CHARACTERISTICS OF DIABETICS AS REVEALED IN A GENERAL MORBIDITY STUDY

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DIABETES mellitus as a public health problem has become more important because of the aging of the population. Its importance in public health is clearly illustrated by a survey conducted in Oxford, Massachusetts, where 71 per cent of the total population, 3,516 persons, had urine tests and blood sugar examinations. This study was initiated with the aid of the State and district medical societies, the State and local boards of health, and the local physicians. The study was conducted by personnel assigned by the United States Public Health Service (1). A total of seventy cases of diabetes was discovered in this study. Forty were previously known. The fact that thirty cases were newly discovered indicates the need for public health endeavor in this field.

This particular paper presents a description of diabetic persons reported in a sample population observed from two to five years in the Eastern District of Baltimore. These persons are described with respect to position in the household, age and year of diagnosis, and first symptoms or complaints of illness. Severity of illness, medical care, and amount of disability during observation are also described.

DATA AND METHOD OF STUDY

The data are cases of diabetes reported in a sample of families living in the Eastern Health District of Baltimore during the period June, 1938 to May, 1943. Briefly, the method of study was as follows: Families living in thirty-four city blocks were visited at monthly intervals to obtain a record of illness among their members. In seventeen of the thirty-four city blocks the families were visited over a period of five years; in the other seventeen visiting was continued for only three years in families where no persons with chronic disease were reported during that period.

[1] From the Milbank Memorial Fund.

At the time that visiting was discontinued in seventeen of the city blocks first canvassed in 1938, a new canvass was made in thirty-four additional city blocks in the Eastern Health District. The method of sampling was the same as that utilized in the first canvass of 1938 (2). The purpose of visiting families in the new city blocks was to increase the number of chronic-disease cases for purposes of observation and study. The new blocks were canvassed in July, 1941 and families which reported one or more cases of chronic disease in them were observed until June, 1943, when the entire study was terminated. In this analysis, cases of diabetes reported in the canvass of the new city blocks are combined with those reported in the thirty-four blocks canvassed in 1938. In all there was a total of eighty-nine persons with diabetes, two of whom were lodgers. For most of this analysis the lodgers are excluded because it was believed that information concerning their illness was less complete than for family members.

The instructions for the use of the family visitors contained a list of the more common chronic diseases about which special inquiry was to be made. This special information included date of onset of the first symptoms of the disease, their nature, the date first diagnosed, and whether the diagnosis was made by a private physician, at a clinic, or at a hospital. Illnesses that were reported as chronic were asked about on each subsequent visit to the family. Inquiry was made concerning the amount of discomfort and disability suffered from the condition since the last visