physicians or the general public were allowed to attend--only regularly registered patients. There was no admission fee.
8. Plan class content before sessions. The physician and the dietitian were the chief personnel engaged in the teaching of the diabetic patient in the large group class. The topics included those which are described in the lesson plans which follow. The topics of greatest interest were given the most time, namely, diet, complications and insulin administration.
9. Provide additional material for special needs. Supplementary material was provided for those who had discovered a problem as an outcome of the weekly discussion.
10. Motivate the group with national publicity. The classes were correlated with the National Diabetes Detection Week program,

and started during that week. They continued for three months, ending in late January 1952.

Class Schedule

Problem Areas

1. Definition of terms; overview and orientation: What lies ahead now that I have Diabetes Mellitus?
2. Etiology and physiology of Diabetes Mellitus: Discussion of obesity. What are some possible pathways that lead to this condition?
3. Getting the care and control or regulation started: Good physical, mental and emotional hygiene regimen. What relation is there between exercise, diet and insulin?
4. Dietary management: What are some principles of a diabetic diet?
5. Food management: Demonstration of foods according to major contributions. Discussion of carbohydrate metabolism.
6. Meal management: How can I calculate a diet and plan menus? What can I substitute for various foods?
7. Insulin: What is the mode of action of various insulins?
8. Complications: Care of the feet, infections, skin hygiene. What physical measures and external factors should be controlled?
9. Travel, physical exercise and work, and adjustments to variations in the routine: What can I do when going on a trip to maintain my diabetes control?
10. Books and magazines that keep you up to date. Getting ahead on organizing your life with

Diabetes Mellitus: Review of the cardinal principles of Diabetes Mellitus.

Philosophy.

The health educator in a diabetes clinic is interested in providing to every diabetic patient an opportunity for increased knowledges, concepts and learnings that will broaden and deepen his experience.

General objectives.

First, to provide the patient with a knowledge of symptoms, conditions, and diseases concurrent with diabetes that affect satisfactory personal performance and lead to more rapid development of the complications of diabetes.

Second, to set up teaching situations in which the past experiences could be examined in the light of present methods of management of the diabetes, such as newer types of insulin syringes.

Third, to supply information on which to help the family to base judgment on the severity of the symptoms in the patient, such as insulin reaction; and to equip the patient with skills which he could intelligently apply to life situations as they arose.

Content areas and topics.

The ten lessons will be described in detail at the close of this overview of the large group classes. The content was the subject matter which appealed to the patients attending the diabetes clinic, represented the specific gaps in their information as revealed by interviews, and had been clearly distinguished as needed knowledge in the pre-planning conferences by the medical team. Diet, insulin and complications were the three major areas of concern.

Methods and approaches.

The problem-solving method and case conference approach were used in these seminar-type classes. Discussion was led by the physician. The dietitian presented teaching materials to supplement the orientation material which had previously been distributed to all patients at the time of their initial visit to the dietary department of the diabetes clinic.

Selecting examples from the current charts, the physician presented case histories which individual patients in the class could visualize, since names were withheld, but the case study was timely and accurate.

The forms used in the Diabetes Clinic (APPENDIX D) furnished the topic outline for such a discussion. The social history survey form (APPENDIX D) brought out the

types of economic-social problems which were solved within the diabetic population.

Material for distribution.

Commercial booklets in English and Spanish on insulin and diet.

Professional reprints on care of the feet.

Medical articles on general health habits.

Clinical materials such as identification cards from the pharmaceutical supply houses.

Visual aids developed by public health nurses.

Diet lists and exchange lists from the Diabetes Section, United States Public Health Service.

Mimeographed material on diet developed by the nutritionist.

Evaluation of what the patient had learned.

Oral pre-testing of individual patients presenting problems started the preliminary questioning by the physician and the dietitian as the principal personnel presenting the instructional information. Relatives of the family members were consulted on the patient's response to insulin administration, preparation and service of the prescribed diet, and the control of current illness or complications. The daily urinalysis was another source of information on the control of the diabetes which was used to add more motivation to following the program. Periodic health examinations and fasting blood sugar determinations were recorded in the chart. The evaluation is completed in the

Tables in the section on data.

Techniques used in teaching.

Visual aids used are periodicals, magazine articles, local displays, photography, diabetic textbook illustrations, prints and etchings, cut-outs, charts, graphs and tables, pictorial statistics, posters, diagrams and chematics, opaque projections, lantern slides, phonograph records, electrical transcriptions, radio broadcasts, food models, objects, blood samples, urine specimens, food collections, illustrated booklets, and food scrapbooks.

Every tested and approved clinical method known in giving diabetic instruction was used. The purpose of the visual teaching was aimed at providing insights into the problems the patient needed to master. He needed the mastery of the knowledge to help solve the current problem and adjustment to new health practices. The purpose of direct teaching was basically to arouse the patient and direct his behavior into channels which were more desirable. By measuring the patients' health skills, useful health habits, health concepts and understandings, acceptable attitudes, personal values and appreciations and critical mindedness, the various diabetic instructors could direct the teaching program to meet the individual patient needs. The more difficult subjects, such as adjustment of the level of insulin, were brought into the realm of

comprehension by multiple sensory teaching aids.

The fact that the foreign born found difficulty in the use of abstract symbols of reality made the vicarious learning through words most limited. Mechanical representations of reality were possible by the use of multi-sensory tools fitted to the patients' level of learning. Immediate sensory contacts with reality were the first-hand experience such as measuring and taking their own dose of insulin. Thus direct experiencing was possible to all those on quantitative diabetic diets, and those taking a known amount of insulin.

Books on diabetes care and treatment were circularized in the classes. Abstract symbols in diabetic literature were limited. Many textbook illustrations are used. Synthesis of direct experiencing, vicarious experiencing, and symbolized experiencing appeared to be necessary. The symbols on the abstract level were appropriate to the experiences of the exceptionally gifted adolescent child.

Verbalisms were reduced to a minimum because of the unequal educational opportunities that existed within the population. Imitation of what the demonstrator showed was the first method used in administration of insulin. The interesting, vivid, visual, scientifically illustrated materials were distributed to all patients. In the discussion of these lay materials the illustrations were related back to the actual demonstration. Teaching aids

were assembled in a demonstration room. Everything was related to the whole diabetic routine with the aim of showing the interaction of each of the topics to their behavior such as the control of complications.

Lesson Plan No. 1

Title: Definition of terms; overview and orientation.

Objective: To present the general information, overview and orientation on the study of Diabetes Mellitus. What is diabetes?

- Content:
1. Diabetes is a disease known to the medical profession as Diabetes Mellitus. There are other kinds of diabetes. Lay people may call it "sugar diabetes," meaning in a very indirect way that sugar passed through the kidneys and appears in the urine.
 2. Etiology from the clinical viewpoint. Diabetes is a universal disease with a non-specific etiology.
 - a. Suspect those who are overweight, give a history of diabetes in the family, or give a history of glycosuria at any time.
 - b. Suspect those who give a history of gall bladder disease, vulvar irritations, cutaneous infections, chronic ulcerations, delayed wound healing, retinopathy, cataract, neuritis, eye complications, carbuncles, gangrene of the leg and other special conditions.
 3. Hereditary factors and familial characteristics. Some of the present conceptions of the causes of Diabetes Mellitus are: insulin deficiency due to (a) decreased output and (b) alterations in tissue.
 4. Endocrine imbalance and glandular influences. There are different kinds of glycosuria:
 - a. Alimentary glycosuria
 - b. Psychic glycosuria

- c. Adrenaline glycosuria
 - d. Renal glycosuria
 - e. Pancreatic glycosuria
5. Epidemiology. Diabetes is common. Diabetes comes to all classes, especially the well-to-do and the intelligensia.
 6. Incidence. Incidence is highest where the average age is oldest. It occurs in middle life more frequently than in infancy or adolescence. Slightly more women than men have this condition, approximately three women to two men.
 7. General information on Diabetes Mellitus.

Lesson Plan No. 2

Title: Etiology and physiology of Diabetes Mellitus.

Objective: To relate the definition of Diabetes Mellitus to the symptoms, detection, incidence, and complications.

Content: 1. Etiology and physiology of Diabetes Mellitus
Discussion of obesity. What are some possible pathways that lead to this condition? What were your symptoms?

a. The causation or etiology is unknown.

(1) Overweight is an exciting cause in diabetes. Obesity is secondary malnutrition. Education of the obese diabetic is paramount. The basic approach in chronic disease control is prevention. Diabetes Mellitus is a chronic degenerative and metabolic disturbance with nutritional implications. You are a diabetic forever. You are to be on your own diabetic program all of your life.

(2) Theories as to possible causes.

b. History of Diabetes Mellitus.

(1) Pre-insulin care.

- (2) Experimental approaches.
 - (3) Clinical treatment.
- c. Classical symptoms of diabetes.
Three basic symptoms are:
- (1) Polyuria, meaning increased excretion of urine, and also increased fluid loss.
 - (2) Polyphagia, meaning increased hunger due to the inability of the body to utilize glucose.
 - (3) Polydipsia, meaning increased thirst due to the increased excretion of the fluid by way of the kidneys.
- d. Classification of Diabetes Mellitus and physiology involved in these types: Juvenile or unstable variety called brittle Diabetes Mellitus, senile or adult variety of Diabetes Mellitus, obesity-type diabetic syndrome, endocrine type-diabetogenic complex in the pituitary type, parenchymal hepatic disease, and parenchymal pancreatic disease.
- e. All chronic diseases require a philosophy of control. You need a long-range view of the management of your diabetes. Diabetes Mellitus is something you have to learn to live with. You may fail due to compromise. Learn to accept your condition.
- f. General discussion of overweight and physiology.
- (1) Charts showing body build. Frame is a factor in weight distribution and approximate need for reduction.
 - (2) Physiology. Weight consists of blood, interstitial fluids, active protoplasmic mass, and adipose tissue or fat.

g. Food for the overweight diabetic. It is important that the obese know what amount and kind of food to eat.

- (1) A diet for weight loss is a planned diet. A "fixed" diet is not possible to follow. It is very valuable to have a diet pattern, but it is not wise to have a diet that cannot be varied to fit the circumstances of the individual.
- (2) Each diet is individually planned and the food adjustments are made to fit your needs. Have you ever tried to stay on a diet? How long?
- (3) Each patient should have a knowledge of how a normal person should eat. This kind of knowledge may introduce a radical change in his life. You will develop a philosophy of life as you live with your diabetes. Bad food habits may have been an insidious determinant of obesity.

h. Dietary specifications for normal weight.

- (1) The diet must be nourishing and well balanced.
- (2) It is desirable to be restricted in sugar.
- (3) It should be palatable and there should be a variety.
- (4) It should be a quantitative diet.
- (5) The patient should be willing to accept this diet.
- (6) The patient's activity is considered.
- (7) The meal distribution is related to the kind and the amount of insulin.
- (8) The cost is the same as any normal diet.

- (9) There are no foods for the diabetic. Certain types of foods are limited.
- (10) Diabetes education on diet is continuous. The patient must understand his diet. He must be willing to follow it. The family must be able to afford it.
- i. Typical diet for the underweight. This diet must make the patient gain up to within ten per cent of his expected weight. The diet is given to teach new concepts about food values and the importance of food exchange. (See Chart 1 on the following page)

Lesson Plan No. 3

Title: Getting the care and control or regulation of the Diabetes Mellitus started.

Objective: To understand the role of the patient in accepting the responsibility of the control of this chronic illness.

Content: Beginning good physical, mental and emotional hygiene regimen. What relation is there between exercise, diet and insulin?

- 1. One of the immediate indices of control is the present fasting blood sugar level. There is a characteristic rise in the blood sugar level curve with age, and a marked acceleration in the sixth and seventh decades of life. Discussion of the fasting blood sugar level.
 - a. In our clinic the normal fasting blood sugar is 80-120 mg. per cent. A high fasting blood sugar level is above 130 mg. per cent.
 - b. Discussion of renal threshold. A rising blood sugar will not always be evidenced by the presence of sugar in the urine.
- (1) Show diagrams of glucose tolerance curves.

CHART 1

NUTRITIONAL AND DIETARY REGIMEN COMMON TO DIABETES MELLITUS

<u>Low Caloric</u> <u>800-1000 calories</u>	<u>Normal Caloric</u> <u>1500-1800 calories</u>	<u>High Caloric</u> <u>2500-3000 calories</u>
(Minus -)	A.M.	(Add +)
	Fruit	+ extra portions
	Egg	
-	Bread or cereal .	+ larger servings
-	Table fat	+ two pats extra, or cream
- fat	Milk	
	NOON	
	Fruit	
	Protein equivalents	
	Vegetables . . .	+ higher carbo-
	low and moderate	hydrate and
	carbohydrate	starchy foods
	raw-negligible	in quantitative
	starch values	amounts
- oil	Seasoning: table-	
	fat limited to	
	mayonnaise . . .	+ larger servings
		oil and fat
- fat	Milk	
	NIGHT	
	Fruit	+ More large
	Protein equivalents	servings
-	Starchy food . .	+ extra bread, butter
	Vegetables, raw and	
	cooked	+ extra seasoning, i.e. oil or may-
		onnaise for
- fat	Milk	dressing
	All diets limit	
	concentrated sweets	
	Quantitative uni-	
	formity and regularity	

2. Equipment important in the administration of insulin.
 - a. Equipment: alcohol, cotton, syringes and insulin.
3. Types of insulin shock:
 - a. Severe - with convulsions and unconsciousness.
 - b. Moderate-severe - patient is emotionally unstable.
 - c. Mild - easily corrected.
 - d. Very mild - relieved by rest or small amount of food.
4. Causes of insulin shock.
 - a. Taking too much insulin.
 - b. Underestimating the amount of food.
 - c. Unusual amount of exercise or work-- exertion physically.
 - d. Delay in eating food or serving at irregular times.
 - e. Not absorbing the food, as in diarrhea.
5. Equipment and care of equipment important in the administration of insulin.
 - a. Keep insulin in a cool place, but do not let it freeze.
 - b. Be sure that you are using the specific type of insulin that has been ordered for you at the time of your last appointed visit. You will need to have a regular pharmacist fill your prescription, note the date on your bottle, note the color of your bottle. Periodically bring in all of your insulin equipment and make sure that you are following the directions.
 - c. Try to keep more than one syringe on hand.

- d. Keep a supply of sharpened needles on hand, and keep those that you are using in 70 per cent alcohol. Boil the needle and the syringe when you get them, place them in a container with 70 per cent alcohol, and periodically boil them, changing the alcohol before replacing in the container.
 - e. The new regulation syringes are more convenient than the ones which you may have on hand, replace the former by the latter.
6. The experience of the patient was made more meaningful by:
- a. Experiencing the injection of insulin as given by a physician.
 - b. Seeing a picture or model of the insulin equipment and actual equipment.
 - c. Being told about the insulin injection by members of the health team and results of overdosage.
 - d. Reading about the injection, using complicated charts and diagrams, verbal symbols, abstractions involved in words used to denote qualities, events, processes, relationships, and associated conditions.

Insulin insufficiency is a cause of coma.

- (1) Not enough insulin
- (2) Not enough insulin taken
- (3) Insulin is less effective in coma and also in infection and emotional hyperglycemia
- (4) Increased demand for insulin in
 - (a) Exhaustion and excessive work leads to increased metabolism
 - (b) Hyperthyroidism
 - (c) Fever

CHART 2
INSULIN THERAPY

Relative Time Actions					
Type	Onset	Peak	Duration	Indications	Precautions
Regu- lar & Crys- talline Zinc	$\frac{1}{2}$ -1 hr.	3-5	6-8 (-12)*	Emergencies as coma, infection, surgery, supple- mentary	Eat soon after in- jection; equal meals equally spaced
Globin	1-2 hr.	6-11	15 (-24)	Daytime glycosuria	Mid after- noon food
NPH	2 hr.	7-10 (10-20)	28-30	Daytime glycosuria; moderate to severe dia- betes re- quiring more than 30-40 U	Meal dis- tribution 1/5 2/5 2/5 plus night feeding. Increasing slowly - 5 units every third day
PZI	6-8 hr.	(12) 16-24	24-48	For basic insulin for cumulative effect in mild dia- betes	Same as above. No single dose over 40 units

*Parentheses indicate other time actions claimed by some.

Lesson Plans No. 4, 5, and 6

Title: Unit on dietary management. What are some principles of a diabetic diet?

Objective: To understand the part diet plays in the control of diabetes.

Content: How can I calculate a diet and plan menus? What can I substitute for various foods? Demonstration of foods according to major contribution; discussion of carbohydrate metabolism.

1. Chemical interplay and exchanges that are possible between various nutrients.
 - a. Chemical utilization of the end products of fuel-yielding materials.
 - b. Complex interaction and interrelationships in the fuel foods.
 - (1) Calories and fuel sources suitable to a diabetic.
 - (2) Protein and nitrogen containing materials.
 - (3) Carbohydrates of a concentrated variety.
 - (4) Non-diffusible carbohydrate is cellulose.
 - (5) Fats. Discussion of animal fats and cholesterol.
 - (6) Vitamins and nutritional status.
 - (7) Minerals and trace elements.
 - (8) Water and oxygen.
 - c. Physiological states as they increase the need for or change the various types of foods.
 - (1) The pancreas contains a group of islet-like cells, Beta cells of the Islands of Langerhans, that secrete insulin. The supply is somewhat influenced by the demand. In the normal individual an elevated blood sugar causes the mobilization of insulin. The diabetic patient who needs insulin meets his need by dietary regulation and insulin injections.
 - (2) Special diets: overweight and underweight.

- d. Interpretation of food exchanges.
 - (1) Relation of insulin and diet to body mass.
 - (2) Relation of food requirement or order to good choices in allowed alternates.
 - (3) Calculation of a sample diabetic diet. Calculation of a specific diet order.
 - (4) Meal planning, preparation plans for marketing.
 - (5) Demonstration of various food exchanges.
 - (6) Meal time preparations for those who are taking insulin.
- e. Food for the whole family to be used by the diabetic.
 - (1) The importance of a normal diet for the entire family.
 - (2) The importance of modifying the selection of the eating habits of the family to that for the specific food order of the diabetic patient.
 - (3) Understanding the food values of the carbohydrates in terms of allowed foods.
 - (4) Understanding the food values of the proteins in terms of allowed foods.
 - (5) Understanding the food values of the fats in terms of allowed foods.
 - (6) Demonstration of the exchange portion of various foods on the actual diet.
 - (7) Emergency foods and resultant calories.

General areas of discussion in Lesson Plan No. 4.

1. Food as a source of fuel constituents and modifications in energy requirements.
 - a. Carbohydrate
 - b. Protein
 - c. Fat
2. Food as a source of available minerals and functional forms of the vitamins and modification of balance of constituents.
 - a. Common minerals - relative availability
 - b. Trace elements and less often calculated ash compounds.
 - c. Water soluble vitamins and deficiency states.
 - d. Fat soluble vitamins and deficiency states.
 - e. Interrelationships with vitamins and members of the metabolic pool.
3. Interrelationships between various food constituents.
 - a. Protein supplementation.
 - b. Conversion of protein and carbohydrate to fat.
 - c. Interrelationships between vitamins and amino acids.
 - d. Interrelationships between vitamins and carbohydrate metabolism.
 - e. Interrelationships between various vitamins.
4. Planning the protective adequate diet and modifications of consistency.
 - a. Recommended dietary standards for individuals and groups.
 - b. Expressing the dietary daily needs in protective food groups.
5. Reducing losses during food preparation.

6. Nutrition concepts in pregnancy and lactation.
7. Nutrition concepts for infants and growing children.
 - a. Increments during periods of growth.
 - b. Feeding suggestions.
8. Nutritional concepts for school children and the adolescent.
9. Contributions of nutrition to dental problems.
10. Contributions of nutrition to budget problems.
11. Racial differences in dietary selection.
 - a. Recommendations in terms of national habits (socio-economic factors).
 - b. Alterations according to food selection, preparation and service in food values.
 - c. Adaptation of a so-called American diet to their environment.

General areas of discussion in Lesson Plan No. 5.

1. Sources of carbohydrate.
 - a. Dietary.
 - (1) Digestion
 - (2) Mechanism of absorption.
 - (3) The biological value of dietary sugars.
 - b. Gluconeogenesis.
 - (1) In liver and kidney.
 - (2) Mechanism of sugar formation.
 - (3) The concept of the so-called metabolic pool.
2. Metabolic fate of carbohydrates.
 - a. Transformation into specific carbohydrates.

- b. Glycogen formation.
 - (1) In liver and muscle glycogen.
 - c. Amino acid, fat and sterol formation.
 - d. Glycolysis.
 - (1) Sugar as a source of energy concept.
 - (2) Intermediary metabolism.
 - e. Antiketogenic action.
 - f. Specific nutritive effect.
3. Blood sugar regulation.
- a. Hyperglycemia - fasting blood sugar value above 200 milligrams per cent.
 - (1) The diagnostic value of alimentary hyperglycemia and Staub effect.
 - b. Hypoglycemia - fasting blood sugar value below 70 milligrams per cent.
 - c. Excretion of carbohydrates in urine.
 - (1) Need for daily urinalysis tests.
4. Effect of insulin.
5. Regulation of insulin secretion.
6. Factors involved in development of clinical diabetes.
7. Diet therapy of diabetes.
8. Diabetic acidosis.

General areas of discussion in Lesson Plan No. 6.

- 1. Objectives in dietary management.
 - a. To save time, energy and materials.

- b. To conform to a concept of diet and nutrition instruction which leads to the optimum nutrition for the lowest cost.
- c. To provide basic menu patterns, meal structures and group nutrition outlines which meet individual recommended dietary needs.
- d. To prepare palatable menus using fruits, grains, vegetables, meat, legumes and other groups in the exchange lists.

CHART 3

QUANTITATIVE FOOD ALTERNATE LIST

Sample Fruit List

Equivalent to 100 grams of 12 per cent fruit measured out in household measuring cup. Below is a list of fruits allowed in the amounts conforming to the face sheet. Each portion indicated below is equivalent to one orange and furnishes about one gram protein, no fat and 12 grams of carbohydrate. If the face sheet calls for two from the fruit list, use twice as much of any one item or use two items. All fruits are fresh or canned without sugar.

Per cent	Fruit	Amount
15	Apples, fresh	$\frac{1}{2}$ medium
12	Applesauce, canned, juice packed	$\frac{1}{2}$ cup
High	Applesauce, from dried or dehydrated apples, thick	$\frac{1}{3}$ cup
6	Blackberries, canned, water packed	1 cup
18	Cherries, dark sweet	7 large
High	Figs, Kadota, dried	1
12	Oranges	1 medium
9	Pears, canned, water packed	1 small
12	Pineapple juice, fresh or canned	$\frac{1}{2}$ cup
High	Prunes, Italian, dried	2 (size 40-50)
18	Pomegranates	$\frac{1}{4}$ cup

2. To show how to calculate diets, chalk board patterns are used to illustrate caloric requirements in actual food groups.
 - a. 1000 - demonstrate a three-day menu plan in seasonal, low cost foods.
 - b. 2000 - demonstrate a three-day menu plan in seasonal, low cost foods.
 - (1) Meal preparation involved in preparing food for yourself and for your family.
 - (2) Emergency measures such as exchanging solid foods for liquid foods.
 - (3) Initial weight stabilization and the need for constant weight after the end of the reduction diet period.
 - (4) Appetite control and habit control as factors in prevention of the return of that excess weight.
 - c. Foundations for food selection.
 - (1) To show the relationship of the diet in the total metabolism and especially the seeming relationship between food source and the ease of control of the diabetes.

Lesson Plan No. 7.

Title: Insulin and insulin equipment, hypoglycemic shock, insulin allergy, insulin resistance. What are the modes of action of various insulins?

Objective: To provide information on insulin administration.

Content:

1. Hypoglycemic shock - insulin allergy, insulin resistance and reasons for insulin reaction.
2. Discussion on the types of insulin syringes and the relation of time of taking insulin to a reaction to insulin.

3. Demonstration of the correct technique in administration of PZI, NPH, Plain, Crystalline and Mixtures.
4. Review of the role of insulin in the control and treatment of diabetes.
 - a. What is the mode of action of various insulins?
 - b. What is a unit of insulin? What does U 20 mean? U 40? U 80? U 100?
 - c. What are the kinds of insulin? What is an insulin tolerance test? How can a blind person give himself insulin?
 - d. What are the kinds of insulin syringes? What are the colors in syringes? How does one sterilize a syringe? How should it be stored? What is the official insulin syringe?
 - e. How can you know when you have not had enough insulin?

Lesson Plan No. 8.

Title: Complications.

Objective: To furnish information on complications.

- Content:
1. Coma used to be "just around the corner" for most diabetics. Acidosis can be prevented. Can you test for acetone? It is our aim to prevent or delay the end result of diabetes, and by proper control the incidence of some of the complications could be delayed or cease to have exacerbations--i.e. in 64% of the 1900 (A.D.) diabetics there was coma, now there is a 2% incidence.
 2. Care of the feet and skin hygiene. Peripheral - vascular problems of the diabetic.
 3. Infections. What physical measures and external environmental factors can be controlled? Can fungus infections be controlled?

4. Diseases common to man that are listed as the ten leading causes of death in the U.S.A. Do diabetics live as long as others?
5. Complications peculiar to the diabetic patient --obesity.
6. Complications of maternity patients, in the diabetic group.
7. Complications of the young diabetic. Brittle diabetes and juvenile diabetes.
8. Eye problems of the diabetic. Cataracts as a complication.
9. Impaired kidney function and nitrogen retention as a complication. Cardio-vascular-renal difficulties in the older-age diabetic.
10. Malnutrition and avitaminosis. A combination of insulin and expert diet therapy renders optimal results. Many mild and moderately severe cases can be satisfactorily maintained without insulin by the proper application of diet therapy. The non-insulinized patient may need insulin at certain periods of stress and strain such as:
 - a. Traumatic experiences, stresses and strain.
 - b. Infections of long standing that make tissue damage great and the need for raising the food requirement important, and insulin would allow for the better utilization of food.
11. Case presentation and discussion.
 - a. Pregnancy as a condition in diabetes is becoming less of a hazard.
 - (1) What are the maternal and fetal hazards?
 - (2) Should supportive ovarian hormonal therapy be given routinely to all pregnant diabetics if the condition demands it?

(3) Should the fetus be delivered prematurely from diabetics?

b. Eye complication in diabetes.

(1) In what ways are the eyes affected in diabetes?

(2) What can be done to prevent the eye complications of diabetes?

(3) Discuss the prognosis and treatment of diabetic retinopathy.

c. Insulin reaction.

Specific Example of a Card Diabetics Carry

Front View

DIABETIC IDENTIFICATION

Important--My diet and insulin record are shown below. An insulin reaction may be shown by a bewildered, dazed or unconscious state. Sugar in any form is the antidote and should be given immediately.

Call the Nearest Doctor

My Daily Diet is:

_____ Gm. Carbo
 _____ Gm. Prot.
 _____ Gm. Fat

My Daily Insulin Dose is:

A.M.	Noon	P.M.
_____ Units	_____ Units	_____ Units
_____ Units	_____ Units	_____ Units

Type Insulin _____

My Name _____	Phone _____
Address _____	City _____
My Doctor is _____	Phone _____
Address _____	City _____

Back View

I have not been drinking.

My behavior during a severe insulin reaction may resemble that of an intoxicated person. Sugar or candy should be placed in my mouth. A physician should be called IMMEDIATELY or send me to a hospital.

SYMPTOMS OF INSULIN REACTION

Early Symptoms

Trembling, sweating, weakness, drowsiness, headache, nausea, numbness, tingling of mouth and fingers and blurring of vision.

Late Symptoms

Double vision, loss of memory, loss of surroundings, convulsions, and unconsciousness.

This card available upon request.

Ames Company, Inc.
Elkhart, Indiana

Makers of Clinitest Reagent Tablets

d. Extremities in diabetes.

- (1) What are the causes of leg pains in the diabetic?
- (2) Outline "foot care" for diabetics?
- (3) What should be done for the pain of diabetic neuropathy?
- (4) Discuss the modern treatment of gangrene.
- (5) How do you decide when and where to amputate?

e. Surgery in diabetes.

- (1) What are the hazards in surgery in diabetic patients?
- (2) What preoperative precautions do you advise in diabetes?
- (3) Should one change to regular insulin during the immediate pre- and post-operative period?

f. Miscellaneous.

- (1) What can be done for the patient with intercapillary glomerulosclerosis (Kimmelstiel-Wilson's Disease)?

- (2) Is atherosclerosis more common in diabetes? If so, can anything be done to combat it?
- (3) What is the practical importance of potassium in the care of Diabetes Mellitus?

Lesson Plan No. 9.

Title: Travel, physical exercise, and work. Adjustments to routine. What can I do when going on a trip to maintain my control?

Objective: To furnish understandings of the constant need for adjustment to the diabetic way of life regardless of the place or circumstances.

Content: 1. Travel regulations.

- a. Carry your diet list with you.
- b. Carry your identification card with you.
- c. Keep your urinalysis equipment with you.
- d. Take your insulin regularly.
- e. Locate a hospital or physician whom you can call if you meet with some type of unforeseen occurrence or event.
- f. Take care of your feet.
- g. Do not skip meals, carry some kind of sugar with you at all times, and plan to eat regularly.

Lesson Plan No. 10.

Title: Organizing your life as a diabetic. Review of cardinal principles. Books that help you keep up to date.

Objective: To summarize and review the basic essentials in the control of the diabetes.

- Content:
1. Review of the diet, general information on complications and insulin administration.
 2. Books and periodicals displayed and suggestions made for source material to read on diabetes.

Educational Procedures in the Small Group Classes by the Physician and the Dietitian as the Personnel Principally Concerned in the Education of the Patient.

Small group classes.

All patients were required to attend small group classes conducted by the physician and dietitian as the chief personnel in the instruction of the patient and his family members at each appointed visit. In 1951, a total of 1405 patients visited the diabetes clinic and attended these classes. In 1952, there were 1795 patients given class instruction. The results of the class instruction are listed in the section on data findings. The blood sugar determinations were given as the indices of the control of the diabetes. Each patient in the small group class had the advantage of having the personal private interview with health team members on the day of the class. The interview was held after the class. The yearly review of topics showed that three major facets of control were stressed:

1. Diet and food management.
2. Insulin administration, nature, strengths and types.
3. Control of complications.

Philosophy.

1. Philosophy of the diabetic way of life.
2. The small group class is required of all patients to supplement the classes for large groups, individual conferences, or special activities.

Objectives.

1. Lifetime adult objectives.
2. General objectives common to the school-age child.
3. Objectives of the diabetes clinic.
4. Specific objectives of the instructional team.

Content:

1. Diet (see illustrations).
2. Insulin.
 - a. Nature.
 - b. Strengths.
 - c. Measurement.
 - d. Administration.
 - e. Applications.
 - (1) Coma means a lack of insulin.
 - (2) Insulin reaction or shock means too much insulin or adjustment to some physiological condition.
3. General information.
 - a. Nature of the chronic disease.
 - b. Control of complications.
 - c. Regulation of the F.B.S.
 - d. Necessary chemical tests, i.e., urinalysis.

Method. (See lesson plans)Evaluations.

1. See specific objectives and then evaluate in terms of:
 - a. Survival rate.
 - b. Hyperglycemia.

- c. Hypoglycemia.
- d. Hospitalization and complications.

Small group classes for Group II members.

All patients were required to attend small group classes conducted by the dietitian or physician. Family members were encouraged to attend these classes with the patient.

Preplanning conferences.

Preparation for group classes was made by the medical team in preplanning conferences, as illustrated by the following flow chart.

CHART 4

MEDICAL PREPLANNING CONFERENCE ON DIABETIC CARE

<u>Professional delegates</u>	<u>Administrative officers</u>
Nurses Dietitians or Nutritionists Physicians Medical-Social workers	Medical officer Nursing supervisor Public-health nurse Laboratory supervisor
<u>Basic instructional group</u> in education and medical care of the patient with Diabetes Mellitus were the physician and the dietitian.	<u>Individuals</u> concerned with offering broader, rather than duplicate services, to give a unified philosophy, medical objectives and professional aims to the program.
<u>Small-group integration</u>	<u>Small-group interaction</u>
Representatives from organizations representing the medical care, treatment, and diagnostic services for all diabetics.	Allied organizations concerned in the diabetic education interested in defining the functions of the conference:

Used sub-committees to define the scope of the problems.	To improve the quality and range of action for the proposed group.
Financial Committee	
Research Committee	To make arrangements for classroom facilities.
Legal Committee	
	To locate causes for failure to attend classes.

Small class units on nutrition. Topic 1. Normal nutrition.

1. Scope. This includes elimination and habit-forming substances.
2. Health needs. Knowledge of structure and function of the body.
3. Health interests. Absorbed in their own activities some have sought security through over-eating. Some make erratic choices and poor choices of diet, but are interested in recipes and menus.
4. Developmental characteristics. More interested in food and diet than ever before. Begins to take simple responsibilities in the control of the disease condition. The patient realizes the necessity of cooperating with the physician when recovering from some immediate complaints.
5. Major topic. Do good nutrition habits improve the health of the person as a whole?
6. Topics of secondary interest. Strong bodies are developed through correct choice of food. What are the major food groups?
7. Concomitant learnings. Eat at regular times, enjoy the food in a sanitary, pleasant and social occasion.
8. Methods and materials. U.S. Dept. of Agriculture charts on Basic Seven foods. Chalkboard demonstration of food composition. Discussion of the basic groups.
9. Evaluation. Oral questions to those patients who have been in classes at other times. Records

of diet surveys are calculated, and the results are reported in the chart.

10. Teacher's references. Taking Care of Diabetes. U.S. Dept. of Health, Education and Welfare, U.S. Public Health Service.
11. Patient's references. Calorie charts (commercial). U.S.D.A. Basic Seven Chart. Individual diet list and alternate sheets. Exchange diet folder. Eli Lilly Booklets. Identification cards.
12. Approach. What are the chief ingredients in food? Testing starchy foods with iodine. Testing for fat in food by heat. Testing for protein with nitric acid and ammonium hydroxide.

Lesson No. 1.

As an approach patient activities were:

1. Things to appreciate.
 - a. Listen to nutrition programs suggested by local professional agencies, as county medical association.
 - b. Understand the value of psychology and psychosomatic medicine in suggesting changes in food patterns and introducing new food regimes.
 - c. See demonstrations, exhibits, slides, movies on food and nutrition related to the Exchange Diet.
 - d. Look at scrapbooks, posters, exhibits, demonstrations, workbooks on foods allowed on the diet.
 - e. Listen to lectures, seminars, group panels, talks, present menus or take oral examinations on menu-making.
 - f. Read stories of developments in the areas of nutrition learning.
 - g. Listen to reputable medical authorities on the radio discuss nutrition problems.

- h. Listen to original solutions to nutrition problems.
 - i. Watch the progress of dietary regimes in practice as shown by weight gain or loss.
 - j. Listen to conferences, seminars to interpret health history, laboratory tests, clinical examination data and arrive at a conclusion as to "health condition" and nutritional status.
2. Things to develop or correlate with other abilities in allied subjects discussed in the small group classes.
- a. Find ways in which nutrition topics are presented in other clinics to which they are referred.
 - b. Find topics on nutrition that would be fitting to present to family members and work out health habit rating scales, score cards, check lists, questionnaires and inventories found in magazines such as Forecast.
 - c. Find topics on nutrition that demand further educational requirements to fulfill the need of the individual such as the exceptional child.
 - d. Find ways of influencing the pattern of eating in the immediate group of foreign-born patients.
 - e. Find ways of breaking down prejudices against food and food workers by illiterate immigrants.
 - f. Find ways in which low income levels may use and obtain proper nutrition information, such as occurs in the migrant Spanish-American.

Small group classes on nutrition. Topic 2. Modifications of the normal diet.

- 1. Scope. This includes learning reasons why the normal diet should be modified.

2. Health needs. Patients begin to show a great deal of curiosity as to why they need to eat a variety of foods and why they should practice certain rules of health. They need to know what modifications in the basic groups are advised in their condition.
3. Health interests. While continuing to stress the practice of food and health habits introduced in the first lesson, the teacher capitalizes on the natural interest in cause and effect in guiding them to learn that different foods do different things for the body and that their own choices affect their health.
4. Developmental characteristics. Enjoy simple experiments such as testing glucose water and sucrose water with Clinitest tablets to note the difference in color reaction to the simple sugar.
5. Major topic. Do body building, energy giving, and protecting foods provide your daily needs now that you are on a special diet?
6. Topics of secondary interest. What is an adequate diet as recommended by the National Research Council?
7. Concomitant learnings. Why should people be aware of the importance of sanitation in the handling of foods, proper cooking for preservation of food values such as vitamins and minerals, and other health-promoting properties?
8. Methods and materials. Dairy Council food posters and cut-outs mounted to be used in illustrating an adequate diet. Demonstration of a low-cost breakfast.
9. Evaluation. Patient compiles a chart of his daily eating for three days. Then he compares this chart with the original diet which he has been told is his diet prescription until the physician changes it. Evaluates this in order to strengthen his knowledge concerning choice of food.
10. Approach. Make a list of patient's likes and dislikes or foods rejected at home. Discuss the kinds of food ingredients represented by the foods not chosen regularly.

Lesson No. 2.

Approaches.

1. Things to think about.

- a. Plan a panel on some nutrition topic which has recently been discussed in diabetic literature.
- b. Plan a trip to see the relation of public health to nutrition by visiting markets in the city.
- c. Plan group reports or activities on a topic of interest.
- d. Solve problems involving arithmetic functions.
- e. Plan program for some other school group, i.e. PTA.
- f. Help to decrease food borne disease in the community.
- g. Plan a question box hour.
- h. Help to promote sanitary garbage disposal in the community.
- i. Plan neighborhood group talks by the community health organization.
- j. Plan bibliography on nutrition for a specific group for a special topic of interest.

2. Things to do.

- a. In "health doing" the patient makes intelligent observations of his own health behavior and the consequences of this behavior.
- b. Read texts suggested for the course; supplement with outside reading.
- c. Use articles in the diabetes magazine Forecast.
- d. Keep bibliography up to date.

- e. Keep notes of lectures and class room discussions.
- f. Improve public opinion on matters relating to nutrition.
- g. Do calculations and work out nutrition problems.
- h. Learn definitions, laws and formulae and apply to specific situations.
- i. Write an individual case study relative to food habits.

Reference materials.

Visual Aids.

Choose mechanically and pedagogically sound teaching materials with specific uses by individual patients.

- 1. Texts
- 2. General reference books
- 3. Pamphlets
- 4. Charts, graphs, maps
- 5. Posters
- 6. Food models
- 7. Mounted pictures
- 8. Exhibits of advertisers; permanent and civic exhibits
- 9. Motion pictures; camera and projector pictures
- 10. Radio programs (a) official public health and educational agencies; (b) non-official national, state, local health agencies; (c) professional voluntary agencies.
- 11. Stereographs
- 12. Film strips and slides

13. Art materials, paintings, still life studies
14. Publishers' catalogues for text and references
15. Clinical data: laboratory, fluoroscopic, X-ray and other data

Correlations and integrations of nutrition with:

1. School health committee
2. Nursing services
3. Other classes in medical clinic
4. Pharmacy
5. Contribution of dentists
6. Services of technicians
7. Public health educators
8. Legal agencies interested in food sanitation
9. Educational agencies
10. Social and religious agencies operating for the group

Small group classes on nutrition. Topic 3. Food preparation, selection and service.

1. Scope. This includes presenting the scientific facts about the importance of food preparation, food selection and food service in planning for the balanced diet.
2. Health needs. The patient needs to know the importance of diet to a healthy body and mind and the factors involved in the selection of a balanced diet in order that they may make intelligent decisions regarding the use of food preparation methods.
3. Health interests. Importance of all around health. Immediate concern about presenting symptoms such as increased amounts of sugar in the urine after eating the heaviest meal and

testing for the presence of sugar one and one-half hour later. Sugar is a source of energy.

4. Developmental characteristics. Anxious to confirm impressions about food preparation that they have been using. Indiscriminate use of foods which may not be listed on the diet needs to be interpreted to them by calculating a diet order on the board.
5. Major topic. Can food preparation, food selection and service make a difference in the vitamin and mineral content of the diet?
6. Topics of secondary interest. Foods supply energy to the body only in the sense that they are absorbed, and cooking softens the cellulose.
7. Concomitant learnings. Social pressures should be dealt with constructively, and social drinking is not permitted on this diet.
8. Methods and materials. Demonstration cooking utensils, and proper storage of perishables in utensils to conserve their properties. Set up an exhibit of properly prepared foods.
9. Evaluations. Increased knowledge of food preparation methods suitable to the type of diet on which they have placed; increased appreciation of alterations in nutritive value by food preparation, and increase use of food (practice) with allowed on the diet so as to provide a wider selection.
10. Approach. Foods increase the working power of muscles and coordination of the body. Proteins, fats, and carbohydrate stimulate the chemical processes of the body when assimilated. What part does cooking have in making assimilation possible? Calories are lost in the urine.

Unit III.

Purposes in studying the nutritional requirements.

1. To find out the standard set up for various age levels by the National Research Council.

2. To compare the individual recommended allowance with the allowance set up for the same age, sex and activity per 24 hours.
3. To evaluate literature in the light of present understanding of scientific developments.
4. To sense the importance of physical examination and thorough medical check-up as a background for determining normal requirements.

Unit III.

Daily recommended allowances.

1. The class is to answer the following problems:

Locate the standard of the Food and Nutrition Board National Research Council for recommended daily allowances of specific nutrients. Find your individual bracket. Compare this with the need as set up in previous lessons. If there is an increase explain how such an increase in the specific nutrient might be met.

2. Recommended daily allowances.

- a. Organizations authorized to make such standards. Function.
- b. Need for evaluation of the nutritional status.
- c. Methods of detecting variations from the normal need.
- d. Suggestive ways in which the normal need may be met.
 - (1) Basic foods meeting most of the need for protective foods.
 - (2) Supplementary foods within the protective groups.
 - (3) Concentrated or therapeutic materials to re-enforce the need for increments in specific nutrients.
- e. Need for carefully evaluating literature dealing with the contribution of foods

toward meeting the recommended allowance.

- f. Surveys made of the existing status of malnutrition and possible explanation of the regenerative measures which recondition the person to select from desirable food groups.
- g. Explanation of the reason for "my individual recommended allowances" rather than "the daily requirements."
- h. Build a dietary pattern which will include all three meals that will help you to be sure that you can meet in your present method of living the standards called for by your age, sex, activity, state of health and possible other variables.

Breakfast: (You specify kind and amount)

Fruit or fruit juice
Cereal and/or breadstuff
Eggs and/or main dish
Milk
Butter or enriched margarine

Noon Meal, Night Meal or Lunch:

Main dish with protein
Vegetables besides potatoes
Raw food
Breadstuff with butter or enriched margarine
Fruit
Milk

Checking the adequate diet.

The patient will keep a 7-day record of his eating, recording the specific food and choice in amounts.

The following is a check sheet that has been developed by patients and represents their thinking. This class will develop during the class period something similar, but marked with their own individuality.

CHECKING THE EATING HABITS

I eat (1) (2) (3) (4) (5) time a day regularly.

These meals are spaced every (2) (3) (4) (5) (6) (8) (____) hours apart.

I take my meals at (home) (school cafeteria) (in the D.K.) (on the wards) ().

I drink regularly each day (6) (7) (8) (9) (10) glasses of water, as such not as food.

I would describe my eating habits as being the following: (regular) (irregular)

<u>Food Choices</u>	<u>Amount</u>	<u>Remarks</u>
Daily Use. Standard.		
1. Milk at every meal		
2. Egg, one. Cooked not fried		
3. Orange or tomato juice, one cup		
4. Fruit, canned or dried		
5. Vegetable, green or yellow or leafy		
6. Vegetable, other than potato		
7. Potato. Alternate legumes occasionally		
8. Legumes or nuts or cottage cheese or meat		
9. Bread or cereal, whole grain		
10. Butter or enriched margarine		

Eat more food from the groups above.

Meeting my recommended daily allowance:

1. Knowing my dietary goals and how to meet them: calories, protein, fat.
2. Making diversified choices from allowed food groups on diet.
3. Keeping the cost in mind, and being guided by principle rather than appetite, elect seasonal choices on the diet.
4. Planning for the day by inaugurating a pattern of food choices rather than shiftless thinking and getting what is the most accessible.

Summary of my food choices that might be improved:

Lesson No. 3.

Reference Materials

Audio-visual aids

1. Art materials as paintings, pictures, still life studies.
2. Charts from authoritative sources.
3. Exhibits.
4. Film strips and slides.
5. Bed-side clinics in which the patient is seen with the condition being studied.
6. Motion pictures.
7. Radio programs.
8. Stereographs.
9. Conferences with X-rays, fluoroscopic reports, laboratory reports and clinical pictures.

Selected bibliography.

1. Textbook assignments.
2. Magazines.
3. Library references.
4. Special assignments in current journals while the course is in progress. Instructor will assign oral reviews of current literature.

Educational Procedures in the Special Classes by the Physician and the Dietitian as the Personnel Principally Concerned in the Education of the Patient.

Special classes for the obese diabetic patients were conducted in the clinical department, nutrition service.

The dietitian used the calorie sheets provided for all clinic patients and interpreted to the obese patient in terms of the outline which follows.

Philosophy.

In lieu of the magnitude of the problem of obesity in the diabetic population, it is important to give those skills, attitudes, knowledges, appreciations and interests which are valuable not only to the patient now but for use in the future in meeting his current problem. Obesity is related to insulin requirements and motivations for these classes may be tied up with this concept.

Objectives: Institutional and individual.

General aims are built to meet long-range needs.

1. To integrate knowledge about normal nutrition to the functional basis of food allowed in the low calorie diet.
2. To furnish learning situations in which the patient may grasp, within his ability level, those immediate tasks detailed in the lesson plan, and learn skills to execute them.
3. To develop those interests, appreciations and attitudes which will keep them consistent in following the physician's order.

Content and materials: General problems are illustrated.

Lesson 1. What should we know about our diet? Outline follows.

Lesson 2. What can we do to make our diet more palatable? Outline follows.

Lesson 3. What foods make the protein content rise?

Other lessons: How do you count calories? What is a low caloric list? Where do we find fat in our foods?

What of our daily recommended dietary requirements? What is meant by calorie requirements? Do I get enough vitamins on a reducing diet? What kind of food should I use in a lunch? How do I let others know about my diet? Why are fattening foods the most abundant? How do we meet our health needs? What things in our kitchen cause people to gain weight? Why do I gain at certain seasons? How do we eat when we have the diarrhea?

Specific dietary helps on individual diets.

Methods.

Problem solving methods are used, incorporating visual aids from the local dairies, commercial canning and preserving companies such as labels from fruits and vegetables, and professional calorie charts, National Food Guides, and Basic Seven folders.

Evaluations.

Pre-test the eating habits by having the clinic patient file a three or more day record of eating habits and actual quantities of food consumed. Achievement records kept in the form of weight charts. Laboratory tests and urinalysis at home.

Technique.

1. The establishing of new behavior patterns involves the changing of present practices, growth in knowledge, attitudes in practices, and providing new and even better motivations for being stabilized on the diet, exhibits and bulletin boards were used.
2. With regard to food habits, the diabetic needs to be well informed about his own diet, and have a general overview of what other diabetics can have in general. The aim is to make his own

diabetic diet functional, realistic, low cost and varied; demonstrations were used.

Approaches.

1. To provide for growth in knowledge.
 - a. Select food tables which are in accordance with the diabetic clinic basic philosophy and the general trends in the department. For example, there are three distinct schools of thought:
 - (1) The cooperative committee of the American Diabetic Association, American Dietetic Association and the Diabetic Section of the Federal Security Agency.
 - (2) Individual writers such as Joslin, Wilder, etc.
 - (3) Individual clinics and their staff and commercial.
 - b. Have graded, sequential levels of instruction. The first visit have the general ideas of the diabetic diet taken up. The next and following should enlarge the specific ideas of the individual instruction. Most diabetics have to be taught to be consistent. If a diet is too small in quantity, alternates must be allowed with more plant fiber. Exchanges on the basis of fat, protein and carbohydrate must be worked out to fit individual needs, interests and readiness. Check to see if the patient is maintaining the desired weight.
2. Consultation services as needed.
 - a. Interpretation of food exchanges.
 - (1) Relation of insulin and diet to body mass.
 - (2) Relation of food requirement or order to good groups chosen.
 - (3) Calculation of a sample diet. Calculation of your diet.

- (4) Meal preparation, planning and marketing.
- (5) Demonstration of various food exchanges or alternates.
 - (a) Bread and cereal exchanges.
Starchy foods.
 - (b) Meat, egg and cheese exchanges.
Protein foods.
 - (c) Low starch vegetable exchanges.
Bulky foods.
 - (d) High carbohydrate vegetable exchanges. Potato.
 - (e) Exchanges for one orange. Fruit list.
 - (f) Milk alternates where it is imperative.
- a. Meal-time precautions for those that are taking insulin.
 - (1) Eat on time.
 - (2) Eat the type of diet chosen to meet your specific needs.
 - (3) Learn to make proper substitutions if you cannot eat solids.

Review the diet in terms of the individual. Make individual applications of the order. Mimeographed diets have their place, but they should have individual menus, made according to prevailing seasonal choices, costs, etc. Recipes are made from the foods allowed on the diet.

How can we make the diet more palatable?

- 1. Use those combinations with an appealing finish. Foods such as lemon juice have an acid taste. Lemon juice is a desirable food adjunct to add

flavor to bland foods.

2. Select those garnishes with color and acceptable flavors. A bitter sauce for any food is "eat it, it is good for you." Chives and many garnishes may contain certain limited quantities of calories, but if you do not like the flavor, you may not like the food which is desirable as a part of the dietary pattern.
3. Reject certain calculated risks, such as beverages on the menu. Foods which are pleasant but taboo are those which are not allowed on the normal diet, such as strong drink or beer. If you will follow through your original intentions to stay on the diet, you forget certain kinds of food preparation and food combinations which use beverages as wine or liquor.
4. Mediocrity may be merely a shade of quality or an element of monotony. Avoid tiresome repetition from day to day by planning a menu with various types of food preparation and service.
5. Never forget that chefs serve as apprentices for years, and catering to a fastidious taste tester may be something you too can learn, but strict compliance with your calculated diet that is your main job--not preparing food from the purely aesthetic standpoint. Use as high-grade a product as you can afford.

What foods make the protein content rise?

1. Animal sources, such as lean meat well trimmed, lean fowl or game, and selection of fish without outer skin. Food preparation differs.
2. Dairy products such as skim-milk Jack cheese, hoop cheese or pot cheese without cream, dry skim milk powder or liquid skim milk, butter-milk. Milk contains carbohydrate, protein and fat.
3. Legumes such as soybean curd or cheese, green soybeans and yellow soybeans, provide protein of high biological value.

How do you count calories?

1. Only those foods allowed on your calculated

diet will contain your calories. The groups of foods are an index of calorie sources.

- a. Protein foods.
- b. Foods for bulk with a low carbohydrate content.
- c. Foods with nutritive elements that also contain calories.

2. A calculated diet is planned by a medical dietitian or a nutritionist, and illustrated by 600 calories, 60 gram protein diet.

Reduction diet. 600 calories, 60 grams of protein.

<u>Breakfast</u>	<u>Noon</u>	<u>Night</u>
$\frac{1}{2}$ cup tomato juice 1 hard cooked egg 1 cup skim milk Clear non-stimulating beverage NO BREAD or CEREAL NO WHOLE MILK or CREAM	2 oz. lean meat, fish, fowl or $\frac{1}{2}$ cup dry cottage cheese $\frac{1}{2}$ cup vegetables, see list Large green salad with lemon juice Clear vegetable or other broth NO STARCHY VEGETABLES	Protein food such as $\frac{1}{3}$ cup soybeans or hoop cheese or 1 pint skim milk 2 vegetables, raw or cooked or 1 portion fruit Fresh salad greens with lemon juice

Alternate plan.

Daily
 $1\frac{1}{2}$ quarts skim milk or buttermilk
 1 pint tomato juice
 4 servings vegetables, raw or cooked
 NO OTHER FOODS THAN THESE

Fruits

(List of fruits would follow)

Protein foods

(List of these protein foods would follow)

Foods to avoid

Vegetables

Low in starch; low in food value. Portion is $\frac{1}{2}$ to 1 cup. Serve without butter or oil. (List of vegetables would follow)

You may eat all you want of any of the raw salad greens.

Solution to the problem areas.

What should we know about our diet?

Classification of food

1. Chemical organization.

a. Organic.

- (1) Carbohydrate including cellulose.
- (2) Fats.
- (3) Proteins.
- (4) Vitamins.

b. Inorganic.

- (1) Water.
- (2) Minerals.

2. Biological pattern.

- a. Animal.
- b. Plant.
- c. Mineral.

3. Physiological.

a. Energy and calorie carrying foods.

- (1) High carbohydrate foods.
- (2) High fat foods a source of "hidden" calories.
- (3) Extra quantities of either of the above with some additional amounts of protein in excess of the amount required daily.

b. Tissue builders or protein foods.

- (1) Relative concentration in plant and animal sources.
- (2) Daily amount regulated in part by the caloric level of the diet.
- (3) Protective foods such as milk, eggs, and meat equivalents carry the largest quota of tissue-building materials.

- (4) Supplementation of protein.
- c. Digestibility.
 - (1) Carbohydrates such as sugar digest rapidly.
 - (2) Carbohydrates such as starch diffuse slowly if accompanied by some cellulose or bulk, hence the advantage of low carbohydrate foods.
 - (3) On restricted fat intakes the satiety value is low.
- d. Therapeutic value or protective value.
 - (1) Vitamin content of all the fat-soluble vitamins tends to below normal intake levels.
 - (2) Water-soluble vitamins may be low if the food choices are somewhat restricted to these with refined or leached contents.
- e. Reaction to gastric juice.
 - (1) Strongly stimulating.
 - (2) Bland.
- f. Reaction to peristalsis.
 - (1) Bulky foods stimulate peristalsis.
 - (2) Non-residue foods are more thoroughly digested and are less stimulating to peristalsis, but they offer so little bulk that constipation results.

Educational Procedures used by the Physician and the Dietitian in the Case Conference as the Personnel Principally Concerned in the Education of the Patient.

Education of the parent in his role in the instruction of his diabetic child.

Overview.

Parent conferences are essential for the acquisition of the information, skills, attitudes, appreciations, and interests in the management of their child's diabetes.

Approach (starting the interview).

The diabetic way of life is being experienced by the family members and the parents are helping the child to make an adjustment at home, school, and on the playground. Medical personnel find that parents have isolated problems on such questions as Should John eat at the school cafeteria? Should John tell the other students why he eats a snack when he finishes playing a strenuous athletic game? Will John outgrow his Diabetes Mellitus?

Content and materials.

1. Written material.
2. Visual aids: Posters, charts, graphs.

Diet

At home and at school or on the playground.
School lunch pattern in terms of child's diet.
Food portions in household measurements or weight.
Suitable foods for PM snack on globin insulin.

Insulin

Relation between dosage and blood sugar level.
Need for PM snack with globin insulin.

General information on diabetes.

Effect of exercise or play on blood sugar level.

Urine as an index of blood sugar level and amount of spillage.

Methods and goals (over-all plan of attack upon the goals).Diet

The ability to interpret the diet order into actual food.

Method - discussion on his diet.

The knowledge of food values necessary in making alternate choices in all allowed foods.

Method - experimentation in menu planning by child.

Insulin

The ability to administer the insulin.

Method - demonstration.

The ability to recognize the symptoms of insulin reaction.

Method - observation and recording by hours.

General information on diabetes.

The ability to regulate the school and home life in such ways as will help the child achieve the broad aims of general education.

Method - daily planning of schedule.

Techniques (Tools used in specific situations.)

For the child who cannot take part in the more active sports, the parents can be shown what activities would serve the same interests of the child, without producing overexertion and subject the child to possible insulin reaction.

Examples:

1. Substitute tennis for football for boys.
2. Substitute gardening for roller skating.
3. Summer camp with diabetics or Boy Scout camps offer a variety of activities.

Evaluations.

Questioning the parents after they have read several textbooks on diabetes.

Mastery of the details of each food group before proceeding to the next unit.

Discussion of the limitations of eating too many meals away from home when taking insulin.

Match the daily schedule with the record of the time when insulin was administered.

Concomitant learnings.

The parents learn the best ways to interest their child in assuming some responsibilities while at school, such as taking orange juice when shaky or reporting illnesses to the home-room teacher who in turn notifies the parents.

Case conferences for the school-age child.

The individual instruction is one of our present-day "best answers" in guiding the school-age child. Psychometric testing was done in the child guidance clinic.

CHART 5
EVALUATION OF TEACHING

To check for:

Changes in Behavior in Whom and What?	Kinds of Changes Sought	Interpretation
Health instruction to parents to the child	Understanding the problems of the individuals con- cerned in the pa- tient's disease.	Understanding ap- plication and in- terpretation of the laboratory findings.
Instructors	Knowledge, atti- tudes, practices now in existence which may need to be modified by education.	Reconstruction and reformula- tion for the next visit. The objectives, as defined, will be set up in terms of practices, habits, know- ledge, and mean- ingful attitudes about:
1. Physician		
2. Social Worker		
3. Dietitian		
4. Psychiatrist		
5. Pediatrician		
6. Psychologist		
7. School age in- dividuals with a wide range of ability	Understanding the problems of child health.	diet
8. Parents and families or relatives	Increase in facili- ties as the summer camp.	insulin ad- ministration
9. Health service organizations in school and community	Higher standards of service by coopera- tion with the school.	urinalysis diabetic sum- mer camp plans
Healthful environ- ment; conditions in and out of school that affect health.	Greater use of health service. Improved conditions in current illnesses. Elimination of haz- ards such as insulin shock.	general problems

Attendance at interviews was required of all patients on each appointed visit. These covered three topic areas:

1. Diet and the application.
2. Insulin administration.
3. Control of complications and current illness.

The physician and the dietitian sought to conduct the classes at the level of the fourth-grade achievement to reach those new patients who had not gained a broad comprehension of the importance of nutrition in the treatment of diabetes. Topics of a general nature are discussed in the interviews.

Other educational activities.

When necessary, home visits by the public health nurse were made for the emergency patients and special home-bound cases. When appointments were not kept, the social worker and the appointment secretary of the diabetes clinic made follow-up studies. Periodic case-conferences were made by physicians who specialized in Internal Medicine. These patients with Diabetes Mellitus required additional instruction for their acute problems. All new patients, as well as those with language barriers, were given individual orientation. For those patients new to the White Memorial Clinic and Hospital there was an introduction to health education materials, health-team

personnel, and clinical facilities. Patients who had been hospitalized were given instruction upon leaving the hospital by the physician and the ancillary personnel. The physicians reviewed the cumulative clinical records, coded the complications according to the American Medical Association standard nomenclature of diseases and operations (10, pp.1-1034; 51, pp.1-1022), and called a conference of physicians and patients for those patients developing unique problems.

Tabulation of all fasting blood sugar determinations, clinical reports, and patients' histories was made for Group I and for Group II. Then followed a classification of the data on the basis of the difference in the types of educational procedures used in the instruction of the patient with the chronic illness diabetes. Statistical treatment is supplemented by discussion in Chapter III. Some of the data were significant clinically and not statistically. Of 358 patients seen in 1952, 279 had had their diabetes under ten years, so they were considered potential candidates for instruction in the new techniques. Of 358 patients seen in 1952, 110 had had their diabetes under two years.

Educational Procedures in the Maternity Class by the Physician and the Nurse as the Personnel Principally Concerned in the Education of the Patient.

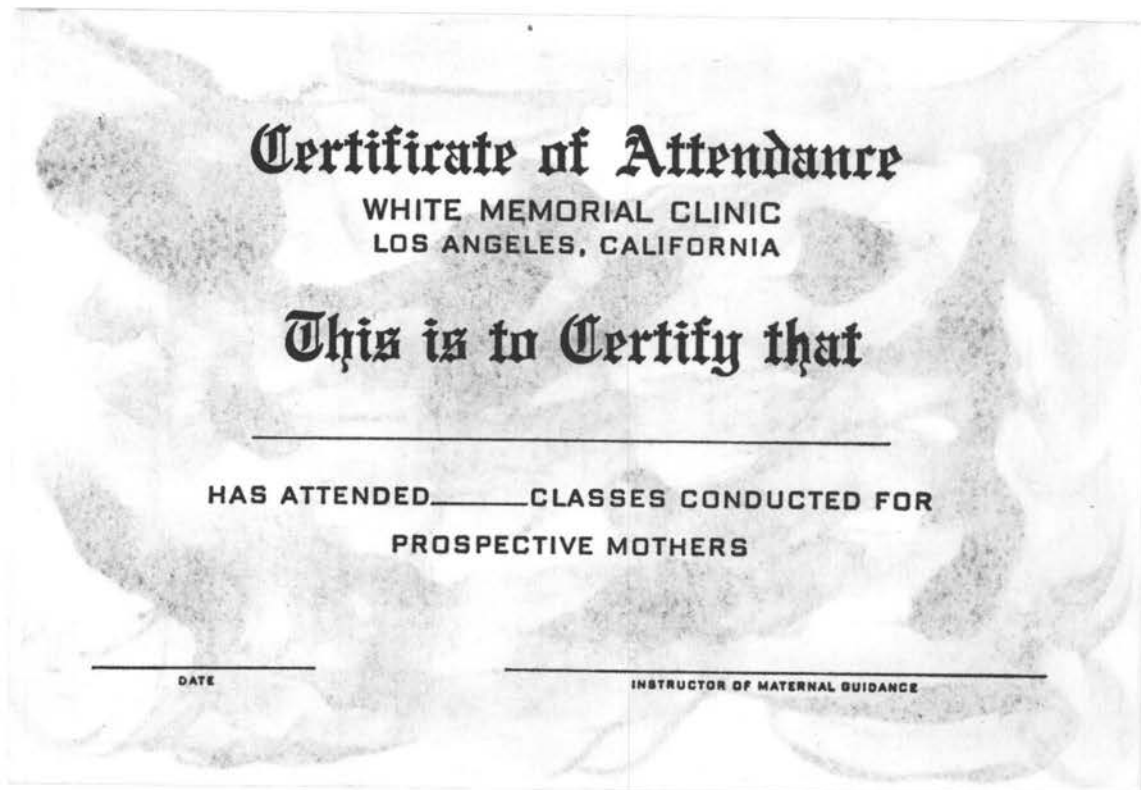
Maternity classes.

Classes are organized for expectant mothers in which they are taught the physiology of pregnancy, the psychology of pregnancy, layette and nursery equipment, care of the expectant mother, importance of breast feeding, child development, relationship of parents to children, and the fundamentals of a good diet.

Notice of these classes was made public through the letters to all patients registered in the maternity clinic of the outpatient department and to the patients seen in the physician's practice. In 1951, there were 1232 deliveries and 708 women, of whom a half dozen were clinic diabetic patients, were given prenatal instruction. The most popular class of their choice was "training for childbirth, labor and delivery," with 640 of the obstetrical patients attending. The series of six consecutive lectures was given weekly, with a total of 130 patients attending all of the planned series. Each week the dietitian contributed ten minutes in the two-hour program with her review of dietary essentials for the expectant mother.

Certificates of attendance were provided for each expectant mother who completed the series. Fathers' classes

were also provided, with three in the series, offered several times each year. Demonstrations and exhibits in the maternity department were planned by the nurses as a supplement to the classes.



Lesson 4. Public health nurse's lecture.

Approach: Visual aid and blackboard and posters;
birth atlas.

Content: Procedure.

1. The birth experience, "lightening"
2. False labor: Braxton-Hicks, rythmn
3. Beginning of real labor
 - a. Precision timing
 - b. Reason - not known

4. Purpose of contractions
 - a. Upper segment longitudinal fibers contract and shorten
 - b. Lower segment circular fibers relax
 - c. Effacement - obliterating lower segment
 - d. Dilatation - opening cervix so. Illustration coordination biceps and triceps
 - e. Rupture of B.O.W. membranes
5. How labor begins
 - a. Mechanism of labor
 - b. Position
 - c. Presentation
 - d. Stages of labor
 - e. Summary
6. Episiotomy
7. Length of labor
8. Care of baby
9. Placental stage
10. Care during labor

TABLE 8

INSTRUMENT FOR EVALUATION BY SUPERVISORS
AT THE COLLEGE OF MEDICAL EVANGELISTS

Instrument to measure	Student Nurse's Progress in Teaching	1	2	3	4	5*
1. <u>Productivity</u>						
a. Meet the established standards						
b. Had the entire project						
c. Did reflective thinking						
d. Related work to other person's units or work						
e. Branded with own individuality						
2. <u>Professional contributions</u>						
a. Read on the topic						
b. Read related topics						
c. Shared cumulative learnings						
d. Developed new interest in other members of group						
e. Records personal thinking from documented readings						
3. <u>Personality controls in the educational processes used</u>						
a. Objectivity, used the scientific method						
b. Used the cooperative process						
c. Followed the laws of learning						
d. Took into consideration the needs of the learner						
e. Took into account what his actions were doing to the rest of the group						
4. <u>Group interaction, commitments, and dynamics</u>						
a. Developed social engineering group techniques						
b. Formulated policies and steps which would involve others						
c. Took part and was responsible for assuming leadership role						
d. Took part and was responsible for being a recorder or observer, as needed						
e. Growth in knowledge, attitudes, and practices about group dynamics						

*The higher the number checked, the greater the skill of the student in the trait listed.

Educational Procedures by the Physician and the Nurse in the Individual Conferences as the Personnel Principally Concerned in the Education of the Patient.

Education of the family members in their role in the education of the diabetic.

Overview.

The family members need some basic concepts of what should be learned by the patient with Diabetes Mellitus; how, when and where it should be learned; and what instructional personnel are primarily responsible in setting up the learning situations at the White Memorial Hospital and Clinic.

Approach.

Question or problem emerging from class activities, and exploration of the subject matter areas in the instructional materials given to all patients.

Content and materials.

1. Written material.
2. Visual aids.

Diet

Commercial charts (calorie charts, recipes, and alternate lists of carbohydrates.

Insulin

Eli Lilly charts on types of insulin and syringes.
Specimens.

General information on diabetes.

Ames Clinitest charts.

Identification cards.

Method (over-all plan of attack upon the goals).

Goals - general objectives:

1. To acquaint the family member with the health status of his relative and the part he must play in the education of the patient.
2. To acquaint the family member with the disease and symptoms and what part he must play in reporting the symptoms to the medical team. Insulin shock is a specific example of reportable symptoms.

Method in attaining goals:

1. Explain the meaning of the fasting blood sugar determinations.
2. Demonstrate testing the urine of himself as against his relative and showing the difference in results.

Techniques (tools used in specific situations).

1. Diet and the applications in terms of actual foods served at meals.
 - a. Measuring cups, household cooking equipment, and the other materials used in planning the diet, serving the food, and preparing the dishes.
2. Insulin administration techniques.
 - a. Methods of boiling the equipment and methods of storing the same.

Evaluations.

Test problem solving in the specific situation, i.e., testing for acetone. When did the patient begin to notice

a change in the urine specimen findings? Oral questions to the family at each appointed visit: Does the patient taking Protamine Zinc Insulin have a bed-time snack? Records kept by the family members between visits, i.e. urine test record book and three-day dietary record.

Concomitant learnings and outcomes.

All patients and family members should recognize and understand the relationships which have arisen in their group living due to this condition, Diabetes Mellitus, and assume new responsibilities for the patient care and education as a family member.

Individual conferences.

The responsibilities of the education of the patient with Diabetes Mellitus start with the instruction sheet given by the nurse and the physician to the patient and his family members. These general directions which subsequently follow were the outgrowth of criteria of control set up by the teaching staff and followed the general principles in teaching the patients at the Los Angeles County General Hospital where some of them later transferred. Basically, they represent the development of certain allegiances to their life as a diabetic, understandings of the tasks involved in their control, and skills that have always been necessary in a well controlled diabetic.

A form letter was prepared for all patients, which included the following:

1. Procedures of the diabetes clinic.
2. List of things to bring.
3. Diet.
4. Insulin.
5. Testing your urine.
6. Care of your feet.
7. Infections.
8. Vision.
9. Use of heat.
10. Your diabetic identification card.
11. Changes in general health.
12. General remarks.

Instructional material given to all patients by the physician and the nurse includes:

1. Care of the feet. (Modified from Joslin)
2. Treatment of corns and calluses.
3. Aids in treatment of imperfect circulation - cold feet.
4. Treatment of abrasions of the skin.

Orientation of Patients New to the Clinic by the Physician and the Nurse as the Personnel Principally Concerned in the Education of the Patient.

Improper or insufficient instruction to the patient,

his lack of understanding or cooperation, and lack of acceptance of the disease and its treatment may be a barrier to control of the disease. All the factors increasing the severity of Diabetes Mellitus must be eliminated or counterbalanced through education and medical management. This involves psychosomatic adjustment, instructing the patient concerning the types of hypoglycemic reactions, insulin, activity, diet, and treatment in special concurrent disease. Such education is aimed at helping the diabetic become a more effective citizen.

The patient with Diabetes Mellitus shows little decline in learning ability but may be hampered by failing sight and hearing and impaired health. The motivation and interest that can be stimulated in the family members that take the patient home from the hospital help the person who may show slower learning ability in his physical reactions with age. The patient who has never had a knowledge of Diabetes Mellitus until a week ago now feels he is an expert in an abstruse scientific field, and advancement in his once thought to be impossible task now looks like an achievement.

The American of limited reading ability will find that lack of this basic skill makes him more dependent on his family to interpret the physician's directions in his treatment. The family are instructed that adults, like the children, learn by doing, and the more he does the things

important to his diabetes, the better he learns. Participation in such a program is not mere physical activity, for the acceptance of the new chronic disease diagnosis is a matter of setting up a value system too.

TABLE 9
NUMBER OF PATIENT VISITS IN 1952, GROUP II

No. of Visits	No. New Patients	No. Return Patients	No. All Patients
1	21	23	44
2	21	21	42
3	26	27	53
4	21	21	42
5	12	24	36
6	12	20	32
7	7	11	18
8	6	7	13
9	3	6	9
10	2	3	5
11	0	1	1
12	0	1	1
13	1	0	1
14	0	1	1
15	0	0	0
16	1	0	1

Of the new patients 15.8 per cent, of return patients 13.7 per cent and of all patients 14.7 per cent came only once to the diabetic clinic during the year. Those returning for three visits represent 19.6 per cent of new patients, 16.2 per cent of return patients and 17.7 per cent of all patients.

Of the new patients 50.4 per cent came for three or less visits during the year. Even though this

figure seems high it must be remembered that the average number of new patients each week is six, and that many of the above patients began treatment in the latter half of the year. However, of the returning patients, 42.58 per cent came three or less times during the year. It is the stated policy of the diabetic clinic to see patients not less than every three months, yet only 12 per cent of return patients were seen four times during the year.

Those coming more than four times a year, or at more frequent intervals than once in three months, represent patients who are difficult to control or have some special medical problem such as obesity which needs watching. For this reason, the diabetic clinic is interested in a study of the visit intervals of all patients.

TABLE 10
VISIT INTERVALS IN 1952, GROUP II*

Told to Return	No. New Patients	No. Return Patients	No. All Patients
One week	6	2	8
Two weeks	16	11	27
Three weeks	4	3	7
Four weeks	41	35	76
Five weeks	0	0	0
Six weeks	5	4	9
Two months	19	38	57
Three months	15	55	70
More than three months	1	4	5
PRN	1	3	4
None (case to Hospital, etc.)	25	19	74

*Based on last clinic visit.

Controlled patients usually return once in three months, so that it is to be expected that the three-month interval is most used, particularly with patients who have been treated by the clinic for some time.

Instructions for new patients.

1. Bring your equipment to the doctor.
 - a. Bring your syringe.
 - b. Bring your insulin.
 - c. Let the doctor check your method of giving insulin.
2. Dietary instruction.
3. Care of feet. Report all irregularities at once.
4. Vision abnormalities.
5. Care of skin. Cleanliness is imperative.
6. Warning: No hot water bottles or heating pads.

CHART 6

CASE STUDY OUTLINE USED AT THE COLLEGE
OF MEDICAL EVANGELISTS SCHOOL OF NURSING
OUT-PATIENT DEPARTMENT

CLINIC OBSERVATION STUDY

Patient's Name _____	Nurse _____
Age _____	
Case No. _____	Case Study _____
Clinic in which observed _____	Submitted _____
Dates of clinic observation _____	

Diagnosis:

Definition:

Pathology:

CHART 6 (CONTINUED)

Etiology:

- | | |
|---------------------------------|-------------------------------------|
| 1. Usual Causes of this Disease | Probable Cause of Patient's Illness |
|---------------------------------|-------------------------------------|

History (brief)Findings:Contributing Causes:

1. Classical Symptoms
2. Clinical Findings
 - a. Subjective (patient feels)
 - b. Objective (includes laboratory and X-ray reports and their significance)

Treatment (includes care he has been receiving and future plans)

1. Surgical (purpose)
2. Medical (purpose)
3. Medications (purpose)
4. Nursing

Prognosis:Problems in this case:Teaching Need:Attitude of Patient to Clinic and Treatment:

Educational Procedures used by the Physician and the Medical Social Worker as the Personnel Principally Involved in the Education of the Patient.

Social service department activity in diabetic clinic.

It is a recognized medical fact that in the control of diabetes the emotional welfare of the patient is of paramount importance. This is one reason that the Social

Service Department is a part of the Diabetic team. It is the policy of the Social Service Department to interview all new patients to elicit any home problems which may result in the emotional disturbance of the patient or otherwise hinder in the care of the diabetic clinic, and to his disease as it relates to his life at home. While, as among all patients, the number of patients who need the continuous, or intensive, assistance of the Social Service worker is not large, during this interview the new patient is encouraged to give vent to his resentments and adverse reactions to his disease so that guidance can be given. His living conditions are discussed and any abnormality is written in the social service notes in the record to guide the doctor in his future care. Difficult family situations are studied and occasionally a home call is made for the purpose of orienting the patient and the family to his disease. Many patients are rendered service by the department in arranging financial reports to the Bureau of Public Assistance, and other similar matters. Occasionally free visits are arranged when temporary financial distress would result in delay of care.

This plan of interview was initiated in 1951. Fifty-nine per cent of the 1952 patient load has been seen at least once by Social Service.

Follow-up.

The Social Service Department has undertaken to follow-up all patients who have failed to keep appointments. Often this means only a telephone call and the reason for failure is merely that the patient has forgotten the date of his appointment. In this case, no record is made but a new appointment is arranged after making sure that the patient understands the importance of keeping appointments at the time the doctor has ordered. Patients without phones are sent a form letter.

TABLE 11

FAMILY HISTORY OF DIABETES IN 300 PATIENTS

Relationship	No. Reporting
Mother	35
Father	13
Sister	33
Brother	19
Maternal relative	16
Paternal relative	17
None	186

Often there are much deeper reasons for failure to return at the time specified. Note is made in the medical report if the reason directly affects his diabetic care. Seventy-three such follow-up calls were recorded in the record in 1952. The reasons for failures ranged from "forgetting" to death, from return to private medical care to being embarrassed because no weight has been lost and

the "doctor might not like it." The usual reason for return to the private doctor is because of distance to the clinic.

Patients often express their amazement and pleasure in the interest of the clinic in their behalf.

The role of the social worker in the education of the diabetic patient at the White Memorial Hospital and Clinic.

The social service worker has an opportunity to reinforce the educational aims of the clinic for the diabetic patient, as seen from the outline which follows:

Educational uses of social service in the outpatient department.

1. Purposes of social service work.

a. Individual patient service.

- (1) Service to family members.
- (2) Liason between our agency and other agencies.
- (3) Sociological service to the community, study of the development of the relationship of personality in the community--committees on individual patient problems.

b. Aims to please the physician of that patient.

- (1) To give social study and medical service to individual and community welfare problems.
- (2) To effect social treatment for individual patient problems through cooperation with other social agencies.

- (3) To assist in administration of resources within the hospital environs to meet various patient needs for diagnosis and treatment--use interdepartmental resources.
- (4) To process and record social diagnosis and treatment for the purpose of eliciting teaching and facilitating further medical treatment.
- (5) To interpret social information to administrative department as requested and as community needs become apparent.

Education of the diabetic patient in the value of the nursing-care homes.

Overview.

When a patient is retired from work and on the pension, without family or friends, and meets with an illness superimposed on his Diabetes Mellitus, it may be essential to school him in the use of community resources such as nursing-care homes. It is necessary to arouse interest in the plan of action by participation in planning for care.

Approach. (Starting the social plan.)

To orient the patient for the introduction to a temporary nursing-care home, it is necessary to plan his budget, and arrange his social plan to cope with a inter-current illness.

Content and materials.

Important materials are not available in written or audio-visual form for the patient, and the social worker

must make all the initial contacts with the community resources.

Methods and goals (over-all plan of action).

To give the patient a more complete understanding of the treatment required in that illness:

1. Discuss the goals in the treatment and build constructive attitudes toward spending money for the time necessary at the nursing home.
2. To emphasize the importance of the regular care necessary to this condition to ward off a more serious condition.

Techniques (tools used in specific situations).

Council of Welfare Agency reports.

Diet that can be used in the nursing-care home is filed with their dietitian.

Evaluations.

Patient participates and is willing to do things that cannot conveniently be done by staying at home. Nursing-care homes usually make observations of the patient's behavior. Orientation to the relevancy of treatment now and possibly for more later.

Concomitant learnings.

Accept the responsibilities that go with living in a group. Realize that the solution of most problems requires a great deal of teamwork. Realize that the best explanations and treatment we have today may be replaced with a more workable explanation.

Results from the Formal Education of Group II.

Discussion of data.

The major portion of the statistical work on both groups was gathered after knowing the individuals, and acting as their dietitian-instructor. Appendix B shows the data on Group I; Appendix C shows the data on Group II.

Each item in the distribution of blood sugar levels represents a real person. Luyke (65, p.195) said:

Clinical observations may be purely qualitative in nature, but their full value is seldom realized when taken singly. It is in comparison with, or in combination with, other similar observations that the solution of a particular problem may lie.

Among the functions of educational research is the encouragement of critical controlled clinical trials of new educational tools in the diagnosis, prevention and treatment of disease. Such trials must be pursued by known and adopted educational methods, procedures and statistical applications.

Principles of medical statistics.

Hill (48, p.15) states:

The initial use of statistics, as accurately and completely compiled as possible, is therefore to direct attention to the problems of health or ill-health presented by the population under study. A second objective in the use of statistical methods is the determination of the basic reasons for the contrasts observed. For

rules one can determine those reasons the development of effective preventive measures must obviously be hampered and may be misdirected.

From a study of the data it is suggested that the large group class approach by the physician and the dietitian as the personnel primarily concerned in the education of the patient be used. The unifying principle sought has been extension of the graded levels of instruction for all of the diabetic patients. This is accomplished by the use of the individual interview, the small group class at each appointed visit, and consummated in the large group class.

By this approach their over-all knowledge of the subject matter on diabetes had been increased. From a study of Tables 12 and 13 on the members of the large group class, it is demonstrated that they understood the basic principles of the control of diabetes as a result of this instructional period. There were no fatalities in the sample represented by these Group II members.

Family members had learned to recognize significant facts as illustrated by one relative who realized that a tuberculin syringe had been used instead of a diabetes association type syringe. The patient had been using the wrong syringe for three years.

Every experience affects the attitudes for better or worse, and helps set up preferences and aversions and makes

it easier or harder to act and influence objective conditions which may open new environments.

Discussion of Classification of Data for Blood Sugar.

Method of collection.

Each group of 590 patients was divided on the basis of presentation of blood sugar results.

1. Those who did not comply with the request for laboratory tests.
2. Those who presented the results of laboratory tests only once.
3. Those for whom two or more fasting blood sugar determinations had been carried out by the Folin-Wu method. These were studied in four ways:
 - a. The highest and lowest blood sugar value was reported for 438 patients in the Group I, and 384 patients in the Group II.
 - b. The two groups were compared with regard to:
 - (1) Frequency of hyperglycemia (fasting blood sugar of over 200 milligrams glucose per 100 milliliters),
 - (2) Degree of hyperglycemia.
 - (3) Frequency of hypoglycemia (fasting blood sugar of less than 70 milligrams glucose per 100 milliliters).
 - (4) Degree of hypoglycemia.
 - c. Rate of survival as an index of the control of complications.
 - d. Groups of matched individuals were selected from the Group I and the Group II, equated on the basis of sex, age, survival, and length of time period in which observations on fasting blood sugars were reported in that interval of time.

4. The highest and lowest blood sugar are reported in Appendix B on Group I. There are 438 patients in Group I with two fasting blood sugar determinations carried out by the Folin-Wu method.
5. The highest and lowest blood sugar are reported in Appendix C on Group II. There are 384 patients in Group II with two fasting blood sugar determinations carried out by the Folin-Wu method.
6. The two groups are compared (Table 14) with regard to:
 - a. Frequency of hyperglycemia (fasting blood sugar of over 200 milligrams glucose per 100 milliliters).
 - b. Degree of hyperglycemia (Table 15).
 - c. Frequency of hypoglycemia (fasting blood sugar of less than 70 milligrams glucose per 100 milliliters).
 - d. Degree of hypoglycemia (Table 16).
7. The two groups are compared on the rate of survival. This is an index of the control of the complications. The complications for Group I are listed in Appendix B. The complications are listed for the Group II in Appendix C.
 - a. Complications follow the coding set up by American Medical Association (Appendix D).
 - b. Survival rates as an evaluation index of complications were used (Chart 7) A significant difference at the one per cent level between Group I and Group II was shown in favor of Group II.
 - (1) In Group I, there were thirty-six fatalities in 438 members included.
 - (2) This meant a ninety-two per cent survival.
 - (3) There was one maternal death.

(2) The Group II of 384 patients had 12 fatalities, including no maternal deaths. This meant a ninety-seven per cent survival.

- c. Groups of matched individuals are tabulated in Table 6. These groups were equated on the basis of sex, age, survival, and length of time period in which observation on fasting blood sugar were reported in that interval of time.

Evaluation of Educational Procedures by the Physician and the Dietitian Medical Team.

Most of the work in developing health-practice tests has been in the realm of verbal examinations or written tests of the patients' performances, or power to execute certain techniques. These fasting blood sugar determinations have sought to measure the patients' knowledge of "what to do and why and how to do and why," or the application of knowledges.

Recognizing that ability to perform is not synonymous with the performance itself, the medical team has also been concerned with the problem of developing fasting blood sugar or appraising performance tests in the diabetes clinic. Clinical records of diet, urine check lists and various types of blood tests had been devised for use on the hospital wards, but urine tests have remained highly subjective and in many instances have been so generalized as to be of little value in appraising the patients' progress or in guiding future learnings. They have

customarily been used for the primary purpose of arriving at a grade for the patient's home work on a particular time of day.

Insofar as the investigator has been able to determine, fasting blood sugar devices have not been utilized for the purpose of evaluating and improving clinical practice. The question -- to what degree are the learning experiences, as developed and organized in the clinic, actually producing the desired results? -- is basic to improvement of the diabetic's curriculum. It is the purpose of this study to explore the possibilities of using high and low fasting blood sugar determinations as a means of identifying the strengths and weaknesses in planned experience programs in patient teaching.

These devices are constructed for use under actual conditions of hospital ward practice. The behavior to be appraised is highly complex and represents an integration of the patient's previous learnings and a broadening and deepening of those learnings as he adjusts to the immediate medical care situation. It is recognized that these teaching devices are by their nature more complex than other forms of testing such as a written examination.

Evaluation is essentially a process of determining the extent to which the educational objectives are being reached and realized.

TABLE 12

COMPARISON OF FASTING BLOOD SUGARS AS INFLUENCED BY THE EDUCATION FOR THE LARGE GROUP, BEGUN IN 1951

Large Group Class Subject Age Sex			PERIOD ONE, 1951			PERIOD TWO, 1952			RESULTS			
			FBS mg. % before starting ed- ucation of any organ- ized type	FBS mg. % after in- itial treatment & education	Difference following education measured in FBS/ 100 ml.	Onset large group class ten lessons	One year follow- ing group classes & formal education	Difference at end of a year after group classes	FBS before formal ed- ucation or treatment	FBS after formal ed- ucation or treatment	Difference in FBS from initial visit to end of study	Rank Based on improve- ment due to edu- cation
1	59	Fe	465	244	-221	121	158	+ 37	465	158	-307	1
2	50	Fe	417	106	-311	231	184	- 47	417	184	-233	2
3	60	Fe	263	153	-110	151	150	- 1	263	150	-113	3
4	72	Fe	272	141	-131	178	175	- 3	272	175	- 97	4
5	55	Fe	239	154	- 85	156	148	- 8	239	148	- 91	5
6	54	Fe	225	145	- 80	216	153	- 63	225	153	- 72	6
7	64	Fe	270	108	- 62	140	118	- 22	270	118	- 52	7
8	51	Fe	330	254	- 76	297	280	- 17	330	280	- 50	8
9	71	Fe	258	192	- 66	169	214	+ 45	258	214	- 44	9
10	14	M	114	123	+ 9	138	81	- 57	114	81	- 33	10
11	70	Fe	143	117	- 26	134	110	- 24	143	110	- 33	10
12	61	Fe	280	206	- 74	150	250	+100	280	250	- 30	12
13	87	Fe	131	130	- 1	109	109	0	131	109	- 22	13
14	64	Fe	160	283	+123	202	140	- 62	160	140	- 20	14
15	59	Fe	150	145	- 5	158	131	- 27	150	131	- 19	15
16	37	Fe	284	264	- 20	191	268	+ 77	284	268	- 16	16
17	51	Fe	171	149	- 22	148	163	+ 15	171	163	- 8	17
18	46	Fe	140	151	+ 11	121	155	+ 34	140	155	+ 15	18
19	47	Fe	134	147	+ 13	144	168	+ 24	134	168	+ 34	19

TABLE 13

FASTING BLOOD SUGAR DETERMINATIONS
IN LARGE GROUP CLASSES
1951 THROUGH 1952

Subject in Large Group Class	Sex	Age in Years	Fasting Blood Sugar mg. per 100 ml.	
			Highest Value	Lowest Value
1.	Male	59	465	81
2.	Male	14	440	90
3.	Female	50	417	159
4.	Female	51	375	70
5.	Female	64	364	80
6.	Female	40	346	98
7.	Female	46	334	101
8.	Female	60	290	106
9.	Female	37	284	212
10.	Female	61	280	94
11.	Female	64	270	109
12.	Female	75	263	210
13.	Female	72	262	113
14.	Female	71	258	171
15.	Female	76	236	155
16.	Female	55	236	152
17.	Female	54	225	139
18.	Female	51	185	150
19.	Female	59	158	138
20.	Female	47	158	134
21.	Female	70	145	103
22.	Female	87	132	131
23.	Female	47	132	129
24.	Female	42	132	77
25.	Male	50	130	97

Mean Age in years 56.08

Mean High Fasting Blood Sugar - 260.68 mg. per 100 ml.
Standard Deviation 85.457 mg. per 100 ml.

Mean Low Fasting Blood Sugar - 123.96 mg. per 100 ml.
Standard Deviation 28.574 mg. per 100 ml.

TABLE 14
FASTING BLOOD SUGAR DETERMINATIONS
IN SMALL GROUP CLASSES

Comparison of the High Fasting Blood Sugar Values in Both Groups										
Fasting blood sugar - FBS (normal universal value 80-120 milligrams per 100 milliliters)										
Fasting blood sugar value mg./100 ml.	1000-501	500-301	300-251	250-201	200-171	170-151	150-131	130-71	70-30	Cases
Group I										
Mean for subsection in 438 cases (Group I) ending 1950	671	355.30	277.97	228.37	187.33	161.68	141.26	118.80	0	
Number of patients	2	80	73	129	60	37	31	25	0	438
Standard deviation for sub- section in 438 cases (Group I) ending 1950	128.69	47.33	16.12	14.29	8.60	5.94	5.29	9.62	0	
Group II										
Mean for subsection in 384 cases (Group II) ending 1953	0	348.73	275.80	226.64	187.31	162.08	138.86	116.86	0	
Number of patients	0	79	97	92	48	26	21	21	0	384
Standard deviation for sub- section in 384 cases (Group II) ending 1953	0	48.27	12.97	15.41	8.79	5.97	5.74	11.61	0	

Remarks: The interval for the length of the distance between breaks in the fasting blood sugar was determined by the clinicians; hyperglycemia was considered to be above 200 mg. per cent FBS; hypoglycemia was considered to lie below 70 mg. per cent FBS; hypoglycemia and hyperglycemia are teaching problems.

TABLE 15
HYPERGLYCEMIA AS A TEACHING PROBLEM

Mean Group	Fasting Blood Sugar Levels							
	201-250		251-300		301-500		501-1000	
	N	mg./ 100 ml.	N	mg./ 100 ml.	N	mg./ 100 ml.	N	mg./ 100 ml.
I	129	228.37	73	277.97	80	355.30	2	617
II	92	226.64	97	275.80	79	348.73	0	0
Standard Deviation								
Group I		14.29		16.12		47.33		128.69
II		15.41		12.97		48.27		0

N = Number of Cases

TABLE 16
HYPOGLYCEMIA AS A TEACHING PROBLEM

	Fasting Blood Sugar Levels	
	Number of Cases	30-70 mg. per 100 ml.
Mean Group I	12	59.00
Mean Group II	10	63.40
Standard Deviation Group I		13.48
Standard Deviation Group II		5.66

Normal limits 80-120 mg. per cent plus or minus 10 mg. per cent. Mean fasting blood sugar is 100 mg. per cent; standard deviation is 10 mg. per 100 ml.

TABLE 17
FASTING BLOOD SUGAR DETERMINATIONS
GROUP I AND GROUP II

High Fasting Blood Sugar Values*		
	Group I N = 438	Group II N = 384
Mean	237.509 \pm S.E. 3.296	243.346 \pm S.E. 3.817
Standard Deviation	80.16	73.863
Low Fasting Blood Sugar Values*		
	Group I	Group II
Mean	139.178 \pm S.E. 1.965	138.73 \pm S.E. 2.246
Standard Deviation	47.73	43.784

*Values in mg. per 100 ml.

Discussion on Classes for the Obese.

Three-fourths of the patients had been over weight at some time in their clinical history and they had had need for weight reduction as a part of their education. This group is hard to reach because of its cultural background. The Mexican and the Negro pride themselves in being called well nourished. It was difficult to make the patient lose more than five pounds and still retain his interest in coming back for periodic check on his weight.

In Group II a very distressing fact that came out was that of the 259 female patients, 152 of them weighed over 140 pounds. Of the 376 patients, 206 had as high or higher recorded weight at their last visit than they did on their first visit, meaning to us that we have failed utterly in causing these patients to lose weight, or if they have lost weight, they have lost small amounts intermittently. All patients were to be ten per cent under the normal weight.

Discussion of Findings.

Analysis of variance table 18.

When a random block of fifty-seven patients was equated in sex, age, and number of months between initial fasting blood sugar and final fasting blood sugar, there was no statistical significant difference by the analysis of variance tables but there was a difference clinically.

TABLE 18
ANALYSIS OF VARIANCE
GROUP I AND GROUP II

Pair No.	Equated Groups			Group I			Group II			Total
	Sex	Age	No. of Months	Initial* FBS mg. %	Final FBS mg. %	Initial-Final FBS mg. %	Initial FBS mg. %	Final FBS mg. %	Initial-Final FBS mg. %	
1	Fe	50	9	214	187	27	232	181	51	78
2	Fe	52	15	297	128	169	190	110	80	249
3	Fe	49	15	160	125	35	223	151	72	107
4	M	72	12	220	133	87	234	254	-20	67
5	Fe	70	12	155	143	12	176	175	1	13
6	M	51	11	250	190	60	155	133	22	82
7	M	70	15	220	167	53	190	160	30	83
8	Fe	50	12	291	236	55	188	147	41	96
9	Fe	77	10	158	175	-17	200	145	55	38
10	Fe	50	12	222	131	91	253	152	109	192
11	Fe	59	10	264	138	126	159	159	0	126
12	Fe	59	9	183	144	39	273	268	5	44
13	Fe	70	9	211	141	70	240	200	40	110
14	M	64	15	170	132	38	195	195	0	38
15	Fe	71	14	260	136	124	167	185	-18	106
16	M	45	14	155	137	18	182	114	68	86
17	Fe	66	12	183	144	39	194	266	-72	-33
18	M	58	15	465	208	257	248	234	14	271
19	Fe	56	12	218	174	44	286	217	69	113
20	Fe	40	12	185	119	66	215	224	-9	57
21	Fe	75	10	275	149	126	280	176	104	230
22	Fe	48	9	152	108	44	327	208	119	163
23	M	73	14	220	102	118	157	154	3	121
24	Fe	64	12	245	198	47	159	83	76	123
25	Fe	68	9	171	191	-20	212	220	-8	-28
26	Fe	56	14	162	118	44	216	113	103	147
27	Fe	45	12	308	87	221	268	242	26	247
28	Fe	55	15	243	200	43	300	125	175	218
29	Fe	55	12	162	193	-31	153	152	1	-30
30	Fe	66	11	181	140	41	227	197	30	71

*Initial was always FBS above 150 mg. %

TABLE 18 (CONTINUED)
ANALYSIS OF VARIANCE
GROUP I AND GROUP II

Pair No.	Equated Groups			Group I			Group II			Total
	Sex	Age	No. of Months	Initial FBS mg. %	Final FBS mg. %	Initial-Final FBS mg. %	Initial FBS mg. %	Final FBS mg. %	Initial-Final FBS mg. %	
31	Fe	57	11	267	207	60	168	178	-10	50
32	M	41	11	164	168	-4	262	284	-22	-26
33	Fe	38	13	191	204	-13	193	186	7	-6
34	M	25	10	218	296	-78	240	200	40	-38
35	Fe	51	12	166	137	29	203	126	77	106
36	Fe	60	13	178	102	76	220	127	93	169
37	Fe	62	12	203	249	-46	332	175	157	111
38	M	54	13	341	137	204	183	123	60	264
39	M	48	10	223	157	66	279	113	166	232
40	Fe	73	11	200	151	49	258	195	63	112
41	Fe	64	12	156	154	2	170	145	25	27
42	Fe	51	14	150	164	-14	150	109	41	27
43	Fe	76	12	151	153	-2	284	193	91	89
44	Fe	68	12	196	224	-28	206	153	53	25
45	Fe	65	12	220	317	-97	162	154	8	-89
46	Fe	63	9	172	160	12	175	159	16	28
47	M	61	14	154	178	-24	170	180	-10	-34
48	M	68	15	264	197	67	168	225	-57	10
49	M	69	10	176	130	46	182	226	-44	2
50	Fe	34	12	273	206	67	175	135	40	107
51	Fe	63	12	150	206	-56	240	153	87	31
52	Fe	73	12	169	192	-23	225	163	62	39
53	Fe	67	12	188	175	13	184	145	39	52
54	Fe	51	9	330	254	76	189	150	39	115
55	Fe	66	9	164	124	40	282	228	54	94
56	Fe	54	9	225	159	66	196	113	83	149
57	Fe	72	11	242	250	-8	161	111	50	42

Analysis of Variance Calculations

Preliminary Calculations

(1)	(2)	(3)	(4)	(5)	(6)
Source of Variation	Total of Squares	No. of Items Squared	Observ. per Squared Item	Total of Squares per Observ. (2) * (4)	Sum of Squares (5) - correction
Correction	24,900,100	1	114	218,421.93	0
Treatment	12,482,818	2	57	218,996.81	574.88
Pairs	807,439	57	2	403,719.50	185,297.57
Individual	609,219	114	1	609,219.00	390,797.07

Analysis of Variance

Variation Due to:	Sum of Squares	Degrees of Freedom	Mean Square	F
Treatment	574.88	1	574.88	0.1571
Pairs	185,297.57	56	3,308.89	0.9042
Error	204,924.62	56	3,659.37	
Total	390,797.07			

Discussion of Analysis of Variance Calculations.

This small F value gives no evidence of difference between treatments. A difference of this size could probably be due to chance more than 50 per cent of the time.

The Group II members showed less variation within the pairs, an indication that the consistency in the findings of a lower fasting blood sugar level between pairs was stronger in Group II than in Group I. The Group II members, as a group, showed a greater difference between

the initial blood sugar value and the final blood sugar value. Ten of the fifty-seven in Group II had negative variations between the initial fasting blood sugar and the final fasting blood sugar; while fifteen of the fifty-seven in Group I had increased fasting blood sugar level in the interval between the initial reading and the final reading.

There was an average fasting blood sugar variation of over five milligrams per individual when the means were compared. This favors Group II members, lending weight to the belief that not only did fewer Group II members have persistently higher readings after the formal educational plan, but that the values for the blood sugar determinations were consistently lower for the random block sample.

CHART 7

SURVIVAL RATE AS AN INDEX OF COMPLICATIONS X²-CHART FOR PATIENTS PRESENTING TWO FASTING BLOOD SUGAR DETERMINATIONS

Treatment	Expired Subjects	Subjects Survived	Total Subjects
Group I			
No formal education	36	402	438
Group II			
Formal education	12	372	384
Total patients	48	774	821

Data on Index of Complications.

The investigator used survival rate as an evaluation index of complications, given in Chart 7.

Using the Fisher test on the two sample groups, a significant difference between Group I and Group II was shown at the one per cent level.

The Group I of 438 patients had 36 fatalities, including one maternal death. This meant a ninety-two per cent survival rate.

The Group II of 384 patients had 12 fatalities, without any maternal deaths. This meant a ninety-seven per cent survival rate.

Discussion of Maternity Clinic Classes for Diabetic Women.

Classes for maternity patients were available to diabetic patients. Classes for maternity patients were first begun April 9, 1946, at the White Memorial Clinic. Fathers' classes were begun November 23, 1947. Notices of these classes to diabetic prospective mothers were sent out by the Maternity Department of the White Memorial Clinic. A descriptive letter appears in Appendix A.

At the close of the six weeks of classes, the diabetic expectant mothers were given a certificate of attendance. The importance of these classes had been shown in the summary of sixteen pregnant Group I diabetic patients in whom the infant outcome was nine living, four stillborn,

one macerated monster, and three infants fatally succumbing shortly after birth. There was one maternal fatality in Group I. Three mothers had toxemia, one had epilepsy, one polyhramnia, and one Rh-negative blood type. Four of the eleven who had had previous pregnancies had lost children. No mothers expired in Group II.

Hospitalizations in Group II.

In Group II, 85.33 per cent of all patients were referred to the diabetes clinic primarily for management. Those referred for diagnosis only, preparations for surgery, and control during pregnancy, often returned to their own private medical doctor for management.

The reasons for forty-nine hospitalizations in 1951 in Group II members were:

1. Primary control.
2. Coma.
3. Local infection.
4. Genitourinary infection.
5. Heart disease.
6. Elective surgery.
7. Gall bladder infection.
8. Other reasons disclosed in Appendix C.

Death was due to coma, congestive failure, empyema, gall bladder infection, uremia, post-surgical shock, gangrene, coronary thrombosis, and illeus.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

Summary.

The first purpose of this study was to evaluate the effectiveness of an educational program begun in 1951, at the White Memorial Hospital and Clinic, Los Angeles, California. This program was reported in Chapter III. The second purpose of this study was to develop an organization designed to eliminate present difficulties in instruction and to improve health team educational procedures. This second objective was partially fulfilled in the responses to the questionnaire (APPENDIX A) cited in Chapter II. The health team organization in Chapter III provides supplementary material on the personnel principally concerned in each educational procedure. It is recognized by the diabetes agencies (8; 28; 7) that an effective organization utilizes all possible professional colleagues who have a contribution to make.

This study represents a systematic attempt, under educational auspices, to provide specific educational procedures and educational direction for patients. The health team providing the cooperative competencies in the educational program can be seen to differ in each clinical and hospital situation.

The findings in this study are based on a random sample of clinic patients. Out of 305,000 clinic patients seen from 1933 to 1953 at the White Memorial Clinic, Los Angeles, California, 590 patients were in Group I and 590 were in Group II. The sample with two blood sugar determinations, high and low, had in both groups the same percentage (71) women and (29) men, and the same mean age of 53 years. The differences in the blood sugar values lay in the extremes for the high values found in Group I.

Evaluation of Medical Care and Patient Education.

1. No coma, see Appendices B and C.
2. No gangrene.
3. Reduce the number of complications such as mycological infections.
4. Reduce the maternal and fetal mortality, morbidity and fatalities.
5. Reduce the complications in the young diabetic.
6. Reduce the weight of the obese patient.
7. Try to make the patient develop the philosophy that will permit him to live with a disease which he has accepted.

Summary of Questionnaire.

A questionnaire (APPENDIX A) was sent to professional organizations, physicians, registered nurses, dietitians and nutritionists. There were forty-eight responses used from clinical situations in the United States and Canada.

A summary of their general opinions is:

1. In the philosophy of the education of the diabetic, the primary responsibility for personal health is the responsibility of the patient himself (66, pp.10-11, 27-28). Yet, it is recognized that in this complex chronic disease a team of health team workers (59, p.15) is essential in training and educating the patient in ways of helping himself. The material the diabetic patient should be taught is still a matter of research since new knowledges are being discovered and old ones re-evaluated. Furthermore, the role of the members of the medical team, as instructors of the patient with Diabetes Mellitus, still needs further study.

2. In spite of the above complexities, there is sufficient knowledge to recommend certain educational procedures in current use.

The earliest use of a clinical teaching program in the United States for the diabetic in the hospital is credited to Joslin (59, pp.14-15). The example was followed by many other teaching centers. In these situations the members of the group are motivated by competition with other members of the group simultaneously being trained. The training goals are based on a careful analysis of what the patient should be taught in order to survive comfortably.

In Chapters II and III the organization of a plan for conducting different educational procedures is provided. In Chapter III the evaluation of an objective one is reached. Two groups of diabetic patients were followed by the investigator, beginning July 1, 1944, at the White Memorial Clinic, Los Angeles, California, ending September 15, 1953.

1. The basic group I was given no formal, organized educational plan in the management of their disease.

2. A second group II did receive formal instruction in the management of diabetes by the educational procedures to be described subsequently. A total of 1180 patients were followed.

Four educational processes are described:

1. Large group classes conducted by the physician and the dietitian as the principal personnel in the instruction of the diabetic patient.

2. Small group classes conducted by the physician and the dietitian for the patients and their family members at each appointed visit.

3. Special classes for patients in the exceptional groups not met by regular interviews or existing classes. The personnel was the physician and the dietitian or the nurse.

4. Other educational activities included interviews by members of the medical team. The physician and the

social worker were the personnel principally concerned in the social service follow-up studies. Tables and charts present the statistical findings, and discussion covers those activities not significant statistically.

Summary of the Educational Procedures.

1. The variable in this study is in the different types of educational procedures employed by the clinical teams. The physician and the dietitian as the principal members in the teaching nucleus for large group classes, small group classes, and special classes for the obese employed fasting blood sugar determinations to evaluate the results of their teaching. A consistent finding in each evaluation was the slight, but clinically significant, lowering of the highest value, and an evaluation of the exceedingly low values for Group II. Group II consistently demonstrated lower elevations of the fasting blood sugar highest-reported-value on individual patients that were approximately the same in age distribution, sex distribution, and socio-economic status, than Group I. The individual members of Group II (APPENDIX C) presented fewer complications than did the members of Group I (APPENDIX B), which was an index of the application of knowledge.

2. Group II was interviewed by each member of the clinical team at the time of each appointed visit. This was supplemental to and integrated with the classes that

were offered for expectant mothers. Such classes were conducted by the physician and the nurse as the personnel principally concerned in the instruction of the patient. The social worker and the dietitian acted as consultants to those patients needing special case work. The public health nurse, upon the recommendation of the physician, visited the patient in the home. Other educational activities were used to promote the interests and meet the needs of the diversified problems of the new diabetic, recently hospitalized patient, and emergency case.

3. A significant difference was found in the survival rate of Group II members. There were no maternal mortalities, and there were fewer fetal fatalities in those Group II obstetrical patients.

4. The physician and the social worker carried out individual conferences at the time of each appointed visit, and at the end of each fiscal year. The records show that social service contributions are very much improved over the period for Group I, but the need for more close affiliation with those new patients who do not return after the initial visit, provided motivation for the social worker. Three-fourths of the patients in Group II were over the age of fifty. In this aging population certain problems of diabetes confront the patient, and they need educational methods adopted to their adjustments concomitant with aging. Patients new to the White Memorial Clinic were potential

candidates for progressively advanced training in the newer methods of control.

5. Tasks peculiar to each professional worker are illustrated by the role of the physician in coding the complications according to the Standard nomenclature (10; 51; 40, pp.489-490) of diseases and operations. Another illustration is the task of calculation of the diet was peculiar to the role of the nutritionist (35, pp.218-219). A careful analysis of job components was essential for the design of the educational procedures used in this study.

Recommendations.

The most pressing needs that have arisen from this research are the extension of the use of educational procedures to a larger sector of the diabetic population, using the combined competencies of the health team to serve the needs of the patient. The need for cooperation, rather than competition, can nowhere be more urgently seen than in the care of the illiterate physically handicapped patient with low reading ability and limited educational achievement. This slow learner must, by the very nature of his difficulty, acquire certain more or less technical skills, knowledges, concepts and applications. To assist the learner, the following recommendations are made by the investigator as a result of the study:

1. Both individual interview by each member of the health team and classes furnishes a beneficial plan for the patient and the family members who are cooperating in the control of the chronic disease, hence conferences and classes have a place in the educational program.

2. The team approach in the different educational procedures makes the para-medical personnel combine their proficiencies with the medical staff, thus recommending pre-planning conferences where joint responsibilities can be outlined, and a plan of action detailed in a specific educational procedure.

3. The importance of interpersonal relationships with the family members and the health team is recognized hence the certificate of attendance for family members who attend the diabetic classes is also recommended.

4. It is recommended that all possible educational approaches be used. In the considerations to be made on the methods used for all patients, the complete battery of educational procedures could be endorsed, but the practical considerations would lead to endorsing them in their entirety for the new patient, and the young members of the group, depending on their maturity and psychological preparation for graded instruction by several clinical teams. In general, the criteria for the selection of academic subject matter should be its possible contribution toward

broadening the goals in the diabetic way of life.

5. Within the limits of the patient's ability, it is recommended that graded course work be planned and the amount and kind of subject matter in each unit presented be presented by the most applicable educational methods. Not one respondent in forty-eight replies to the questionnaire reported the length of time used in conducting the group classes, but the individual differences in the instruction recommend that a study be made to determine which topics within the class schedule be given more clock hours of instruction.

6. A final recommendation is that the technique of quantitatively evaluating the teaching experience by the use of high and low fasting blood sugar determinations as laboratory evidence be applied to the several learning situations.

A study is presented in which the difference in the supervisor of different educational procedures indicates that the physician supervisor is always a constant member in every team with the other ancillary professional members acting as consultants. The nutritionist or dietitian has the greatest teaching load and uses most of the approaches in the instruction of the patient with the chronic disease Diabetes Mellitus. The large group classes are highly recommended.

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APPENDICES

APPENDIX A

BIOGRAPHICAL INDEX AND REFERENCE DATES*

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4. Barach, Joseph H., M. D. University of Pittsburgh, School of Medicine. April 4, 1953.
5. Bauer, F. K., M. D. Director, Radioisotope Unit, Veterans Administration Center. Los Angeles. April 6, 1953.
6. Bowden, Ruth. Sansum Clinic, Santa Barbara, California. April 1, 1953.
7. Caso, Elizabeth K. Nutritionist, Diabetes Section, Department of Health, Education and Welfare Public Health Service, Boston. May 5, 1953.
8. Colley, Doris B. Assistant Director, University of Pennsylvania Graduate Hospital. Philadelphia. April 4, 1953.
9. Colwell, Arthur R., M. D. Northwestern University. Chicago. March 31, 1953.
10. Dukelow, D. A., M. D. American Medical Association Bureau of Health Education. Chicago. June 14, 1950.
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13. Forbes, Clara. Chief, Frances Stern Food Clinic. The Boston Dispensary. Boston. April 14, 1953.

*Appendix A

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15. Geiger, E., M. D., Ph.D. Professor of Pharmacology & Toxicology, University of Southern California, School of Medicine. Los Angeles. April 6, 1953.
16. Gerritzen, F., M. D. International Diabetes Federation. The Hague, Netherlands. May 27, 1953.
17. Goldman, Dorothy. Nutritionist, Syracuse Dispensary. Syracuse 3, New York. April 6, 1953.
18. Grover, W. W., M. D. Yankton Clinic. Yankton, South Dakota. 1p. April 20, 1953.
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20. Harwood, Reed, M. D. Boston, Massachusetts. June 1, 1953.
21. Haunz, E. A., M. D. Grand Forks Clinic. Grand Forks, North Dakota. June 9, 1953.
22. Holcomb, Blair, M. D. Portland, Oregon. March 30, 1953.
23. Hoxie, Harold J., M. D. Glendale Medical Center. March 31, 1953.
24. Hunter, Marlene. Dietitian on Metabolism Service. Barnes Hospital.
25. Jenne, Frank H. Assistant Secretary, Public Health Federation. Cincinnati. June 4, 1953.
26. Johns, Varner J., Jr., M. D. Associate Dean, College of Medical Evangelists. Los Angeles. March 3, 1953.
27. Joslin, E. P. New England Deaconess Hospital. Boston, Massachusetts. March 1, 1953.
28. Jones, George M., M. D. President of the Dallas Diabetes Association, Clinical Society, Dallas, Texas. June 24, 1953.

29. Kingsley, T. L. Executive Officer, New York Diabetes Association, Incorporated. May 11, 1953.
30. Kydd, David W., M. D. State University of New York College of Medicine. April 7, 1953.
31. Labby, Daniel H., M. D. Assistant Professor of Medicine, Department of Medicine, University of Oregon Medical School. March 18, 1953.
32. Larsson, Elisabeth, M. D. Gynecological Surgery and Obstetrics. Los Angeles, California. July 7, 1953.
33. Leach, Robert B., M. D. Diabetic Clinic. Wayne University. Detroit. April 24, 1953.
34. Ligon, Betty. Food Clinic Dietitian, Ohio Dietetic Association, Food Clinic General Hospital. Cincinnati. March 13, 1953.
35. Lockerbee, Isabel. Dietitian, Diabetic Association of Ontario, Toronto. April 2, 1953.
36. Macy, Dorothy, Jr., M. D. Head, Diabetic Clinic, W.M.C.P. Philadelphia. 2p. April 6, 1953.
37. Moore, Betty. Therapeutic Dietitian, University of Virginia Hospital. Charlottesville. April 3, 1953.
38. Moore, Maniza. Director of Dietetics, Vanderbilt University Hospital. Nashville, Tennessee, September 12, 1945.
39. Moseley, Vince, M. D. Medical College of the State of South Carolina. Charleston. March 31, 1953.
40. Moss, James M., M. D. Washington 6, D. C. March 24, 1953.
41. Munves, Elizabeth D. Curriculum Director, Nutrition Program, New York University School of Education. New York. June 17, 1953.
42. Neal, M. Pinson, M. D. Acting Dean, University of Missouri. Columbia. April 4, 1953.

43. Nelson, Kathryn J., R.N., M.A. Dean, School of Nursing, College of Medical Evangelists. Loma Linda, California. June 23, 1953.
44. Norwood, W. F. Vice-president, College of Medical Evangelists. Los Angeles. March 3, 1953.
45. Oursler, Helen. Food Clinic Dietitian, University of Oklahoma, School of Medicine and University Hospitals. Oklahoma City. April 2, 1953.
46. Palmer, Lester J., M. D. Mason Clinic, Seattle, Washington. June 8, 1953.
47. Perera, George A., M. D. Columbia University, College of Physicians and Surgeons. New York. April 7, 1953.
48. Perkoff, Gerald T., M. D. University of Utah, Department of Internal Medicine. Salt Lake City, March 30, 1953.
49. Peters, John P., M. D. Professor of Medicine, Yale University School of Medicine. New Haven, Connecticut. March 30, 1953.
50. Peterson, John E., M. D. College of Medical Evangelists. Los Angeles. March 1, 1953.
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55. Saunders, M., M. D. Department of Medicine, Tulane University of Louisiana. New Orleans, May 6, 1953.

56. Shuman, Charles R., M. D. Temple University, School of Medicine and Hospital. Philadelphia. March 27, 1953.
57. Shutzky, B., M. D. Director of the Dispensary, Creighton University School of Medicine. Omaha. March 24, 1953.
58. Sindoni, Anthony J., M. D. Philadelphia General Hospital. Philadelphia, Pennsylvania. November 2, 1953.
59. Smith, E. R., M. D. Director, Florida State Board of Health. Jacksonville. June 18, 1953.
60. Stalnaker, John M. Director of Studies, Association of American Medical Colleges. Chicago. February 26, 1953.
61. Stilson, Homer O., M. D. Assistant Director, Professional Services. White Memorial Hospital and Clinic, College of Medical Evangelists. Los Angeles. March 16, 1953.
62. Toews, Virginia. Educational Director, University of Kansas Medical Center. Kansas City. March 27, 1953.
63. Walton, H. M., M. D. Director of Professional Services, White Memorial Hospital. Los Angeles. June 2, 1953.
64. Wilkens, I. W., M. D. Indianapolis. June 2, 1953.
65. Wilson, D. R., M. D. Department of Metabolism. University of Alberta Hospital. Edmonton, Alberta. March 12, 1953.
66. Woodward, Clara. Executive Secretary and Assistant Treasurer. Philadelphia Metabolic Association. Affiliate of the American Diabetes Association. June 2, 1953.
67. Wrenshall, G. A. Associate Professor. Banting and Best. Department of Medical Research. University of Toronto. May 6, 1953.

68. Yakel, Ruth M. Executive Secretary, American Dietetic Association. Chicago. March 18, 1953.

CHART 8

White Memorial Clinic
304 North Boyle Avenue
Los Angeles 33, Calif.
August 31, 1951

Dear Mother-to-be:

We are happy to announce that the next series of Mother's Classes will begin Tuesday, September 12, at 9:30 A.M. You are cordially invited to attend the series of six classes and receive a certificate upon completion. These classes are free and you may bring a friend or neighbor who might also be expecting a baby.

The schedule for the classes will be as follows:

I.	How does your baby grow	September 12
II.	Hygiene of pregnancy	September 19
III.	Layette and supplies	September 26
IV.	The birth experience	October 3
V.	The baby's bath	October 10
VI.	Mother and baby at home	October 17

We are looking forward to your joining our group.

Sincerely,

L. Beatrice Gore, R.N.
Instructor, Mothers' Classes
White Memorial Clinic

LBG:ag

CHART 9

COPY OF THE LETTER WHICH PRECEDED THE GROUP CLASSES

White Memorial Clinic
304 North Boyle Avenue
Los Angeles 33, Calif.
November 5, 1951

Dear Friend:

National Diabetes Week is November 11 to 17, 1951. During this week throughout the Nation an effort is being expended to make diabetes detection possible to as many persons as can be contacted. It is our purpose to encourage you to bring to the attention of your relatives and family the value of a urine test on each one of them to detect unsuspected diabetes. Sometime during the National Diabetes Week will you use your Clinitest or Benedict's test procedure on a urine specimen of every member of your family group and as many relatives as you can get to cooperate. This test should be done one and one-half hours after the heaviest meal. We trust that you will have a report for us at the time of your next clinic visit so that we can summarize the results. For those who need further study, we suggest they see the doctor of their choice.

You are cordially invited to attend a series of lectures on Diabetes Mellitus which is starting the National Diabetes Week program here for our clinic and which is particularly for our clinic patients, their relatives and others who may be interested. These free classes will be held each week for ten periods from November 11, 1951, to January 27, 1952. No class will be held during the Christmas holidays. The first class will be held in Evans Hall in the White Memorial Clinic at 304 North Boyle Avenue, Los Angeles 33, California, at 2:00 P.M. on November 11. Future dates will be announced then. Class instruction will consist of demonstrations, informal discussions and question periods by members of our staff. Patients have requested such instruction for some time and now we have the plans completed.

There are many advantages in knowing a great deal about the care of diabetes and its control. The Diabetes Staff is

Chart 9, continued

anxious to see you participate in all the advantages that its educational program can afford. For further information Miss Alfaretta Johnson, clinic dietitian, can be contacted at ANGelus 3-7525, Extension 26.

Very sincerely yours,

Homer O. Stilson, M.D.
Assistant Director
Professional Services
White Memorial Hospital
and Clinic

HOS:ag

CHART 10

LETTER TO ACCOMPANY QUESTIONNAIRE

3261 Jackson Street
Corvallis, Oregon
March 1, 1953

Director of Diabetes Section
Street
City or town, State, Zone

Dear Director of the Diabetes Section:

I have read with interest of your timely detection and educational campaign directed at helping find diabetic individuals who have not known that they had Diabetes Mellitus. What educational tools did you find were most helpful? I am a graduate student at Oregon State College and have been a clinic dietitian for a number of years studying the problem of education of the diabetic individual. It is important that timely tools be used in the education of each patient, and from the attached questionnaire you can see I am primarily interested in what knowledge, attitudes and practices should be furnished, and how do you measure progress in instruction?

For some time I have been working with group classes and am wondering if you have materials you can share with me that you use in group instruction. This problem is one that is of rather recent interest with the supplementary group instruction of the patient presenting a need for instructional materials. Do you develop your own forms?

Thank you very much for your assistance. I am

Very truly yours,

Miss A. Johnson, Dietitian

CHART 11
QUESTIONNAIRE

Dear Doctor:

Will you please furnish the brief answers to the following questions on the education of the patient with Diabetes Mellitus:

Section I. Institutional and Individual Objectives.

What Knowledge Should Be Provided?

What Attitudes Should Be Formed?

What Practices Should Be Developed?

What Are the Expected Total Behavior Outcomes?

What Are the Reference Sources in Setting Up These Objectives?

How Are Evaluations Made as to Whether These Objectives are Being Met?

Section II. Changes in Behavior Come As a Result of Knowledge, Attitudes, and Practices in What Specific Areas? What Are the Objectives for the Home, School, Community, Society, Church and Industry?

What Instructional Team is Used? Clinic or Medical Team?

How Do You Measure Your Progress in Instruction?

Section III. I am interested in knowing whether you think that the more education that the diabetic patient has, the better chance there will be to lower the blood sugar, all other things being equal.

Certificate of Attendance

WHITE MEMORIAL CLINIC
LOS ANGELES, CALIFORNIA

This is to Certify that

Has Attended _____ classes of
INSTRUCTION ON DIABETES MELLITUS

Date _____

APPENDIX B

TABLE 19

GROUP I - DISEASE COMPLICATIONS AND OTHER SPECIAL CONDITIONS

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
1	49	Female	Russian	Homemaker	Heart case: Angina, Obesity, Osteoarthritis of both knees, Herpes Zoster, Diabetes Mellitus
2	27	Female	Mexican	Homemaker	Diabetes Mellitus while pregnant, Toxemia of pregnancy
3*	71	Female	German	Housework	Decompensation, Cardiovascular Disease, Hypertension, Varicosities, Paronychia, Stasis Ulcer of the left ankle, Diabetes Mellitus
4	56	Female	Caucasian	Homemaker	Diabetes Mellitus, possible, early
5	70	Female	Caucasian	Homemaker	Diffuse Non-toxic Goiter, Hypertension, Salpingectomy, Hysterectomy, Diabetes Mellitus
6	41	Female	Spanish	Homemaker	Scurvy and Avitaminosis, Neuritis, Diabetes Mellitus
7	51	Female	Caucasian	Homemaker	Neuritis, Obesity, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
8	59	Female	Belgian	Homemaker	Pruritus, Obesity, Diabetes Mellitus
9	57	Female	Jewish-Russian	Homemaker	Pruritus vulva, Retinopathy, Diabetes Mellitus
10	51	Female	Jewish-Russian	Factory Worker	Pruritus, Diabetes Mellitus, Visual changes
11	35	Female	Caucasian	Homemaker	Pruritus vulva, Grand Mal Epilepsy, Hypertension, Toxemia of Pregnancy, Obesity, Diabetes Mellitus
12	58	Female	Negro	Day Work	Arrested Tuberculosis, Dry Gangrene, Diabetes Mellitus
13	56	Female	Negro	Housework	Obesity, Diabetes Mellitus
14	54	Female	Mexican	Homemaker	Varicosities, Cholecystectomy, Obesity, Diabetes Mellitus, Ulcer of the leg
15	50	Female	Jewish-Russian	Homemaker	Pruritus labia, Epidermophytosis all toes, Obesity, Arthritis, Pediculosis Corporis, Diabetes Mellitus, mild
16	57	Male	Jewish-Russian	Raincoat Maker	Coronary Heart Disease, Pancreatitis chronic, Diabetes Mellitus, Inguinal Hernia bilateral

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
17	48	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
18	63	Female	Russian	Housework	Obesity, Diabetes Mellitus
19	51	Female	Caucasian	Homemaker	Hypothyroidism, Visual changes, Malnourished, Labile Diabetes Mellitus with Myxedema
20	52	Female	Caucasian	Unemployed	Herpes Zoster, Visual changes, Malnourished, Senile Diabetes Mellitus
21	60	Female	Caucasian	Homemaker	Diabetes Mellitus, Visual changes
22	64	Female	Negro	Unemployed	Hypertension, Marked Pitting Edema of the ankles, Macular Lesions in the lumbar region, Hypoproteinemia, Diabetes Mellitus, Visual changes
23	47	Female	Caucasian	Homemaker	Vasomotor Instability, Atypical Migraine, Diabetes Mellitus
24	20	Female	Caucasian	Bank Teller	Pregnancy, Malnourished, Hypothyroidism, Diabetes Mellitus
25	52	Male	Armenian	Upholsterer	Obesity, Tabes dorsalis, Diabetes Mellitus
26*	62	Female	Negro	Homemaker	Keratosis, Arteriosclerosis, Cardiac Decompensation, Seborrhea, Osteoarthritis, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
27	46	Female	Negro	Homemaker	Hypertension, Peripheral Neuritis, Diabetes Mellitus, Visual changes
28	48	Female	Negro	Homemaker	Hypertension, Obesity, Latent Syphilis, Retinopathy, Left Hemiplegia, Diabetes Mellitus
29	67	Female	Caucasian	Homemaker	Obesity, Auricular Fibrillation, Diabetes Mellitus, Retinopathy
30	62	Male	Negro	Custodian	Obesity, Neuropathy, Syphilis, Senile Diabetes Mellitus, Cataracts
31	56	Female	Caucasian	Saleswoman	Obesity, Hypertension, Varicosities, Diabetes Mellitus
32	68	Female	Scottish	Homemaker	Obesity, Hypertension, Retinopathy, Papular lesions, Senile Diabetes Mellitus
33	70	Female	Russian	Homemaker	Burning of tongue, Urethritis, Senile Diabetes Mellitus, mild
34	52	Female	Negro	Homemaker	Chronic constipation, Obesity, Retinitis, Skin dry and scaly, Hypertension, Diabetes Mellitus mild
35	56	Female	Negro	Cook	Hypertension, Anorexia, Blurring vision, Numbness and tingling feet and hands, Diabetes Mellitus mild

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
36	57	Female	Mexican	Homemaker	Obesity, Hypertension, Arteriosclerosis, Intermittent Claudication of arms and legs, Diabetes Mellitus
37	45	Female	Caucasian	Homemaker	Obesity, Pruritus vulva, Otitis Media chronic, Diabetes Mellitus
38*	69	Female	Negro	Homemaker	Obesity, Visual changes, Diabetes Mellitus mild
39	38	Female	Negro	Homemaker	Obesity, Chronic Peridontosis and Apical Abscess, Diabetes Mellitus
40	46	Female	Negro	Homemaker	Obesity, Heart Disease, Diabetes Mellitus
41	12	Male	Mexican	School boy	Visual changes, Diabetes Mellitus
42	47	Female	Mexican	Homemaker	Chronic Cholecystitis, Obesity, Arthritis, Diabetes Mellitus
43	79	Male	Caucasian	Retired	Obesity, Senile Keratosis of the hands, Diabetes Mellitus
44	66	Female	Negro	Homemaker	Visual changes, Obesity, Marked Weakness, Peripheral Neuritis, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
45	64	Female	Caucasian	Clothing Factory	Angina Pectoris, Hypertensive Heart Disease, Obesity, Varicosities, Diabetes Mellitus
46	60	Female	Caucasian	Homemaker	Obesity, Hypertension, Arthritis, Diabetes Mellitus
47	55	Female	Caucasian	Factory Wrapper	Arthritis, Diabetes Mellitus mild
48	80	Female	Mexican	Homemaker	Intercapillary Glomerular Renal Failure, Diabetes Mellitus
49	61	Female	Caucasian	Housekeeper	Obesity, Visual changes, Diabetes Mellitus
50	8	Male	Caucasian	School boy	Glycosuria, Juvenile Diabetes Mellitus
51	39	Male	Caucasian	Sheet Metal	Epidermophytosis of feet and hands, Obesity, Diabetes Mellitus
52	39	Male	Mexican	Cement Worker	Malnourished, Syphilis, Phimosis, Diabetes Mellitus
53	64	Female	Jewish-Russian	Homemaker	Psoriasis, Obesity, Cystitis, Urethral Carbuncle, Acute Tonsillitis and Pharyngitis, Diabetes Mellitus mild

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
54	55	Female	Jewish-Polish	Seamstress	Inguinal Hernia, Diabetes Mellitus, Malnourished
55	69	Female	Caucasian	None	Nutritional Failure, High Blood Pressure, Renal Infection, Hypertension, Diabetes Mellitus
56	52	Female	Mexican	Die Setter	Bilateral Varicosities, Obesity, Epigastric Pain, Diabetes Mellitus mild
57	62	Male	Caucasian	Teacher	Obesity, Hay Fever, Diabetes Mellitus
58	56	Male	Austrian	Electrician	Enlarged Thyroid, Diabetes Mellitus, Epigastric Pain
59	60	Female	Jewish-Russian	Homemaker	Pruritus vulvae, Obesity, Diabetes Mellitus
60	20	Female	Caucasian	Homemaker	Hyperinsulinism during pregnancy, Juvenile Diabetes Mellitus
61	60	Female	Jewish-Russian	Homemaker	Obesity, Hemoptysis, Diabetes Mellitus, senile
62*	67	Male	Caucasian	Cook	Mitral Stenosis, Retinopathy, Lesion of tongue with Palpable Anterior Cervical Nodes, Diabetes Mellitus, Malnourished

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
63	56	Female	Caucasian	Homemaker	Pruritus, Obesity, Moniliasis, Senile Diabetes Mellitus mild
64	49	Female	Caucasian	Cafeteria Worker	Pruritus, Obesity, Hypertension, Arteriosclerosis, Diabetes Mellitus
65	66	Female	Caucasian	Homemaker	Gangrene of the toe, Malnutrition, Obesity
66	62	Male	Jewish-Romanian	Mechanic	Obesity, Diabetes Mellitus, Visual changes
67	54	Female	Russian	Saleslady	Grand Mal, idiopathic, Obesity, Diabetes Mellitus, Hypoglycemia
68	55	Female	Caucasian	Homemaker	Obesity, Allergic Rhinitis, Diabetes Mellitus mild
69	60	Female	Caucasian	Homemaker	Obesity, Chronic Constipation, Chronic Cholecystitis, Pulmonary Tuberculosis, Heart Disease, Diabetes Mellitus
70*	56	Female	Negro	Domestic	Pruritus vulvae and anus, Peripheral Neuritis, Otomycosis, Diabetes Mellitus mild

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
71	41	Female	Caucasian	Homemaker	Pruritus, Diabetes Mellitus
72	72	Female	Caucasian	Homemaker	Paralysis, Obesity, Senile Diabetes Mellitus
73	68	Female	Caucasian	Housekeeper	Chronic Cystitis, Obesity, Diabetes Mellitus
74	55	Male	Caucasian	Painter	Claudication of right leg, Diabetes Mellitus
75	49	Female	Negro	Homemaker	Vein Ligation, Pruritus, Diabetes Mellitus
76*	60	Female	Caucasian	Homemaker	Hypertensive Cardiovascular Disease, Obesity, Diabetes Mellitus
77*	73	Male	Jewish-Russian	Foundry Worker	Cirrhosis of the liver, Bilateral Cataracts, Cystitis, Diabetes Mellitus mild
78	45	Male	Caucasian	Stock Clerk	Epidermophytosis, Infection of left ankle, Diabetes Mellitus
79*	38	Female	Caucasian	Homemaker	Convulsive Disorder in Brittle Juvenile Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
80	57	Female	Russian	Homemaker	Internal and External Hemorrhoids, Diabetes Mellitus
81*	63	Female	Russian	Cook	Obesity, Myocardial Infection, Pulmonary Pneumonia, Cholelithiasis, Cholecystitis, Diabetes Mellitus
82	65	Female	Jewish-Russian	Homemaker	Obesity, Cystitis, Peripheral Neuritis, Diabetes Mellitus mild
83	66	Female	Jewish-Russian	Homemaker	Obese, Hyperkinetic Personality, Diabetes Mellitus mild
84	83	Male	Caucasian	Retired	Cerebral Arteriosclerosis, Diabetes Mellitus mild, Obesity
85	70	Female	Negro	Homemaker	Arthritis, Diabetes Mellitus, Malnourished, Visual changes
86	57	Female	Caucasian	Homemaker	Obesity, Osteoarthritis spine, Hypertension moderate, Diabetes Mellitus mild
87	61	Female	Jewish-Polish	Homemaker	Pruritus, Obesity, Diabetes Mellitus
88	59	Male	Caucasian	Carpenter	Spots before eyes, Macular Rash, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
89	64	Male	Caucasian	Retired	Diabetes Mellitus
90	56	Female	Caucasian	Counselor	Marked Dizziness, Diabetes Mellitus
91	65	Female	Negro	Homemaker	Gangrenous Ulcer of the left foot, Obesity, Diabetes Mellitus
92	74	Female	Negro	Domestic	Seborrheic Keratosis, General Arteriosclerosis, Retinopathy, Diabetes Mellitus
93	65	Female	Czechoslovak	Domestic	Hyperplastic Retinitis, Pancreatic type Diabetes Mellitus
94	52	Male	Hungarian	Salesman	Pernicious Anemia, Inguinal Hernia, Diabetes Mellitus
95	59	Female	Negro	Homemaker	Hyperthyroidism, Hypertensive Cardiovascular Disease, Mycotic Infection, Senile Diabetes Mellitus
96*	63	Female	Greek	Homemaker	Hypertension, Kimmelstiel's Wilson's Disease, Visual changes, Diabetes Mellitus mild
97	63	Female	Negro	Homemaker	Obesity, Paresthesia of right leg, Hypertensive Heart Disease, Thyroid moderately enlarged, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
98	56	Female	Caucasian	Homemaker	Obesity, Leucoplakia tongue and lips, Diabetes Mellitus
99	74	Female	Mexican	Domestic	Angina Pectoris, Arteriosclerotic Heart Disease, Cataracts, Diabetes Mellitus moderate
100	62	Female	Caucasian	Retired	Cystitis, Lesions on finger and toe not healing, Diabetes Mellitus, Malnourished
101	57	Male	Caucasian	Writer	Hypertrophic Arthritis, Diabetes Mellitus
102	56	Female	Negro	Homemaker	Obesity, Cholecystitis, Hypertrophic Arthritis, Infection of small toe, Diabetes Mellitus
103	59	Male	Caucasian	School Teacher	Diabetes Mellitus
104	56	Female	Caucasian	Homemaker	Obesity, Hypertension, Pruritus vulva, Diabetes Mellitus
105	60	Female	Caucasian	Homemaker	Obesity, Hypertensive Heart Disease, Diabetes Mellitus, Visual changes
106	65	Female	Caucasian	Domestic	Hypertension, Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
107	26	Female	Caucasian	Domestic	Obesity, Diabetes Mellitus
108	60	Female	Jewish-Romanian	Seamstress	Obesity, Osteoarthritis, Arteriosclerosis, Fibrositis, Diabetes Mellitus
109	61	Female	Mexican	Homemaker	Obesity, Dermatophytosis, Enlarged Thyroid, Diabetes Mellitus
110	31	Female	Mexican	Homemaker	Convulsive Disorder due to Hypoglycemia, Lupus Erythematosus, Diabetes Mellitus
111	73	Male	Jewish	Janitor	Diabetes Mellitus
112	15	Male	Caucasian	Student	Malnourished, Diabetes Mellitus
113	39	Female	Caucasian	Homemaker	Eczematoid Dermatitis, Diabetes Mellitus
114	34	Male	Mexican	Laborer	Hypertrophic Gingivitis, Diabetes Mellitus
115	60	Female	Caucasian	Homemaker	Obesity, Urinary Infection, Diabetes Mellitus
116	71	Female	Caucasian	Homemaker	Obesity, Dermatitis Venenata, Diabetes Mellitus mild

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
117*	63	Female	Negro	Homemaker	Obesity, Nontoxic Goiter, Hypertension, Imminent Decompensation, Diabetes Mellitus
118	55	Female	Mexican	Homemaker	Diabetes Mellitus
119*	65	Female	Caucasian	Homemaker	Obesity, Carcinoma rectum, Diabetes Mellitus
120	48	Female	Caucasian	Homemaker	Obesity, Trichomonas Infection, Diabetes Mellitus
121	53	Female	Jewish	Homemaker	Ulcer of left foot, Diabetes Mellitus
122	45	Female	Negro	Homemaker	Diabetes Mellitus
123	57	Male	Caucasian	Mining Engineer	Gangrene of left toes, Intercapillary Glomerular Fibrosis, Diabetes Mellitus, Visual changes
124	16	Female	Caucasian	Student	Diabetes Mellitus
125*	58	Female	Caucasian	Homemaker	Pulmonary Disease, Cirrhosis of the liver, Diabetes Mellitus, Malnourished
126	34	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
127	54	Female	Caucasian	Homemaker	Hypertensive Heart Disease with Arteriosclerosis, Diabetes Mellitus
128	67	Female	Mexican	Homemaker	Obesity, General Fibrositis, Peripheral Neuritis, Diabetes Mellitus
129*	68	Female	Caucasian	Housework	Hypertensive Cardiovascular Disease, Diabetes Mellitus
130	27	Female	Caucasian	Cashier	Coma, Diabetes Mellitus, Juvenile
131	66	Male	Caucasian	Sheet Metal Worker	Obesity, Diabetes Mellitus mild
132	63	Female	Caucasian	Homemaker	Obesity, Arteriosclerosis, Angina Pectoris, Diabetes Mellitus
133	43	Female	Caucasian	Homemaker	Obesity, Lues, Diabetes Mellitus mild
134	38	Female	Jewish-Polish	Homemaker	Dermaphytosis of the toes, Diabetes Mellitus
135	59	Female	Negro	Homemaker	Decubitus Ulcer of the heel, Bilateral Cataracts, Diabetes Mellitus
136	31	Female	Negro	Homemaker	Obesity, Neuritis, Conjunctivitis, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
137	74	Female	German	Homemaker	Ulcer of left foot, Cystitis, Diabetes Mellitus
138	54	Female	German	Homemaker	Diabetes Mellitus
139	34	Female	Mexican	Homemaker	Obesity, Pruritus vulva, Diabetes Mellitus
140	50	Female	Negro	Homemaker	Obesity, Diabetes Mellitus, Visual changes
141*	69	Female	Negro	Homemaker	Hypertensive Cardiovascular Disease due to Arteriosclerosis, Onychomycosis, Diabetes Mellitus mild
142*	72	Female	Swedish	Domestic	Parenchyma, Hypertensive Cardiovascular Disease, Diabetes Mellitus mild
143	57	Female	Mexican	Homemaker	Obesity, Senile Diabetes Mellitus, Visual changes
144	63	Female	Caucasian	Homemaker	Tinea Cruris, Diabetes Mellitus
145	50	Female	Caucasian	Hotel Worker	Obesity, Osteoarthritis, Diabetes Mellitus
146	52	Female	Caucasian	Homemaker	Obesity, Ulcer of the great toe, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
147	60	Male	Russian	Butcher	Obesity, Syphilis, Diabetes Mellitus
148	46	Female	Negro	Janitress	Parenychia, Moniliasis vagina, Retinopathy, Diabetes Mellitus
149	78	Female	Caucasian	Homemaker	Hypertensive Cardiovascular Disease, Retinitis, Diabetes Mellitus
150	29	Female	Negro	Homemaker	Obesity, Cystitis, Pruritus, Diabetes Mellitus
151	55	Female	Caucasian	Factory Worker	Ulcer of foot, Arteriosclerosis Obliterans, Polyneuritis, Diabetes Mellitus
152	42	Male	Caucasian	Water Company	Obesity, Diabetes Mellitus
153	22	Female	Caucasian	Stenographer	Chronic Pulmonary Tuberculosis, very far advanced, Diabetes Mellitus
154	72	Female	Russian	Retired	Obesity, Congestive Heart Failure, Visual changes, Diabetes Mellitus
155	68	Female	Caucasian	Homemaker	Obesity, Genitourinary Infection, Respiratory Infection, Arteriosclerosis Obliterans, Senile Diabetes Mellitus
156	58	Female	Negro	Homemaker	Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
157	46	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
158	54	Female	Negro	Janitress	Obesity, Diabetes Mellitus mild
159	18	Female	Caucasian	Homemaker	Obesity, Pruritus vulvae, Toxemia of Pregnancy, Diabetes Mellitus
160	54	Male	Mexican	Laborer	Obesity, Herpes Zoster, Diabetes Mellitus
161*	60	Male	Jewish	Tailor	Lichen's Simplex, Bronchial Asthma, Diabetes Mellitus mild
162*	67	Female	Mexican	Homemaker	Obesity, Bilateral Cataracts, Osteoarthritis, General Arteriosclerosis, Diabetes Mellitus
163	46	Female	Caucasian	Homemaker	Obesity, Arteriosclerotic Heart Disease, Diabetes Mellitus
164	48	Female	Caucasian	Domestic	Obesity, Diabetes Mellitus
165	63	Female	Caucasian	Homemaker	Obesity, Cystitis, Diabetes Mellitus
166	47	Male	Caucasian	Plasterer	Hepatic Cirrhosis, Obesity, Diabetes Mellitus
167	61	Female	Jewish	Homemaker	Obesity, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
168	63	Female	Caucasian	Homemaker	Hypothyroidism, Obesity, Retinitis, Senile Diabetes Mellitus
169	43	Female	Negro	Beauty Operator	Obesity, Diabetes Mellitus, Visual changes
170	59	Female	Caucasian	Seamstress	Obesity, Nontoxic Goiter, Diabetes Mellitus
171	38	Female	Caucasian	Seamstress	Obesity, Diabetes Mellitus
172	51	Female	Negro	Homemaker	Obesity, Infection of right foot, Diabetes Mellitus
173	33	Male	Caucasian	Auditor	Diabetes Mellitus
174	50	Female	Mexican	Homemaker	Diabetes Mellitus, Visual changes
175	34	Female	Negro	Homemaker	Mild Hypertension, Toxemia of pregnancy, Diabetes Mellitus
176	31	Female	Mexican	Homemaker	Hypoglycemic Reactions, Hypo-ovarianism with Menopause Syndrome, Diabetes Mellitus
177	53	Female	Caucasian	Homemaker	Obesity, Rheumatic Heart Disease, Hypertrophic Arthritis, Cholecystitis, Arterio-retinopathy, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
178	66	Male	Caucasian	Retired	Obesity, Peripheral Arteriosclerosis, Cataracts, Atrophic Ulcer of the right great toe, Diabetes Mellitus
179	43	Female	Jewish	Homemaker	Obesity, Hypothyroidism, Chronic Anxiety State, Diabetes Mellitus
180	65	Female	Jewish	Homemaker	Obesity, Hypertension, Arteriosclerosis, Impending Gangrene of the right foot, Diabetes Mellitus
181	58	Male	Spanish	Clerk	Advanced Portal Cirrhosis, Extensive Varicosities with severe Stasis Dermatitis, Peripheral Neuropathy, Diabetes Mellitus
182	52	Female	Russian	Homemaker	Obesity, Seborrheic Eczema, Hypertension, mild Peripheral Neuritis, Kimmelstiel's Wilson's Disease, Erythematous Patches over body, Ear Discharge, Diabetes Mellitus
183	45	Female	Caucasian	Homemaker	Diabetes Mellitus
184	35	Female	Negro	Homemaker	Obesity, Diabetes Mellitus
185	69	Female	Jewish	Homemaker	Thyroidectomy, Diabetes Mellitus
186	46	Male	Caucasian	Laborer	Cirrhosis, Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
187	53	Male	Mexican	Typist	Diabetes Mellitus
188	21	Female	Caucasian	Waitress	Diabetes Mellitus
189	55	Female	Mexican	Homemaker	Slight Obesity, Thyroid slightly enlarged, Chronic Pyelonephritis, Diabetes Mellitus
190	17	Female	Caucasian	Student	Juvenile Diabetes Mellitus
191	64	Female	Caucasian	Music Teacher	Obesity, Bilateral Cataracts, Diabetes Mellitus
192*	73	Male	Caucasian	Minister	Diabetes Mellitus
193	56	Female	Mexican	Homemaker	Pruritus genitalia, Visual changes, Diabetes Mellitus mild
194	42	Female	Negro	Homemaker	Obesity, Monilia Vulvitis, Diabetes Mellitus
195	40	Female	Mexican	Waitress	Obesity, Diabetes Mellitus
196	62	Female	Negro	Dishwasher	Obesity, Diabetes Mellitus, Visual changes
197	78	Female	Caucasian	Homemaker	Urethral Carbuncle, Malnourished, Hypertension, Diabetes Mellitus, Visual changes

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
198	65	Male	Jewish	Sculptor	Infection of great toe, Osteoarthritis, Peripheral Neuritis, Diabetes Mellitus
199	61	Female	Caucasian	Retired	Obesity, Upper Respiratory Infection, Diabetes Mellitus
200	21	Female	Negro	Homemaker	Obesity, Lues, Diabetes Mellitus
201	9	Female	Caucasian	Student	Juvenile Diabetes Mellitus early
202	42	Male	Caucasian	Plasterer	Obesity, Hypoglycemic Reactions, Diabetes Mellitus
203	63	Male	Negro	Cook	Slightly Obese, Psoriasis, Diabetes Mellitus
204	53	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
205	53	Male	Jewish	Textile Worker	Arteriosclerosis, Obesity, Diabetes Mellitus
206	51	Female	Caucasian	Homemaker	Obesity, Pectoral Myositis, Diabetes Mellitus
207	11	Female	Caucasian	Student	Juvenile Diabetes Mellitus
208	51	Female	Caucasian	Homemaker	Nodular Goiter, Diabetes Mellitus
209	30	Female	Negro	Housework	Very Obese, Hypothyroidism, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
210	54	Female	German	Homemaker	Obesity, Scabies, Visual changes, Pruritus of the foot, Diabetes Mellitus
211	48	Male	Negro	Butler	Slightly Obese, Diabetes Mellitus
212	33	Male	Caucasian	Unemployed	Diabetes Mellitus
213	58	Female	Caucasian	Homemaker	Obesity, Infected Bunion, Hypertension, Pruritus vulvae, Diabetes Mellitus
214	35	Female	Mexican	Homemaker	Visual changes, Diabetes Mellitus
215	51	Female	Negro	Homemaker	Obesity, Diabetes Mellitus
216*	39	Male	Negro	Driver	Diabetes Mellitus
217	60	Male	Caucasian	Power House Operator	Diabetes Mellitus, Visual changes
218	52	Female	Italian	Homemaker	Obesity, Diabetes Mellitus, Visual changes
219	61	Female	Italian	Homemaker	Osteomyelitis, great toe, Bilateral Cataracts, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
220	57	Female	Caucasian	Homemaker	Obesity, Uremia, Hydronephrosis, Carcinoma of bladder, Diabetes Mellitus
221	38	Female	Mexican	Homemaker	Obesity, Diabetes Mellitus
222	67	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
223	61	Female	Caucasian	Homemaker	Obesity, Hypertension, Diabetes Mellitus
224	64	Female	Caucasian	Homemaker	Slight Obesity, Hypertensive Heart Disease, Senile Diabetes Mellitus
225*	67	Male	Caucasian	Machinist	Ulcer of right foot, Retinopathy, Diabetes Mellitus
226	23	Female	Caucasian	Homemaker	Diabetes Mellitus
227	59	Male	Caucasian	Engineer	Diabetes Mellitus
228	49	Female	Jewish	Homemaker	Obesity, Diabetes Mellitus
229	60	Female	Caucasian	Stenographer	Monilia Vulvitis, Obesity, Diabetes Mellitus
230	36	Female	Caucasian	Domestic	Obesity, Essential Hypertension, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
231	56	Female	Russian	Homemaker	Obesity, Senile Diabetes Mellitus
232	49	Female	Negro	Domestic	Obesity, Infected Callosities, Edema, Diabetes Mellitus mild
233	48	Female	Jewish	Homemaker	Obesity, Nodular Goiter, Pruritis vulvae, Diabetes Mellitus
234	38	Male	Caucasian	Lumber Yard	Visual changes, Erythematous areas chest
235	60	Female	Mexican	Homemaker	Obesity, Lues, Diabetes Mellitus, Visual changes
236	58	Female	Mexican	Homemaker	Obesity, Hypertension, Diabetes Mellitus
237	51	Male	Negro	Janitor	Diabetes Mellitus mild
238	65	Female	Caucasian	Homemaker	Obesity, Retinitis, Osteoarthritis, Hypertensive Heart Disease, Diabetes Mellitus mild, Visual changes
239	55	Female	Jewish	Peddler	Obesity, Diabetes Mellitus
240	77	Male	Jewish	Retired	Arteriosclerotic Heart Disease, Parkinson's Disease, Anemia, Abscess of right thigh, Diabetes Mellitus
241	48	Female	Caucasian	Homemaker	Arteriosclerotic Heart Disease, Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
242	41	Female	Caucasian	Homemaker	Possible pyelonephritis, Diabetes Mellitus, Visual changes
243	44	Female	Caucasian	Apartment Manager	Cardiovascular Hypertension, Lues, Diabetes Mellitus
244	62	Male	Russian	Laborer	High Renal Threshold, borderline Diabetes Mellitus
245	72	Male	Caucasian	Gardener	Hypertension, Diabetes Mellitus
246	63	Male	Jewish	Retired	Hypertension, Angina Pectoris, Arteriosclerosis, Slightly Obese, Diabetes Mellitus
247	52	Female	Caucasian	Homemaker	Cardiovascular Disease, Hypertension, Slightly Obese, Diabetes Mellitus, Visual changes
248*	65	Female	Jewish	Homemaker	Obesity, Amputation of left leg, Diabetes Mellitus, Visual changes
249	45	Female	Jewish	Homemaker	Pruritus vulva, Moderately Obese, Diabetes Mellitus
250	81	Female	Caucasian	Retired	Ulcer of right foot, Diabetes Mellitus, Visual changes

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
251	47	Male	Caucasian	Tool Factory	Obesity, Diabetes Mellitus, Visual changes
252	52	Female	Hungarian	Homemaker	Obesity, Diabetes Mellitus
253	60	Male	Negro	Laborer	Bilateral Cataracts, Diabetes Mellitus
254	72	Male	Caucasian	Retired Minister	Obesity, Diabetes Mellitus
255	76	Female	German	Retired	Slightly Obese, Senile Diabetes Mellitus
256*	54	Female	Caucasian	Laundress	Adenocarcinoma thyroid, Diabetes Mellitus
257	50	Female	Mexican	Homemaker	Slightly Obese, Diabetes Mellitus
258	43	Male	Caucasian	Salesman	Diabetes Mellitus, Visual changes
259	68	Male	Caucasian	Barber	Malnourished, Syphilis, Generalized Erythema, Diabetes Mellitus
260	35	Female	Negro	Homemaker	Hypertension, Syphilis, Chronic Nephritis, possible kidney disease, Diabetes Mellitus severe

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
261	46	Female	Caucasian	Homemaker	Probable Chronic Cholelithiasis, Diabetes Mellitus
262	50	Female	Jewish	Seamstress	Obesity, possible Diabetes Mellitus
263	69	Female	Caucasian	Retired	Ulcers of left leg with Dermatitis, Slightly Malnourished, Arteriosclerosis, Diabetes Mellitus
264	59	Female	Mexican	Homemaker	Obesity, Diabetes Mellitus
265	52	Female	Caucasian	Homemaker	Diabetes Mellitus
266	37	Male	Negro	Navy	Syphilis, possible Diabetes Mellitus
267	60	Female	Negro	House-keeper	Obesity, Arthritis, Hypertension, Diabetes Mellitus
268	58	Male	Caucasian	Unemployed	Obesity, Face Lesions, Diabetes Mellitus
269	63	Male	Caucasian	Night Watchman	Obesity, Hypertension, Gangrene of little toe, Diabetes Mellitus
270	58	Male	Caucasian	Painter	Diabetes Mellitus, Visual changes
271	60	Female	Mexican	Laundress	Depigmentation of skin, Diabetes Mellitus
272	68	Male	Caucasian	Painter	Obesity, Arteriosclerosis, Liver Disease, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
273*	60	Female	Caucasian	Homemaker	Diabetes Mellitus
274	48	Female	Mexican	Homemaker	Obesity, Diabetes Mellitus, Visual changes
275	65	Female	Caucasian	Homemaker	Obesity, Bilateral Cataracts, Inter-capulary Glomerular Sclerosis, Diabetes Mellitus
276	35	Female	Negro	Homemaker	Obesity, Pruritus, Erythematous Area of breasts, Diabetes Mellitus
277	60	Female	Negro	Domestic	Obesity, Diabetes Mellitus
278	18	Female	Caucasian	Homemaker	Diabetes Mellitus
279	23	Female	Negro	Homemaker	Diabetes Mellitus only when pregnant
280	68	Male	Caucasian	Truck Driver	Obesity, Slight Varicosities, Diabetes Mellitus
281	75	Female	Negro	Homemaker	Obesity, Bilateral Cataracts, Pruritus, Cardiac Enlargment, Diabetes Mellitus
282	49	Female	Russian	Tailoress	Presbyopia, Diabetes Mellitus
283	59	Male	Caucasian	Electrician	Malnourished, Portal Cirrhosis, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
284	67	Male	Caucasian	Estate Broker	Obesity, Hypertensive Heart Disease, Diabetes Mellitus
285	67	Female	Caucasian	Retired	Obesity, Arteriosclerosis, Nail Infections, Diabetes Mellitus
286*	60	Female	Negro	Homemaker	Arteriosclerotic changes, Diabetes Mellitus
287	53	Female	Caucasian	Housework	Obesity, Diabetes Mellitus, Visual changes
288	63	Female	Italian	Homemaker	Obesity, Diabetes Mellitus
289	64	Female	Negro	Homemaker	Gangrene of left leg, Obesity, Diabetes Mellitus
290	72	Female	Mexican	Homemaker	Carcinoma cecum, Kimmelstiel's Wilson's Disease, Diabetes Mellitus
291	67	Male	Hungarian	Dressmaker	Bursitis of the right shoulder, Diabetes Mellitus
292	18	Female	Caucasian	Typist	Diabetes Mellitus
293	73	Female	Caucasian	Homemaker	Parenchial Infection nail bed, Anemia, Hypoproteinemia, Hypertension, Peripheral Neuritis, Senile Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
294	57	Female	Caucasian	Sorter	Malnourished, Diabetes Mellitus
295	53	Female	Jewish	Homemaker	Malnourished, Neuritis, Senile Diabetes Mellitus moderate
296	47	Female	Negro	Attendant	Obesity, Palmar Erythema, Diabetes Mellitus
297	48	Female	Negro	Homemaker	Diabetes Mellitus, Visual changes
298	58	Male	Caucasian	Policeman	Ulcer of left foot, Diabetes Mellitus
299	57	Female	Caucasian	Housework	Obesity, Chronic Localized Eczema, Diabetes Mellitus
300	66	Male	German	Painter	Diabetes Mellitus
301	54	Female	Caucasian	Homemaker	Very Obese, Diabetes Mellitus
302	72	Male	English	Retired	Cirrhosis, Diabetes Mellitus
303	39	Female	Caucasian	Factory Worker	Obesity, Diabetes Mellitus
304	57	Female	Caucasian	Homemaker	Very Obese, Seborrheic Dermatitis, Stasis Ulcers of the ankle, Diabetes Mellitus
305	58	Male	Caucasian	Magazine Dealer	Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
306	58	Female	Caucasian	Cigar Maker	Osteoarthritis of the left knee, Diabetes Mellitus
307	62	Female	Caucasian	Homemaker	Bilateral Cataracts, Hypertensive Heart Disease, Thyroid enlarged, Diabetes Mellitus
308	25	Male	Caucasian	Radio Engineer	Juvenile Diabetes Mellitus
309	35	Female	Negro	Housework	Diabetes Mellitus
310	73	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
311	16	Male	Polish	Student	Macular Papules on the right arm, Diabetes Mellitus
312	53	Female	Negro	Homemaker	Obesity, Ulcers of right leg, Boils on breasts, Diabetes Mellitus
313	59	Male	Caucasian	Night Watchman	Infection and Gangrene of left foot, Arteriosclerosis Obliterans, Diabetes Mellitus
314	42	Male	Japanese	Attendant	Obesity, Osteomyelitis of great toe, Diabetes Mellitus
315	50	Male	Negro	Salesman	Obesity, Chronic Prostatitis, Syphilis, Senile Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
316	69	Female	Mexican	Homemaker	Bilateral Cataracts, Hypertensive Cardiovascular Disease, Malnourished, Glomerulonephritis, Diabetes Mellitus
317	61	Female	Caucasian	Housework	Malnourished, Arthritis, Syphilis, Pityriasis Rosea, Allergic Rhinitis, Diabetes Mellitus
318	54	Male	Caucasian	Dispatcher	Diabetes Mellitus
319	71	Female	Caucasian	Housework	Diabetes Mellitus
320	76	Male	Caucasian	Retired	Obesity, Diabetes Mellitus mild
321	5 $\frac{1}{2}$	Male	Caucasian	Child	Early Childhood Juvenile Diabetes Mellitus
322	63	Male	Polish	Retired	Obesity, Diabetes Mellitus
323	29	Female	Caucasian	Unemployed	Pyelonephritis, Acute Dermatitis, very labile Juvenile Diabetes Mellitus
324	8 $\frac{1}{2}$	Male	Caucasian	Student	Juvenile Diabetes Mellitus
325	45	Female	Caucasian	Homemaker	Obesity, mild Hypertension, Pruritus, Diabetes Mellitus
326	66	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
327	54	Female	Caucasian	Typist	Obesity, Diabetes Mellitus
328	86	Male	Caucasian	Retired Farmer	Stasis Dermatitis, Slightly Obese, Hypertension, Arteriosclerotic Heart Disease, Diabetes Mellitus, Visual changes
329	57	Female	Caucasian	Housework	Obesity, Ringworm, Retinopathy, Infected Toes, Diabetes Mellitus
330	62	Female	Negro	Cook	Obesity, Hypertension, Senile Diabetes Mellitus
331	54	Female	Jewish	Homemaker	Obesity, Osteoarthritis, Dermatophytosis of right foot, Diabetes Mellitus mild
332	67	Female	Caucasian	Retired	Obesity, Retinopathy, Diabetes Mellitus
333	48	Male	Italian	Salesman	Diabetes Mellitus
334	74	Female	English	Housework	Chronic Cystitis, Retinitis, Diabetes Mellitus
335	70	Female	Caucasian	Homemaker	Generalized Arteriosclerosis, Neuropathy, Diabetes Mellitus, Visual changes

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
336	62	Male	Italian	Cigar Maker	Diabetes Mellitus
337	61	Female	Russian	Housework	Obesity, Infected large toe, Diabetes Mellitus
338	60	Male	Negro	Shipyard Worker	Obesity, Diabetes Mellitus, Visual changes
339	55	Female	Caucasian	Homemaker	Obesity, Peripheral Neuritis, Diabetes Mellitus
340	53	Male	Caucasian	Clerk	Slightly Obese, Varicosities, Diabetes Mellitus, Visual changes
341	32	Male	Caucasian	Carpenter	Infectious Hepatitis, Juvenile Diabetes Mellitus
342	52	Female	Caucasian	Homemaker	Obesity, Syphilis, Xanthoma Diabeticorum, Diabetes Mellitus mild
343	58	Female	English	Homemaker	Varicosities, Diabetes Mellitus
344	49	Female	Negro	Dressmaker	Chronic Glomerular Nephritis, Nephrosclerosis, Diabetes Mellitus
345	46	Female	Mexican	Homemaker	Epidermophytosis of the feet, Obesity, Bilateral Cataracts, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
346	68	Female	Hungarian	Homemaker	Diabetes Mellitus, Visual changes
347	54	Female	Negro	Housework	Obesity, Pruritus, Diabetes Mellitus
348	34	Male	Caucasian	Drill Press	Retinopathy, Diabetes Mellitus
349	46	Male	Mexican	Merchant	Slightly Obese, Diabetes Mellitus
350	71	Male	Caucasian	Painter	Bilateral Cataracts, Hypertension, Diabetes Mellitus
351	48	Female	Jewish	Homemaker	Diabetes Mellitus
352	52	Female	Jewish	Dressmaker	Obesity, Diabetes Mellitus, Visual changes
353	61	Male	Caucasian	Watchman	Malnourished, Lesions on back, pubic area and axilla, Diabetes Mellitus
354	73	Female	English	Homemaker	Obesity, Cataracts, Diabetes Mellitus
355	64	Male	Caucasian	Carpenter	Obesity, Herpes Zoster, Heart Enlarged, Diabetes Mellitus
356	41	Male	Italian	Farmer	Obesity, Diabetes Mellitus
357*	69	Male	Caucasian	Retired	Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
358	42	Female	Jewish	Homemaker	Slightly Obese, Diabetes Mellitus
359	50	Female	Caucasian	Housework	Probable Hypothyroid, Diabetes Mellitus
360	48	Female	Caucasian	Homemaker	Obesity, Diabetes Vulvitis, Diabetes Mellitus
361	63	Female	Caucasian	Homemaker	Slightly Obese, Mild Retinitis, Diabetes Mellitus
362	49	Female	Jewish	Homemaker	Obesity, Hypertension, Paresthesia of feet, Diabetes Mellitus
363	51	Male	Negro	Tailor	Obesity, Diabetes Mellitus mild
364	56	Female	Negro	Homemaker	Obesity, Chronic Pyelonephritis, Hypertension, Retinopathy, Diabetes Mellitus
365	48	Male	Caucasian	Unemployed	Coronary Arteriosclerosis, Diabetes Mellitus
366	74	Female	Jewish	Retired	Malnourished, Intercapulary Glomerular Nephritis, Diabetes Mellitus
367*	53	Male	Caucasian	Insurance	Carcinoma lung, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
368	22	Female	Caucasian	Waitress	Pulmonary Infection, Diabetes Mellitus
369*	65	Male	Jewish	Tailor	Lues, Cerebral Arteriosclerosis, Diabetes Mellitus
370	53	Male	Caucasian	Machinist	Obesity, Diabetes Mellitus
371	48	Male	Caucasian	Stock Clerk	Diabetes Mellitus
372	56	Female	Negro	Homemaker	Obesity, Gangrene of left great toe, Diabetes Mellitus
373	52	Female	Mexican	Homemaker	Papular Lesions of skin, Diabetes Mellitus
374	66	Female	Caucasian	Homemaker	Obesity, Arteriosclerosis Obliterans, Diabetes Mellitus
375	60	Female	Caucasian	Homemaker	Obesity, Glaucoma, Diabetes Mellitus
376	57	Female	Caucasian	Seamstress	Obesity, Breast Abscess, Diabetes Mellitus
377	65	Female	Caucasian	Homemaker	Retinopathy, Gangrene of great toe, Diabetes Mellitus
378	47	Female	Negro	Homemaker	Obesity, Trichomonas, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
379*	78	Male	Caucasian	Machinist	Arthritis, Duodenal Ulcer, Polyneuritis, Diabetes Mellitus
380	70	Male	Caucasian	Retired	Obesity, Hypertensive Heart Disease, Diabetes Mellitus
381*	45	Female	Negro	Housekeeper	Hypertensive Heart Disease, Diabetes Mellitus
382	56	Female	Negro	Housekeeper	Obesity, Hypertension, Abscess of finger, Diabetes Mellitus
383	33	Female	Caucasian	Homemaker	Diabetes Mellitus
384	39	Male	Caucasian	Bank Teller	Obesity, Hypertension, Diabetes Mellitus
385	44	Male	Negro	Barber	Obesity, Chronic Prostatitis and Cystitis, Diabetes Mellitus
386	33	Female	Negro	Homemaker	Obesity, Pruritus, Diabetes Mellitus
387	53	Female	Caucasian	Clerk	Obesity, Diabetes Mellitus
388	13	Female	Caucasian	Student	Diabetes Mellitus
389	63	Female	Jewish	Homemaker	Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
390	52	Male	Caucasian	Chef	Obesity, Diabetes Mellitus
391	51	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
392	25	Female	Caucasian	Homemaker	Hyperthyroidism, Diabetes Mellitus
393	65	Female	Caucasian	Homemaker	Hypertension, Diabetes Mellitus
394	63	Female	Caucasian	Practical Nurse	Urethritis, Diabetes Mellitus
395	65	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
396	45	Male	Caucasian	Gas Attendant	Cardiac Degeneration, Peripheral Neuritis, Diabetes Mellitus
397	68	Female	German	Seamstress	Diabetes Mellitus
398*	62	Male	Caucasian	Handyman	Diabetes Mellitus, Visual changes
399	44	Male	Caucasian	Teacher	Obesity, possible Hypothyroid, Diabetes Mellitus
400	61	Male	Negro	Janitor	Diabetes Mellitus
401	23	Female	Mexican	Homemaker	Obesity, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
402	62	Male	Mexican	Grocer	Malnourished, Erythematous Patches on skin, Diabetes Mellitus
403	47	Female	Negro	Homemaker	Obesity, Cystic Disease of breasts, Infectious Eczematoid Dermatitis, Diabetes Mellitus
404	54	Female	Caucasian	Homemaker	Obesity, Arteriosclerotic changes, Diabetes Mellitus, Visual changes
405	57	Male	Jewish	Janitor	Generalized Papular Rash, Diabetes Mellitus
406	45	Female	Caucasian	Unemployed	Obesity, Rheumatic Heart Disease, Mild Diabetic Retinitis, Diabetes Mellitus
407	52	Female	Negro	Unemployed	Obesity, Diabetes Mellitus
408	45	Female	Mexican	Housework	Obesity, Diabetes Mellitus
409	55	Female	Jewish	Housework	Avitaminosis, Hypertension, Diabetes Mellitus, Visual changes
410	40	Female	Mexican	Homemaker	Obesity, Diabetes Mellitus
411	46	Male	Caucasian	Truck Driver	Obesity, possible Kidney Infection, possible Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
412	43	Female	Negro	Mail Carrier	Obesity, Pruritus, Diabetes Mellitus
413	42	Male	Mexican	Laborer	Neuritis, Bilateral Cataracts, Carcinoma Upper Gastrointestinal Tract, Diabetes Mellitus uncontrolled
414	66	Female	Negro	Homemaker	Obesity, Hypertension, Diabetes Mellitus
415	60	Female	Caucasian	Seamstress	Malnutrition, Avitaminosis, Diabetes Mellitus
416	44	Male	Negro	Attendant	Mild Peripheral Neuritis, Diabetes Mellitus
417	53	Male	Caucasian	Purchasing Agent	Osteoarthritis, Diabetes Mellitus
418	49	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
419	46	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
420	56	Female	Caucasian	Saleswoman	Obesity, Diabetes Mellitus
421	54	Female	Caucasian	Homemaker	Obesity, Heart Disease, Pruritus ani, Diabetic Vulvitis, Diabetes Mellitus
422	39	Female	Caucasian	Waitress	Slightly Obese, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
423	71	Male	Caucasian	Retired	Benign Essential Hypertension, Senile Diabetes Mellitus
424	51	Female	Caucasian	Homemaker	Hypertensive Heart Disease, Diabetes Mellitus
425	52	Female	Caucasian	House-mother	Obesity, Moniliasis, Diabetes Mellitus
426	60	Female	Caucasian	Housework	Moderate Obesity, Senile Diabetes Mellitus
427	30	Male	Caucasian	Shipping Clerk	Granulomas Pyogenous, Diabetes Mellitus
428	71	Female	Caucasian	Retired	Obesity, Hypertensive Heart Disease, Thyroid enlarged, Diabetes Mellitus
429	53	Male	Caucasian	Policeman	Obesity, Diabetes Mellitus mild, Visual changes
430	30	Male	Negro	Sign Painter	Diabetes Mellitus
431	63	Female	Caucasian	Homemaker	Obesity, Hypertensive Heart Disease, Ulcer of right ankle, Pruritus, Diabetes Mellitus
432	58	Male	Jewish	Salesman	Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
433	49	Female	Japanese	Homemaker	Slightly Obese, Retinitis, Hypertension, Diabetes Mellitus
434	30	Female	Caucasian	Homemaker	Slightly Obese, Juvenile Diabetes Mellitus uncontrolled
435	55	Female	Mexican	Homemaker	Slightly Obese, possible Diabetes Mellitus
436*	51	Male	Caucasian	Policeman	Cellulitis, Diabetes Mellitus
437	57	Male	Caucasian	Retired	Obesity, Diabetes Mellitus
438	63	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus, Visual changes
439	69	Female	Caucasian	Homemaker	Obesity, Arteriosclerosis, Gangrene of little toe, Diabetes Mellitus
440	55	Male	Caucasian	Houseman	Diabetes Mellitus
441	63	Male	Caucasian	Tailor	Malnourished, Gastrointestinal Ulcer, Diabetes Mellitus
442	54	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
443	59	Female	Negro	House-keeper	Obesity, Infection of toe, Cataracts, Senile Diabetes Mellitus mild

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
444	69	Male	Caucasian	Engineer	Obesity, Diabetes Mellitus
445	47	Female	Caucasian	Homemaker	Psoriasis, Neuropathy, Diabetes Mellitus
446	55	Female	Negro	Singer	Obesity, Infected Callous of great toe, Osteomyelitis, Syphilis, Vulvovaginitis, Diabetes Mellitus
447	38	Female	Negro	Cook	Diabetes Mellitus
448	62	Female	Caucasian	Domestic	Obesity, Enlarged Heart, Diabetes Mellitus
449	25	Male	Caucasian	Artist	Possible Rheumatoid Arthritis, Juvenile Diabetes Mellitus
450	21	Male	Caucasian	Student	Diabetes Mellitus
451	39	Female	Caucasian	Homemaker	Obesity, Infection of breast, Eczema axillae, Hypertension, Thyroid enlarged, Diabetes Mellitus
452	67	Male	Negro	Carpenter	Diabetes Mellitus, Visual changes
453	39	Male	Caucasian	Salesman	Exfoliative Dermatitis of feet, Diabetes Mellitus
454	19	Female	Caucasian	Hand Decorator	Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
455	31	Female	Caucasian	Homemaker	Pyelonephritis, Diabetes Mellitus, Visual changes
456	55	Male	Negro	Chauffeur	Obesity, Perianal Abscess, Peripheral Neuropathy, Diabetes Mellitus
457	42	Female	Mexican	Homemaker	Obesity, Cardiac Enlargement, Syphilitic Heart Disease with Aortic Regurgitation, Diabetes Mellitus
458	46	Female	Mexican	Homemaker	Pruritus, Diabetes Mellitus
459	18	Male	Caucasian	Grocery Clerk	Diabetes Mellitus
460	42	Male	Caucasian	Machinist	Cataracts, Diabetes Mellitus
461	40	Female	Caucasian	Housework	Hypertension, Chronic draining Osteomyelitis of right leg, Diabetes Mellitus
462	24	Female	Caucasian	Homemaker	Chronic Constipation, Diabetes Mellitus
463*	47	Female	Caucasian	Nurse	Obesity, Hypertensive Cardiovascular Disease, Peripheral Vascular Disease, Intercapillary Glomerulosclerosis, Amputation of left leg, Retinitis, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
464	68	Male	Italian	Clothier	Malnourished, Pyloric lesion, Diabetes Mellitus
465	59	Female	Caucasian	Homemaker	Obesity, Hypoactive Thyroid, Diabetes Mellitus
466	69	Female	Caucasian	Homemaker	Diabetes Mellitus, Visual changes
467	14	Female	Caucasian	Student	Juvenile Diabetes Mellitus
468	67	Male	Caucasian	Farmer	Obesity, Diabetes Mellitus, Visual changes
469*	54	Female	Mexican	Housework	Obesity, Hypertensive Heart Disease, Arteriosclerosis, Cataracts, Retinopathy, Diabetes Mellitus
470	49	Female	Mexican	Homemaker	Obesity, Syphilis, Cystocele and Rectocele, Senile Diabetes Mellitus
471*	63	Male	English	Gardener	Malnourished, Obesity, Epigastric Hernia, Hepatic Cirrhosis, Arteriosclerosis, Peripheral Neuritis, Diabetes Mellitus
472	56	Male	Negro	Porter	Obesity, Bone Tumor of left arm, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
473	49	Female	Negro	Homemaker	Lues, Bilateral Cataracts, Diabetes Mellitus
474	52	Male	Jewish	Dishwasher	Xanthomata of skin, Infection in callous foot, Diabetes Mellitus
475	51	Male	Jewish	Ice Cream Dealer	Diabetes Mellitus
476	57	Male	Jewish	Salesman	Auricular Fibrillation, Diabetes Mellitus
477	71	Female	Finnish	Homemaker	Obesity, Hypertension, Arteriosclerosis, Bell's Palsey, Arthritis, Diabetes Mellitus
478	52	Female	Caucasian	Unemployed	Hypertension, Rheumatic Heart Disease, Obesity, Diabetes Mellitus
479	72	Female	Mexican	Homemaker	Obesity, Osteoarthritis, probable Glaucoma, Diabetes Mellitus
480	51	Female	Caucasian	Homemaker	Infection of right hand, Acute Cellulitis, Diabetes Mellitus
481	59	Female	Mexican	Homemaker	Obesity, Bilateral Cataracts, Diabetes Mellitus
482	50	Female	Italian	Homemaker	Obesity, Retinitis, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
483	54	Female	Negro	Homemaker	Obesity, Hypertension, Heart Disease, Diabetes Mellitus
484	41	Female	Japanese	Seamstress	Obesity, Retinopathy, Diabetes Mellitus
485	65	Female	Caucasian	Homemaker	Marked Malnutrition, Cachexia, Infection of toes and finger, Diabetes Mellitus
486	26	Male	Caucasian	Lather	Grand Mal, Juvenile Diabetes Mellitus very labile
487	47	Female	Caucasian	Maid	Diabetes Mellitus
488	67	Female	Caucasian	Homemaker	Obesity, Otitis Media, Hypertension, Cataract of left eye, Diabetes Mellitus
489	52	Female	Caucasian	Drill Press Operator	Obesity, Diabetes Mellitus
490	70	Female	Syrian	Homemaker	Malnutrition, Hypertension, Arteriosclerosis, Diabetes Mellitus
491	49	Male	Mexican	Truck Driver	Hypertensive Heart Disease, Obesity, Retinopathy, Kimmelstiel's Wilson's Disease, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
492	75	Female	Negro	Homemaker	Generalized Arteriosclerosis, Diabetes Mellitus
493	50	Female	Caucasian	Homemaker	Obesity, Psychoneurosis, Metabolic basis for edema, Diabetes Mellitus
494	60	Male	Austrian	Painter	Monilia, Obesity, Retinopathy, Diabetes Mellitus
495	57	Male	Russian	Laborer	Obesity, Psoriasis, Diabetes Mellitus
496	64	Female	Negro	Homemaker	Obesity, Diabetic Neuritis, Varicosities, Diabetes Mellitus
497	51	Male	Negro	Truck Driver	Syphilis, Slightly Obese, Diabetes Mellitus
498	55	Male	Caucasian	None	Mental Confusion, Diabetes Mellitus
499	66	Female	Negro	Homemaker	Obesity, Diabetes Mellitus
500	69	Male	Austrian	Baker	Slightly Obese, Diabetes Mellitus
501	33	Female	Negro	Hotel Maid	Alopecia Areata, Diabetes Mellitus
502	28	Female	Negro	Domestic	Malnutrition, Anxiety state, Diabetes Mellitus
503	30	Male	Caucasian	Mailman	Juvenile Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
504	64	Male	Caucasian	Real Estate	Malnutrition, Allergic Eczema, Diabetes Mellitus
505	65	Male	Caucasian	Watchman	Bladder Infection, Slightly Obese, Senile Diabetes Mellitus
506	47	Male	Caucasian	Cab Driver	Diabetes Mellitus
507	57	Male	Caucasian	Machinist	Senile Diabetes Mellitus
508	54	Female	Caucasian	House-keeper	Obesity, Dyspnea, Enlarged Heart, Diabetes Mellitus
509	59	Male	Caucasian		Psychoneurosis, Diabetes Mellitus
510	65	Female	Swedish	Unemployed	Arteriosclerotic Vascular Disease, Essential Hypertension, Gangrene of toes, Diabetes Mellitus
511	59	Female	Mexican	Homemaker	Lues, Bilateral Cataracts, Obesity, Diabetes Mellitus
512	57	Female	Caucasian	Homemaker	Hypertension, Arteriosclerosis Obliterans, Obesity, Diabetes Mellitus
513	64	Female	Mexican	Homemaker	Diabetes Mellitus
514	39	Male	Negro	Service Man	Obesity, Essential Hypertension, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
515	37	Male	Mexican	Construction	Underweight, Diabetes Mellitus
516	49	Male	Caucasian	Mechanic	Diabetes Mellitus
517	54	Female	Caucasian	Homemaker	Infected right toe, Obesity, Nodular Goiter, Hypertension, Arteriosclerosis, Osteoarthritis, Diabetes Mellitus
518	54	Male	Negro	Bookman	Obesity, Mild Arthritis, Varicosities, Arteriosclerosis, Chronic Prostatitis, Diabetes Mellitus
519	15	Female	Caucasian	Student	Juvenile Diabetes Mellitus
520	61	Male	Caucasian	Theater Usher	Obesity, Diabetes Mellitus
521	72	Male	Jewish	Rabbi	Varicosities, Intercapillary Glomerular sclerosis, Generalized Arteriosclerosis, Diabetes Mellitus
522	49	Female	Caucasian	Dressmaker	Obesity, Peripheral Neuritis, Diabetes Mellitus senile
523	62	Female	Caucasian	Homemaker	Obesity, Retinopathy, Diabetes Mellitus
524	42	Female	Caucasian	Homemaker	Labile Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
525	38	Male	Caucasian	Clerk	Tabes Dorsalis, Diabetes Mellitus
526	50	Female	Dutch	Homemaker	Polyneuritis, Infected toe, Toxic Goiter, Diabetes Mellitus
527	50	Female	Caucasian	Homemaker	Malnutrition, Syphilis, Diabetes Mellitus mild
528	58	Male	Russian	Shoe Repairer	Diabetes Mellitus
529	49	Female	Caucasian	Homemaker	Obesity, Hypertension, Diabetes Mellitus
530	63	Female	Negro	Homemaker	Polyneuritis, Underweight, Essential Hypertension, Cataracts, Diabetes Mellitus
531	52	Female	Mexican	Seamstress	Diabetes Mellitus
532	60	Male	Caucasian	Carpenter	Polyneuritis, Retinopathy, Brittle Diabetes Mellitus
533	52	Female	Caucasian	Homemaker	Obesity, Essential Hypertension, Diabetes Mellitus
534	31	Female	Negro	Homemaker	Obesity, Juvenile Diabetes Mellitus
535	56	Female	Caucasian	Practical Nurse	Obesity, Contact Dermatitis, mild Atrophis Vaginitis, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
536	38	Female	Negro	Homemaker	Essential Hypertension, Obesity, Diabetes Mellitus
537	69	Male	Caucasian	Retired	Arteriosclerosis Obliterans, Neuropathy, Bilateral Pulmonary Emphysema, Diabetes Mellitus
538	44	Male	Caucasian	Salesman	Diabetes Mellitus
539	56	Female	Caucasian	Homemaker	Diabetes Mellitus mild
540	64	Female	Mexican	Homemaker	Obesity, Seborrhic Dermatitis, Neuritis, Diabetes Mellitus
541	44	Female	Jewish	Garment Worker	Diabetes Mellitus
542	54	Female	Mexican	Homemaker	Rosacea, Retinopathy, Diabetes Mellitus
543	74	Male	German	Retired	Obesity, Cataracts, Malformed toenails, Senile Diabetes Mellitus
544	53	Female	German	Homemaker	Peripheral Vascular Disease, Colostomy due to Carcinoma colon, Cystitis, Diabetes Mellitus
545	59	Female	Caucasian	Practical Nurse	Obesity, Infection of incision, Varicosities, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
546	59	Male	Armenian	Shoemaker	Diabetes Mellitus moderate
547	56	Male	Caucasian	Pipefitter	Diabetes Mellitus
548	56	Female	Negro	Homemaker	Preauricular lymphadenopathy, Bilateral Cataracts, Diabetes Mellitus
549	17	Female	Caucasian	Student	Juvenile Diabetes Mellitus
550*	65	Male	Negro	Laborer	Obesity, Hypertensive Cardiovascular Disease, Diabetes Mellitus
551	60	Female	Jewish	Homemaker	Gangrene of toes, Obesity, Labile Diabetes Mellitus
552	59	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
553	71	Male	Caucasian	Carpenter	Buerger's Disease, Diabetes Mellitus
554	69	Female	Caucasian	Homemaker	Obesity, Bilateral Cataracts, Polyneuritis, Diabetes Mellitus
555	62	Male	Caucasian	Janitor	Diabetes Mellitus
556	22	Female	Negro	Homemaker	Malnutrition, Diabetes Mellitus
557	46	Male	Caucasian	Ice Cream Store	Obesity, Diabetes Mellitus

* Expired

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
558	50	Female	Caucasian	Store Manager	Monilia Infection, Obesity, Diabetes Mellitus
559	50	Male	Spanish	Brickmaker	Myxedema, Hypercholesterolemia, Obesity, Diabetes Mellitus
560	34	Female	German	Dental Assistant	Diabetes Mellitus
561	49	Female	Mexican	Homemaker	Obesity, Diabetes Mellitus
562	49	Female	Negro	Homemaker	Obesity, Bilateral Cataracts, Diabetes Mellitus
563	71	Female	Caucasian	Homemaker	Hypertension, Obesity, Diabetes Mellitus
564	26	Female	Caucasian	Homemaker	Juvenile Diabetes Mellitus
565	34	Female	Negro		Diabetes Mellitus
566	49	Female	Negro	Domestic	Hypothyroidism, Hypertension, Diabetes Mellitus
567	60	Male	Caucasian	Printer	Peripheral Neuritis, Obesity, Diabetes Mellitus
568	66	Male	Russian	Rag Peddler	Obesity, Varicosities, Erythematous Papules axilla and pubic areas, Toenail deformed, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
569	60	Male	Caucasian	Printer	Persistent Infected great toe, Senile Diabetes Mellitus
570	63	Female	Caucasian	Homemaker	Hypertension, Rectal Polyps, Diabetes Mellitus
571	55	Male	Caucasian	Pipe Line	Obesity, Retinopathy, Hypertension, Diabetes Mellitus
572	59	Male	Caucasian	Policeman	Arteriosclerosis Obliterans, Congestive Heart Failure, Diabetes Mellitus
573	32	Male	Negro	Cook	Obesity, Inguinal Hernia, Diabetes Mellitus
574	56	Female	Caucasian	Homemaker	Psoriasis, Diabetes Mellitus
575	55	Female	Negro	Homemaker	Obesity, Diabetes Mellitus
576	64	Female	Negro	Homemaker	Ulcer of the heel, Retinopathy, Diabetes Mellitus
577	77	Female	Mexican	Retired	Hypertensive Arteriosclerosis, Diabetes Mellitus mild
578	52	Female	Caucasian	Homemaker	Obesity, Diabetes Mellitus
579	64	Female	Mexican	Retired	Retinitis, Obesity, Diabetes Mellitus
580	50	Female	Negro	Domestic	Obesity, Diabetes Mellitus

Table 19, continued

Case	Age	Sex	Race or Nationality	Occupation	Disease Complications and Other Special Conditions
581	48	Female	Negro	Homemaker	Obesity, Angina, Diabetes Mellitus
582	41	Female	Negro	Homemaker	Obesity, Essential Hypertension, Diabetes Mellitus
583	48	Female	Caucasian	Homemaker	Obesity, Blastomycosis, Diabetes Mellitus
584	58	Female	Negro	Housework	Retinopathy, Essential Hypertension, Peripheral Neuritis, Diabetes Mellitus
585	34	Female	Caucasian	Electrician	Obesity, Essential Hypertension, Diabetes Mellitus
586	21	Female	Caucasian	Homemaker	Diabetes Mellitus, pregnancy
587	22	Female	Caucasian	Homemaker	Diabetes Mellitus, pregnancy
588	37	Female	Mexican	Homemaker	Diabetes Mellitus, pregnancy
589*	21	Female	Caucasian	Homemaker	Diabetes Mellitus, pregnancy
590	42	Female	Mexican	Homemaker	Diabetes Mellitus, pregnancy

* Expired

TABLE 20

GROUP I - BLOOD SUGAR DETERMINATIONS ON 438 PATIENTS

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per High Value	100 ml Low Value				mg per High Value	100 ml Low Value
1	Female	52	708	132	24	Female	62	380	358
2	Male	21	526	151	25	Female	63	380	110
3	Female	52	496	194	26	Female	23	376	96
4	Female	51	475	188	27	Male	58	375	125
5	Male	60	462	174	28	Male	26	372	78
6	Male	61	460	149	29	Female	69	368	126
7	Female	46	450	108	30	Female	35	367	78
8	Male	25	450	78	31	Male	72	366	176
9	Female	65	440	122	32	Female	38	364	202
10	Female	38	424	172	33	Female	53	354	264
11	Female	29	422	174	34	Female	60	352	108
12	Female	53	422	71	35	Male	62	350	185
13	Female	74	412	120	36	Female	70	348	162
14	Female	20	410	128	37	Female	51	346	87
15	Female	56	410	122	38	Female	47	346	150
16	Female	64	400	226	39	Female	33	342	223
17	Female	69	398	98	40	Female	42	342	135
18	Female	51	396	174	41	Female	55	340	299
19	Male	16	394	80	42	Male	33	340	83
20	Female	36	394	69	43	Female	63	338	163
21	Female	65	385	141	44	Female	49	338	124
22	Female	27	384	97	45	Female	58	335	204
23	Female	50	382	337	46	Male	70	334	133

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml					mg per 100 ml	
			High Value	Low Value				High Value	Low Value
47	Male	57	333	118	72	Female	54	309	125
48	Female	52	332	66	73	Female	50	308	178
49	Female	53	330	228	74	Female	75	306	112
50	Male	64	330	96	75	Female	62	306	110
51	Male	51	330	94	76	Female	50	306	93
52	Female	54	330	76	77	Female	49	304	288
53	Female	67	329	111	78	Female	55	304	148
54	Male	39	326	264	79	Male	53	304	112
55	Male	59	326	184	80	Female	61	304	74
56	Female	71	326	121	81	Female	43	303	282
57	Male	83	326	118	82	Female	46	302	103
58	Male	66	326	108	83	Female	46	300	258
59	Male	38	326	84	84	Female	58	300	234
60	Female	64	323	132	85	Male	18	300	160
61	Female	65	322	188	86	Male	58	300	138
62	Female	52	319	138	87	Female	31	300	136
63	Female	16	319	69	88	Female	52	300	133
64	Female	81	316	130	89	Female	46	300	108
65	Female	35	314	282	90	Female	56	300	92
66	Female	50	314	112	91	Female	31	300	83
67	Female	56	311	149	92	Male	39	300	56
68	Female	64	311	133	93	Female	66	296	138
69	Female	50	310	150	94	Female	59	296	127
70	Male	30	310	124	95	Male	59	294	210
71	Male	43	310	114	96	Female	56	294	209

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml		Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml	
			High Value	Low Value				High Value	Low Value
97	Female	61	294	171	123	Female	55	274	184
98	Female	60	294	164	124	Female	31	274	84
99	Female	58	294	142	125	Female	21	272	233
100	Female	57	294	121	126	Male	73	272	150
101	Male	32	292	110	127	Male	73	272	144
102	Female	56	292	207	128	Female	54	270	220
103	Female	26	291	67	129	Female	70	270	142
104	Female	69	290	280	130	Female	65	270	93
105	Female	54	290	146	131	Female	47	266	132
106	Female	58	290	135	132	Female	52	266	123
107	Female	29	290	108	133	Female	41	265	123
108	Female	48	288	162	134	Female	49	264	123
109	Male	53	288	136	135	Female	59	262	156
110	Male	38	288	113	136	Female	71	261	184
111	Male	52	288	105	137	Female	60	261	95
112	Female	54	288	93	138	Female	60	261	84
113	Female	45	288	65	139	Female	60	260	185
114	Male	79	286	91	140	Female	56	260	182
115	Female	64	285	278	141	Male	69	260	135
116	Female	51	283	132	142	Female	48	260	129
117	Female	38	280	200	143	Male	51	258	124
118	Female	73	280	159	144	Female	49	258	111
119	Female	57	279	158	145	Female	20	258	93
120	Female	55	278	254	146	Male	63	256	254
121	Female	53	278	136	147	Female	67	256	236
122	Female	15	278	129	148	Female	60	256	230

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml	mg per 100 ml				mg per 100 ml	mg per 100 ml
			High Value	Low Value				High Value	Low Value
149	Female	61	256	160	175	Female	59	245	231
150	Male	48	256	135	176	Female	54	245	195
151	Male	68	256	113	177	Male	18	245	96
152	Female	53	254	161	178	Female	39	245	75
153	Female	60	254	133	179	Female	52	244	227
154	Male	77	254	120	180	Female	55	244	188
155	Female	68	254	105	181	Female	49	243	210
156	Female	45	250	237	182	Female	48	243	118
157	Female	58	250	230	183	Male	39	243	91
158	Male	34	250	218	184	Female	25	241	232
159	Female	54	250	214	185	Female	63	240	232
160	Female	57	250	203	186	Female	38	240	206
161	Female	56	250	173	187	Female	67	240	184
162	Female	60	250	126	188	Female	61	240	155
163	Female	55	250	121	189	Male	62	240	122
164	Male	62	250	118	190	Female	53	240	80
165	Female	55	250	97	191	Male	53	240	69
166	Female	56	249	153	192	Male	57	239	147
167	Female	49	249	113	193	Female	52	238	207
168	Male	62	249	86	194	Female	38	238	127
169	Female	60	248	203	195	Female	71	237	135
170	Male	64	248	160	196	Female	30	236	220
171	Female	48	248	132	197	Female	59	236	210
172	Female	66	248	100	198	Female	48	236	140
173	Female	60	247	119	199	Female	35	236	105
174	Female	41	246	239	200	Female	18	236	91

Table 2Q, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	Low Value				mg per 100 ml High Value	Low Value
201	Male	52	235	200	227	Female	72	228	184
202	Female	45	235	186	228	Female	74	228	97
203	Female	48	235	145	229	Male	60	227	102
204	Male	32	235	143	230	Female	48	226	196
205	Male	42	234	230	231	Female	59	226	170
206	Female	73	234	133	232	Male	62	226	130
207	Female	41	234	114	233	Female	46	226	146
208	Female	44	233	171	234	Female	68	224	222
209	Female	61	232	164	235	Male	65	224	196
210	Female	50	232	163	236	Female	48	224	89
211	Female	57	232	142	237	Female	47	223	170
212	Female	63	232	139	238	Male	51	222	184
213	Female	31	232	81	239	Male	57	222	158
214	Female	58	230	191	240	Male	50	222	154
215	Female	63	230	183	241	Female	65	222	131
216	Female	54	230	169	242	Female	39	220	154
217	Female	35	230	164	243	Female	46	220	161
218	Female	9	230	150	244	Female	54	220	99
219	Female	72	230	132	245	Female	69	219	112
220	Female	56	230	102	246	Female	26	219	67
221	Female	35	230	82	247	Male	56	218	158
222	Female	67	229	133	248	Female	17	217	44
223	Male	65	229	85	249	Female	67	216	172
224	Female	49	228	210	250	Female	27	216	150
225	Male	53	228	200	251	Female	54	216	149
226	Male	78	228	196	252	Female	61	216	144

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml		Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml	
			High Value	Low Value				High Value	Low Value
253	Female	62	216	130	280	Female	42	204	134
254	Female	63	215	79	281	Female	33	204	116
255	Female	63	215	78	282	Female	57	204	114
256	Female	73	214	166	283	Male	69	202	188
257	Female	52	214	133	284	Female	65	202	162
258	Female	61	214	107	285	Female	71	200	193
259	Male	57	214	104	286	Female	56	200	181
260	Female	69	212	180	287	Female	50	200	176
261	Female	26	212	198	288	Female	66	200	171
262	Female	65	212	128	289	Male	60	200	131
263	Male	61	210	203	290	Female	48	200	120
264	Male	46	210	200	291	Male	55	200	119
265	Male	58	210	152	292	Female	53	200	112
266	Female	50	210	151	293	Female	60	200	104
267	Female	63	210	135	294	Male	67	198	158
268	Female	51	210	118	295	Female	49	198	144
269	Male	67	210	117	296	Female	45	197	164
270	Female	72	210	72	297	Female	56	196	132
271	Male	8	210	40	298	Female	63	195	175
272	Female	69	209	168	299	Female	59	195	160
273	Female	45	208	180	300	Female	49	195	134
274	Female	69	208	150	301	Female	55	194	190
275	Female	64	206	133	302	Female	75	193	191
276	Female	78	206	96	303	Female	59	193	176
277	Male	66	204	194	304	Female	71	193	162
278	Female	65	204	163	305	Female	54	193	137
279	Female	53	204	142	306	Male	71	191	116

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	Low Value				mg per 100 ml High Value	Low Value
307	Female	64	190	126	333	Female	46	179	176
308	Female	65	190	122	334	Male	52	179	150
309	Female	44	190	122	335	Male	57	178	135
310	Female	60	190	114	336	Male	59	178	112
311	Male	67	190	90	337	Female	47	177	101
312	Male	62	188	145	338	Female	68	176	133
313	Male	63	188	133	339	Male	67	176	83
314	Male	57	188	127	340	Female	31	176	78
315	Female	52	187	139	341	Female	51	174	141
316	Male	72	186	128	342	Female	65	174	108
317	Female	38	184	152	343	Female	56	173	133
318	Female	52	184	147	344	Male	59	172	144
319	Female	55	184	134	345	Female	70	170	165
320	Female	74	184	95	346	Male	66	170	145
321	Female	60	184	87	347	Female	34	169	150
322	Male	48	182	180	348	Male	52	169	135
323	Female	62	182	155	349	Male	46	169	109
324	Male	39	182	131	350	Female	65	168	158
325	Female	19	181	153	351	Male	63	168	151
326	Male	69	181	130	352	Female	38	168	140
327	Female	72	181	127	353	Male	50	168	135
328	Female	50	181	108	354	Female	55	168	134
329	Female	66	180	137	355	Female	49	167	150
330	Female	65	180	110	356	Female	68	167	141
331	Female	33	180	82	357	Female	56	167	139
332	Female	60	180	66	358	Male	48	166	84

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	mg per 100 ml Low Value				mg per 100 ml High Value	mg per 100 ml Low Value
359	Female	59	165	151	385	Male	30	148	134
360	Male	60	165	128	386	Male	65	148	132
361	Female	71	163	126	387	Male	70	148	125
362	Male	54	162	115	388	Female	59	145	113
363	Female	74	162	70	389	Female	52	144	132
364	Female	30	161	161	390	Female	49	144	128
365	Male	55	159	128	391	Male	53	144	124
366	Female	47	159	118	392	Female	49	143	130
367	Male	59	158	139	393	Male	76	143	110
368	Male	46	158	129	394	Female	62	143	91
369	Female	52	158	126	395	Male	41	142	100
370	Male	54	158	83	396	Female	52	142	93
371	Female	54	156	134	397	Male	12	142	83
372	Male	58	156	130	398	Female	60	141	133
373	Female	63	156	77	399	Male	47	144	127
374	Female	51	155	130	400	Female	67	140	116
375	Male	59	155	120	401	Male	47	140	108
376	Female	52	154	153	402	Female	53	139	133
377	Female	61	154	106	403	Male	49	137	125
378	Female	54	154	143	404	Male	73	137	112
379	Female	67	154	130	405	Male	60	136	132
380	Female	78	154	101	406	Female	65	136	112
381	Male	72	152	144	407	Male	57	136	77
382	Male	44	150	127	408	Female	55	135	123
383	Female	45	150	96	409	Female	63	135	111
384	Female	56	149	124	410	Female	40	135	105

Table 20, continued

Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml		Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml	
			High Value	Low Value				High Value	Low Value
411	Male	47	132	92	425	Male	63	121	104
412	Male	67	131	115	426	Female	52	121	104
413	Female	68	130	102	427	Male	55	119	112
414	Male	68	130	97	428	Male	55	119	100
415	Male	60	129	126	429	Male	33	118	103
416	Female	49	129	87	430	Female	24	116	100
417	Male	53	129	86	431	Female	51	115	73
418	Female	54	127	97	432	Female	28	112	87
419	Female	39	126	109	433	Female	43	110	76
420	Female	52	125	118	434	Male	51	109	106
421	Male	64	124	110	435	Male	66	102	94
422	Female	49	122	86	436	Female	51	100	80
423	Female	29	121	111	437	Female	52	95	93
424	Female	55	121	108	438	Female	21	50	30

TABLE 21

GROUP I - SINGLE BLOOD SUGAR DETERMINATIONS ON 110 PATIENTS

Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml	Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml
1	Female	43	397	27	Female	60	244
2	Female	69	390	28	Male	62	244
3	Female	62	384	29	Male	45	242
4	Female	22	334	30	Male	65	240
5	Female	46	333	31	Female	14	240
6	Female	64	324	32	Female	57	238
7	Female	49	316	33	Female	80	232
8	Female	35	312	34	Female	42	225
9	Female	62	312	35	Female	34	224
10	Female	65	305	36	Male	60	223
11	Male	42	303	37	Male	63	222
12	Female	50	301	38	Female	47	222
13	Female	66	298	39	Female	41	222
14	Female	68	286	40	Male	56	217
15	Female	51	284	41	Female	49	216
16	Female	54	284	42	Female	64	214
17	Female	45	276	43	Female	34	213
18	Male	57	272	44	Female	56	208
19	Female	17	268	45	Male	42	207
20	Female	72	268	46	Female	59	206
21	Female	47	266	47	Female	76	205
22	Male	65	252	48	Female	53	204
23	Female	48	252	49	Female	60	204
24	Male	58	250	50	Female	74	204
25	Male	55	250	51	Male	61	200
26	Female	54	248	52	Male	71	200

Table 21, continued

Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml	Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml
53	Male	67	200	81	Male	42	147
54	Female	66	200	82	Female	57	143
55	Female	59	197	83	Female	58	141
56	Female	57	196	84	Female	60	140
57	Male	39	196	85	Male	68	136
58	Female	40	192	86	Female	63	136
59	Female	53	191	87	Female	60	134
60	Female	57	190	88	Male	42	133
61	Female	48	189	89	Male	63	132
62	Male	59	188	90	Male	59	130
63	Female	64	186	91	Male	54	125
64	Male	30	184	92	Female	50	124
65	Male	48	183	93	Male	72	121
66	Male	53	177	94	Female	46	118
67	Female	23	176	95	Male	46	118
68	Female	60	176	96	Female	57	112
69	Male	44	175	97	Female	77	108
70	Female	56	173	98	Female	44	104
71	Female	57	170	99	Female	64	100
72	Female	48	168	100	Female	56	100
73	Female	42	166	101	Female	49	98
74	Female	47	166	102	Male	49	96
75	Female	58	163	103	Male	5	87
76	Female	11	162	104	Male	37	87
77	Male	37	162	105	Female	69	85
78	Female	34	157	106	Female	18	83
79	Male	58	156	107	Male	51	82
80	Female	52	154	108	Male	60	77

Table 21, continued

Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml	Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml
109	Male	8	67	110	Male	25	61

CHART 12

DIABETES CLINIC - GROUP I - HISTORY SHEET

Name _____ Age _____ Sex _____ Race _____

Occupation _____ Birthplace _____

C.C.

P.R.H. and P.I.Specific SymptomsCheck presence (=)
and absence (o)

1. Polyuria
2. Polydipsia
3. Polyphagia
4. Weakness
5. Weight loss
6. Weight gain
7. Dry mouth
8. Pruritus
9. Coma
10. Xanthoma

Infections:

1. Boils, carbuncles
2. Pyorrhea

How was diabetes first
discovered:Visual Changes:Present diet:

1. Breakfast
2. Lunch
3. Supper

Circulatory Changes:

1. Angina
2. Gangrene
3. Claudication

Alcohol
TobaccoNerve Changes:

1. Paresthesia

Present Insulin Dosage:Liver Disease:

1. Jaundice
2. Typhoid
3. Gallstone

Other Medications:Diabetic Relatives:

Chart 12, continued

Physical Exam: Ht. Wt. T. P. R.

Nutrition:Skin:Eyes:

1. Media
2. Cataracts
3. Fundi
 - a. Vessels
 - b. Retinitis

E.N.T.

1. Deafness
2. Otitis
3. Sinusitis
4. Tonsillitis
5. Caries
6. Pyorrhea
7. Tongue

Circulatory:Peripheral vessels:

1. Blood pressure
2. Pulses: present (+) or absent (0)

	<u>Radial</u>	<u>Dorsalis Pedis</u>	<u>Post. Tibial</u>
Right	_____	_____	_____
Left	_____	_____	_____

3. Description of vessels
4. Gangrene

Heart:Signs of Congestive Failure:

1. Basal rales
2. Liver below C.M.
3. Edema

Nervous System:

1. Motor
2. Sensory
3. Reflexes Biceps Triceps Sup. Patellar Achilles
 - Right
 - Left

Any Evidence of Other Endocrine or Metabolic Disorder:Impression:

APPENDIX C

TABLE 22

GROUP II - BLOOD SUGAR DETERMINATIONS ON 384 PATIENTS

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	Low Value				mg per 100 ml High Value	Low Value
1	Male	28	496	122	25	Female	15	358	164
2	Female	30	490	89	26	Female	58	358	141
3	Male	50	480	77	27	Male	71	352	133
4	Male	73	479	157	28	Male	50	350	196
5	Male	59	465	81	29	Female	15	348	192
6	Female	15	458	214	30	Male	54	347	129
7	Male	14	440	90	31	Male	17	346	126
8	Female	50	417	159	32	Female	40	346	98
9	Male	20	416	70	33	Female	48	345	150
10	Female	58	400	67	34	Female	50	344	143
11	Female	63	395	152	35	Male	67	343	144
12	Male	73	385	72	36	Female	25	340	230
13	Female	58	383	157	37	Male	50	340	220
14	Female	64	380	194	38	Female	43	335	168
15	Male	50	380	185	39	Female	46	334	101
16	Male	40	376	60	40	Female	51	332	165
17	Female	50	375	109	41	Male	71	332	110
18	Female	51	375	70	42	Female	61	330	134
19	Female	52	370	123	43	Female	70	329	198
20	Male	73	368	136	44	Female	73	329	90
21	Female	64	364	80	45	Male	64	328	120
22	Female	50	362	308	46	Female	50	327	163
23	Female	47	360	100	47	Female	67	327	118
24	Female	50	358	226	48	Female	43	324	102

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	Low Value				mg per 100 ml High Value	Low Value
49	Female	53	322	194	76	Female	52	304	110
50	Female	57	322	142	77	Female	53	303	148
51	Female	52	320	218	78	Female	61	303	110
52	Male	67	318	233	79	Female	66	302	151
53	Female	67	318	154	80	Female	70	300	122
54	Female	16	316	133	81	Female	43	300	118
55	Male	68	316	130	82	Male	42	300	116
56	Male	69	316	120	83	Female	46	300	102
57	Female	55	316	112	84	Female	64	300	65
58	Female	50	314	228	85	Female	25	300	60
59	Male	44	314	178	86	Female	73	298	140
60	Female	50	312	133	87	Female	54	297	135
61	Female	59	312	95	88	Female	61	296	135
62	Female	32	310	123	89	Female	51	295	130
63	Female	58	310	96	90	Female	59	294	136
64	Female	71	309	213	91	Female	58	292	97
65	Male	15	308	160	92	Female	66	291	200
66	Male	50	308	133	93	Female	53	291	157
67	Female	73	308	131	94	Female	50	290	250
68	Male	55	308	116	95	Female	60	290	106
69	Female	47	308	107	96	Female	50	288	192
70	Female	50	307	195	97	Female	61	288	156
71	Male	40	307	142	98	Male	66	288	109
72	Female	43	306	234	99	Female	65	287	169
73	Female	50	306	171	100	Male	40	287	110
74	Male	46	306	127	101	Female	68	287	97
75	Female	50	305	165	102	Female	59	286	219

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	Low Value				mg per 100 ml High Value	Low Value
157	Male	55	262	180	183	Female	45	248	91
158	Male	65	262	156	184	Female	63	247	220
159	Female	72	262	113	185	Female	58	246	166
160	Female	60	262	80	186	Male	61	246	95
161	Female	84	261	142	187	Female	65	245	156
162	Female	61	261	117	188	Male	44	244	112
163	Male	50	260	246	189	Male	38	244	111
164	Female	69	260	196	190	Female	55	243	220
165	Female	50	260	194	191	Female	45	243	210
166	Male	43	260	190	192	Female	65	243	144
167	Female	69	260	141	193	Female	59	243	137
168	Male	53	259	111	194	Female	65	242	177
169	Male	46	258	250	195	Female	47	242	96
170	Female	71	258	171	196	Female	61	240	216
171	Female	67	257	230	197	Male	60	240	208
172	Female	41	256	157	198	Male	63	240	183
173	Female	50	256	156	199	Male	50	240	150
174	Female	71	254	127	200	Female	64	240	122
175	Female	34	252	132	201	Male	73	240	117
176	Female	71	252	123	202	Female	48	240	99
177	Female	54	250	230	203	Female	73	240	96
178	Female	23	250	177	204	Female	63	238	195
179	Male	50	249	235	205	Male	50	238	190
180	Female	65	249	172	206	Female	61	238	153
181	Female	54	249	170	207	Female	40	238	149
182	Female	63	249	143	208	Male	50	236	230

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	mg per 100 ml Low Value				mg per 100 ml High Value	mg per 100 ml Low Value
103	Female	67	286	136	130	Male	57	274	103
104	Female	37	284	212	131	Male	65	274	95
105	Female	69	284	172	132	Female	35	274	88
106	Female	63	284	167	133	Female	61	273	271
107	Male	46	284	158	134	Male	57	273	134
108	Female	38	284	148	135	Male	50	272	190
109	Male	40	284	108	136	Male	54	272	150
110	Female	59	284	91	137	Female	27	272	142
111	Female	75	284	79	138	Female	67	272	128
112	Female	66	283	93	139	Female	54	272	85
113	Female	58	282	254	140	Male	50	271	241
114	Female	65	282	241	141	Female	79	271	120
115	Male	60	282	167	142	Female	15	271	89
116	Female	50	282	68	143	Female	43	270	198
117	Female	61	280	94	144	Female	48	270	152
118	Female	59	278	233	145	Female	64	270	109
119	Female	48	278	216	146	Female	51	270	103
120	Male	44	278	167	147	Female	61	268	138
121	Female	64	278	96	148	Male	57	268	115
122	Male	45	278	78	149	Female	68	267	117
123	Female	13	276	220	150	Male	46	266	127
124	Male	80	276	138	151	Female	31	265	221
125	Female	65	276	126	152	Female	43	264	210
126	Female	68	276	101	153	Female	75	263	178
127	Female	70	275	134	154	Female	50	263	175
128	Male	52	274	241	155	Female	52	263	175
129	Male	70	274	128	156	Male	54	262	190

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml	mg per 100 ml				mg per 100 ml	mg per 100 ml
			High Value	Low Value				High Value	Low Value
209	Female	76	236	155	235	Female	55	220	139
210	Female	55	236	152	236	Female	69	220	109
211	Female	38	236	116	237	Female	60	219	170
212	Female	60	235	144	238	Female	65	219	165
213	Female	53	235	128	239	Male	45	218	163
214	Female	74	234	180	240	Male	60	216	206
215	Female	67	234	180	241	Female	50	214	183
216	Male	71	234	157	242	Male	66	213	109
217	Female	52	232	177	243	Female	63	212	102
218	Female	66	232	151	244	Female	46	211	178
219	Male	69	232	132	245	Male	59	211	165
220	Female	35	230	165	246	Male	55	210	200
221	Female	54	230	100	247	Female	26	210	191
222	Female	57	228	194	248	Male	39	210	162
223	Female	69	228	125	249	Male	69	210	138
224	Male	74	228	97	250	Female	75	208	168
225	Male	71	226	195	251	Female	63	208	138
226	Male	69	226	122	252	Female	53	207	134
227	Male	60	226	87	253	Male	71	207	113
228	Female	50	225	195	254	Female	68	206	138
229	Female	45	225	139	255	Female	66	206	137
230	Female	39	225	138	256	Female	74	206	110
231	Female	58	224	119	257	Male	68	206	110
232	Female	65	224	61	258	Female	43	206	93
233	Male	47	223	129	259	Female	34	206	82
234	Female	26	222	218	260	Male	77	204	183

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml High Value	Low Value				mg per 100 ml High Value	Low Value
261	Female	70	204	181	288	Female	50	190	138
262	Female	53	204	161	289	Female	81	190	103
263	Male	50	203	156	290	Female	78	189	175
264	Female	57	203	99	291	Female	47	189	90
265	Male	69	202	200	292	Female	67	188	177
266	Female	65	202	146	293	Female	44	188	87
267	Female	65	202	135	294	Female	50	186	175
268	Female	47	202	116	295	Female	64	186	117
269	Female	51	200	177	296	Male	67	186	100
270	Female	53	200	171	297	Female	51	185	150
271	Female	63	200	144	298	Female	56	185	129
272	Female	75	200	133	299	Female	74	185	95
273	Male	68	200	103	300	Male	55	183	123
274	Female	74	199	188	301	Female	81	182	163
275	Female	63	198	170	302	Female	34	181	163
276	Female	59	198	108	303	Female	52	180	125
277	Female	42	198	72	304	Male	18	180	120
278	Female	70	196	173	305	Female	45	180	82
279	Female	55	196	130	306	Female	45	179	100
280	Female	58	196	110	307	Female	64	178	143
281	Female	41	194	180	308	Female	70	176	152
282	Female	62	194	133	309	Male	71	176	129
283	Male	59	194	121	310	Male	60	176	103
284	Female	36	192	136	311	Female	21	176	102
285	Female	65	192	75	312	Male	52	175	123
286	Female	61	191	136	313	Female	32	175	115
287	Female	53	191	121	314	Male	65	175	95

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar		Case	Sex	Age in Years	Fasting Blood Sugar	
			mg per 100 ml	mg per 100 ml				mg per 100 ml	mg per 100 ml
			High Value	Low Value				High Value	Low Value
315	Female	42	172	74	341	Female	69	153	130
316	Male	65	171	141	342	Male	64	152	145
317	Female	35	170	161	343	Female	50	150	86
318	Female	45	170	121	344	Female	57	148	120
319	Female	63	170	114	345	Female	21	148	85
320	Male	77	170	108	346	Female	54	146	103
321	Female	63	169	132	347	Female	70	145	103
322	Female	68	168	148	348	Female	70	140	135
323	Female	55	168	120	349	Female	59	140	127
324	Male	46	167	85	350	Female	70	140	120
325	Female	61	166	137	351	Female	52	140	116
326	Female	62	165	154	352	Female	60	140	80
327	Female	60	165	140	353	Female	62	139	129
328	Female	58	164	142	354	Female	40	136	118
329	Female	74	163	151	355	Male	50	136	112
330	Male	66	162	143	356	Female	59	136	89
331	Male	51	161	120	357	Female	42	135	102
332	Male	67	159	122	358	Male	69	135	87
333	Female	59	158	138	359	Female	74	135	52
334	Female	47	158	134	360	Female	87	132	131
335	Female	47	158	89	361	Female	47	132	129
336	Male	59	157	112	362	Female	42	132	77
337	Male	41	157	102	363	Female	63	131	104
338	Female	55	155	107	364	Male	73	130	115
339	Female	63	155	80	365	Male	62	130	100
340	Male	22	154	93	366	Male	50	130	97

Table 22, continued

Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml		Case	Sex	Age in Years	Fasting Blood Sugar mg per 100 ml	
			High Value	Low Value				High Value	Low Value
367	Female	50	128	121	376	Female	66	114	104
368	Male	45	126	121	377	Female	40	111	102
369	Female	75	126	113	378	Female	58	110	105
370	Female	63	126	104	379	Male	22	110	87
371	Female	56	126	93	380	Female	55	108	88
372	Male	53	124	116	381	Male	67	104	102
373	Female	47	124	102	382	Male	49	98	96
374	Female	41	120	119	383	Female	59	96	95
375	Female	51	117	94	384	Male	61	96	61

TABLE 23

GROUP II - SINGLE BLOOD SUGAR DETERMINATIONS ON 155 PATIENTS

Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml	Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml
1	Female	62	445	27	Male	47	225
2	Male	15	370	28	Male	65	216
3	Male	54	328	29	Female	61	216
4	Male	65	313	30	Female	64	214
5	Female	67	310	31	Female	60	213
6	Male	65	306	32	Male	47	212
7	Male	65	302	33	Female	47	211
8	Female	67	300	34	Female	38	210
9	Male	65	300	35	Male	65	210
10	Female	69	288	36	Female	48	209
11	Female	68	286	37	Male	54	208
12	Female	78	280	38	Female	53	208
13	Female	31	270	39	Female	57	208
14	Male	70	270	40	Female	47	204
15	Male	59	262	41	Male	55	204
16	Female	60	252	42	Female	59	202
17	Female	10	248	43	Female	58	200
18	Female	61	247	44	Female	57	200
19	Female	62	246	45	Female	45	198
20	Female	53	245	46	Female	57	196
21	Female	60	236	47	Female	50	195
22	Female	23	235	48	Female	63	192
23	Male	66	231	49	Female	71	191
24	Female	61	228	50	Female	34	190
25	Female	63	228	51	Male	65	189
26	Male	31	227	52	Female	43	189

Table 23, continued

Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml	Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml
53	Female	65	189	82	Male	46	152
54	Female	59	188	83	Male	55	151
55	Male	47	185	84	Female	56	151
56	Male	45	182	85	Female	47	150
57	Female	55	182	86	Female	47	149
58	Female	29	181	87	Male	52	149
59	Female	52	180	88	Male	45	147
60	Female	57	180	89	Female	53	146
61	Male	47	179	90	Female	37	145
62	Female	59	178	91	Male	60	145
63	Male	45	175	92	Male	60	143
64	Male	47	175	93	Female	47	143
65	Male	49	174	94	Female	47	143
66	Female	23	173	95	Female	60	142
67	Female	57	173	96	Female	45	141
68	Female	56	172	97	Female	62	141
69	Male	46	170	98	Female	27	139
70	Female	45	170	99	Male	60	139
71	Male	48	165	100	Male	62	139
72	Male	47	165	101	Male	62	138
73	Female	57	163	102	Female	53	137
74	Female	53	160	103	Female	47	136
75	Female	57	159	104	Male	60	132
76	Male	48	158	105	Male	64	132
77	Female	55	158	106	Female	45	131
78	Female	57	158	107	Female	50	131
79	Female	47	156	108	Male	60	130
80	Male	67	155	109	Male	63	130
81	Female	47	154	110	Male	61	129

Table 23, continued

Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml	Case	Sex	Age in Years	Single Fasting Blood Sugar mg per 100 ml
111	Male	60	128	134	Male	50	111
112	Male	55	128	135	Male	51	110
113	Male	44	127	136	Male	50	109
114	Male	60	123	137	Male	52	109
115	Female	53	123	138	Male	50	109
116	Male	55	121	139	Male	54	109
117	Male	58	121	140	Female	65	109
118	Female	51	121	141	Male	50	107
119	Female	53	121	142	Male	52	107
120	Female	57	121	143	Male	54	107
121	Male	55	119	144	Male	72	107
122	Male	59	119	145	Female	69	107
123	Male	45	118	146	Male	51	106
124	Female	53	117	147	Female	53	106
125	Female	54	117	148	Female	45	103
126	Male	55	116	149	Female	54	102
127	Male	57	116	150	Female	53	102
128	Female	50	116	151	Female	48	98
129	Male	55	114	152	Female	35	98
130	Female	53	114	153	Male	67	96
131	Male	55	113	154	Female	61	89
132	Male	59	112	155	Female	46	82
133	Male	55	111				

CHART 13

GROUP II - SOCIAL HISTORY

Social Service Follow-up Study

Name _____ Sex _____ Year of Birth _____ Race _____
Occupation _____ Source of income _____
Family History: No. in family _____
Others in family with diabetes _____
Clinic Rating _____ No. of Clinic Visits _____ Visit intervals _____
Reason for discontinuance or discharge _____
Reason for failure to keep appointments _____
Source of patient _____ Purpose of referral _____
Initial Soc. Serv. Interview _____ Diabetic Follow-up _____
Care work (problem) _____
Service care: Free _____ Pension _____ Other _____ VNA: Referral _____
No. of calls _____
Date of first visit _____ No. of visits before 1952 _____

CHART 14

DIABETES CLINIC - GROUP II - HISTORY SHEET

Date _____

Name _____ Age _____ Sex _____ Race _____ Clinic No. _____

Address _____ Hospital No. _____

Phone _____ Occupation _____ Birthplace _____ Date of Birth _____

C.C. _____

HISTORYGeneral _____

Polyuria _____

Polydipsia _____

Polyphagia _____

Weakness _____

Pruritus _____

Dry Mouth _____

PHYSICAL AND LABORATORYLaboratory reports

F.B.S. _____

G.T.T. _____

Urinalysis

Albumin _____

Sugar/Highest _____

Lowest _____

Qualitative _____

Quantitative _____

Acetone _____

Other (as cholesterol) _____

NUTRITION AND METABOLISM

Weight Loss _____

Weight Gain _____

Average diet - diary _____

Breakfast _____

Lunch _____

Night _____

Meal _____

Other _____

Alcohol _____

Tobacco _____

Wt. _____ Ht. _____ Temp. _____

Present _____

Highest _____

Optimal _____

General Nutrition _____

Skin (as Xanthoma) _____

Mucous Membranes _____

(Tongue, lips, etc.) _____

Glandular, abnormalities _____

PREVIOUS HISTORY

If previous diabetic, note _____

Age at onset _____

Labile or stable _____

Present diet _____

Insulin dosage _____

Type dosage _____

Reactions to Insulin _____

O.B. - GYN.

Para _____

Gravida _____

Family history of diabetes _____

S B M F Children _____

Other (Paternal and Ma- _____

ternal) _____

Chart 14, continued

Complications _____
 Coma: Reason _____
 Age (First Coma) _____
 Date (Last Time) _____
 Hospitalizations: When, Where, Reason _____
 Reason for referral to this clinic _____

How Discovered _____

HISTORY

Infections
 Skin: Boils, Carbuncles _____
 E.N.T.: Otitis, Sinusitis _____
 Tonsillitis, Caries _____
 Pyorrhea _____
 G.U., G.B., Feet _____

Eyes
 Visual Changes _____
 Glasses _____

Cardio-Vascular
 Heart _____
 Angina _____
 Coronary Thrombosis _____
 Congestive Failure _____

Peripheral Vessels and
 Extremities _____

Eyes
 Media, Cataracts _____
 Fundi _____
 Vessels _____
 Retinitis _____

C.V.
 B.P. _____ Pulse _____
 E.K.G. _____
 Size of heart--physical _____
 Orthocardiogram _____
 Murmurs _____
 Rales _____
 Edema _____
 Liver below costal margin _____

Pulses: Radial Dorsalis
 Right _____
 Left _____
 Pulses: Pedis Post Tib.
 Right _____
 Left _____
 Desc. Vessels _____
 Condition of Feet (Ulcer, Infct., fungus) _____
 Response to elevation _____
 Dependency _____

Chart 14, continued

Nervous System
Cerebrovascular
Accidents _____

Nervous System

Motor _____
Sensory (esp. extrem) _____
Reflexes (Physiological
and Path.) _____

DIAGNOSIS

Recommendations

Diet Order _____

Insulin _____

Other _____

Return Visit _____

Patient Education

Dietary Education _____

Insulin, Tech. in admin. _____

Clinitest _____

Care of Feet _____

EXTERN'S SIGNATURE _____

APPROVED _____

CHART 15

DIABETES CLINIC - GROUP II - FOLLOW-UP STUDY

Diabetic Survey

Name _____ Sex _____ Nationality _____ Cl. No. _____

Address _____ Phone No. _____

Year of Birth _____ Year of Onset of Diabetes _____

Hospitalizations _____ Reasons _____ Where _____ No. Days _____

Expiration _____ Cause of Death _____

Initial Symptoms _____

Female Patients: Para _____ Gravida _____

No. children weighing over 10 pounds _____

Blood Sugar: Initial _____ Highest _____ Lowest _____ Present _____

Glycosuria: Initial _____ Present (date) _____ N.P.H. _____ CO₂ _____

Hemoglobin: Initial _____ Present _____

Insulin: Starting kind and dose _____ Present kinds _____

Changes _____ Times per day injection _____

Albumin: Initial _____ Present _____

Nutrition: Weight: Highest _____ Lowest _____ Initial _____

Present _____ Wt. Loss _____

Diet Order:

Past Initial: _____ Calories _____ Protein _____ Distr. _____

Radical Changes: _____ Calories _____ Protein _____ Distr. _____

Present Order: _____ Calories _____ Protein _____ Distr. _____

Chart 15, continued

Is cooperation on diets? (Yes) (No) Reasons: _____

Medical: Blood Pressure, Initial _____ Present _____

Coding Complications by Physician _____ Dates _____

No. 1. _____

2. _____

3. _____

Diabetic Standard NomenclaturesCoding NumbersCondition

871-785

Diabetes Mellitus

Circulatory Complications

460-942	Generalized Arteriosclerosis
41x-942	Arteriosclerosis of coronary artery without cardiac symptoms
410-516	Arteriosclerotic heart diseases
401	Anginal Syndrome
460-533	Hypertensive vascular disease
400-533	Hypertensive cardiovascular disease
460-952	Arteriosclerosis obliterans
0..0785.1	Diabetic gangrene of
0..-785.9	Diabetic ulcer of

Eye

x11-415.1	Absence of Eyeball following operation
x3x-942	Arteriosclerosis of retinal vessels
x23-516	Arteriosclerotic disease of retina
x23-533	Retinitis of hypertension

Chart 15, continued

x2x-785.5	Retinal hemorrhage due to diabetes
x23-785	Retinitis, diabetic
x20-785.x	Change of refraction due to diabetes
x20-785	Diabetic cataract
x201-785	Polar cataract due to diabetes
x26-996	Primary pigmentary degeneration of the retina
xl8-6xx	Chronic non-congestive Glaucoma
x20-797	Cataract, Senile

Skin

13.-785	Necrobiosis lipoidica diabetorum
114-785	Xanthoma diabetorum

Neurology

975-785	Diabetic dorsal sclerosis
906-785	Encephalomyelopathy due to diabetes
98.-785	Diabetic neuropathy of

Gynecology

774-785	Diabetic vulvitis
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Metabolic

010-70x	Obesity due to excess of food
543	Ketosis
871-784	Hyperinsulinism, without tumor
574	Hypoglycemia
822	Increased dextrose tolerance
410-932.0	Rheumatic Heart Disease - inactive
310-392	Allergic Rhinitis (Hay fever)
712-7x9	Intercapillary glomerular sclerosis (Wilson's Kimmelstiel Disease)
441-x13	Sinus Bradycardia (due to unknown cause)

Chart 15, continued

48x-522.9	Varicose veins of legs
111-961	Psoriasis
111-190	Dermatitis Seborrhea
18.-100.3	Carbuncle
402-930	Thromboangitis Obliterans
18.-100	Cellulitis
810-952	Non-toxic Nodular goiter
510-736	Anemia Hypochromic, microcytic generally and unspecified
24x-100.0	Chronic Osteomyelitis of feet
2.-100.0	Chronic Osteomyelitis of
360-123	Tuberculosis of Lungs (Pulmonary Tuberculosis)

CHART 16

GROUP II - COMPLICATIONS AND SPECIAL CONDITIONS

Circulatory complaints, complications and conditions

Generalized arteriosclerosis - 3
Arteriosclerosis of coronary artery - 46
Arteriosclerotic heart disease - 49
Anginal syndrome - 44
Hypertensive vascular disease - 42
Arteriosclerosis obliterans - 18
Diabetic gangrene of leg and foot - 15
Diabetic ulcer of toes - 4; of foot - 1;
of leg - 4
Amputation of toes - 2; of foot - 1; of
legs - 6
Thrombophlebitis of leg - 1
Buerger's disease - 2

Eye conditions, complications and findings

Absence of eyeball following operation - 2
Blindness - 3
Cataract - 33
Diabetic retinitis - 73
Glaucoma, chronic non-congestive - 4
Glaucoma, optic atrophy - 1
Decreased visual acuity and change of refraction - 49
Lacrimal duct obstruction - 1
Conjunctivitis - 1

Skin diseases, complications and special conditions

Basal cell epithelioma of neck - 1
Necrobiosis lipoidica diabetorum - 2
Xanthoma diabetorum - 4
Epidermophytosis - 33
Contact dermatitis - 2
Neurodermatitis - 1
Impetigo - 1
Herpes zoster - 1
Keratosi - 1
Psoriasis - 1

Chart 16, continued

Allergy - 1
 Moniliasis - 1
 Venenica vulgaris - 1
 Other skin infections - 62
 Local pruritus - 27
 Sebaceous cyst of scalp - 1
 Cellulitis - 1

Genitourinary conditions and kidney disease

Diabetic vulvitis - 26
 Fibromyoma of uterus - 6
 Chronic cystic cervicitis - 2
 Monilia vulvovaginitis - 4
 Trichoma vulvovaginitis - 1
 Genitourinary infections - 49
 Prostatitis - 1
 Cancer of prostate - 1
 Hypertrophic benign prostate - 1
 Azotemia - 1
 Uremia - 2
 Renal glycosuria - 1
 Tumor of kidney - 1
 Syphilis reported - 3
 Sterility reported - 1
 Renal calculi - 2
 Urethral carbuncle - 1
 Impotency - 6
 Cystitis - 1
 Cystocele - 1
 Hydronephrosis - 1
 Ketonuria - 2
 Intercapillary glomerular sclerosis - Kimmelstiel
 Wilson's disease - 14
 Nephritis - 1
 Pyleonephritis - 1
 Kidney obstruction - 1

Obstetrical conditions and breast conditions

Pregnancy - 6
 Breast infections - 1
 Cancer of the breast - 1

Chart 16, continued

Other infections and special conditions

Furuncle - 3
Pulmonary tuberculosis - 1
Pneumonia - 1
Empyema of lung - 1
Osteomyelitis - 2

Neurological findings and special conditions

Apoplexy - 2
Convulsive disorder - 1
Migraine - 1
Vascular lesion of the brain stem - 1
Sphenoidal headache - 1
Diabetic neuropathy - 13
Encephalomalopathy due to diabetes - 1
Trigeminal neuritis - 1
Neuritis - 12
Diabetic dorsal sclerosis - 1
Sympathectomy - 1

Psychological findings

Anxiety state - 3
Emotional problems - 1
Psychoneurosis - 1

Peripheral vascular disease and arthritis

Peripheral vascular disease - 3
Bursitis - 1
Arthritis - 5
Osteoarthritis - 10

Dental, Ear, Nose, Throat and Oral Conditions

Dental caries - 79
Gingivitis - 4
Pyorrhea - 21
Leukoplakia of cheek - 2
Abscessed tooth - 1
Calculus submaxillary gland - 1

Chart 16, continued

Sinusitis - 9
Periodontitis - 1
Tonsillitis - 1
Otitis - 3
Deaf - 2
Severe hearing impairment - 1

Gastrointestinal system

Jaundice - 2
Pyloric obstruction - 1
Hemorrhoids - 4
Hepatitis - 2
Duodenal ulcers - 4
Gallbladder infection - 9
Cellulitis of abdomen - 1
Cholelithiasis - 7
Cholecystitis - 6
Colitis - 1
Diaphragmatic hernia - 1
Hernia - 1
Atrophic gastritis - 3
Severe constipation - 1
Liver disease - 2
Cirrhosis of the liver - 1
Appendicitis - 1
Abscess lesser omentum - 1
Rectocycle - 1
Cancer of the stomach - 1
Non-functioning gallbladder - 1
Tapeworm - 1
History of typhoid - 1

Metabolic disorders and special conditions not listed above

Hypercholesterolemia - 1
Obesity due to excess food - 137
Ketosis and acidosis - 4
Hyperinsulinism - 1
Hypoglycemia - 6
Hypothyroidism - 4
Hypopituitarism - 1
Coma - 4
Anemia, pernicious - 1

Chart 16, continued

Anemia, hypochromic microcytis - 2
Avitaminosis A - 1
Avitaminosis B₁ - 1
Undernutrition - 23
Adenoma of thyroid - 1
Varicose veins - 7
Varicose ulcers - 2
Nodular goiter - 1

Presenting diabetic symptoms

Weakness - 119
Weight loss - 101
Polyuria - 133
Polyphagia - 85
Polydipsia - 125
Pruritus - 80
Dry mouth - 86
Visual blurring - 51
Paresthesia - 66
Claudication - 36
Weight gain - 41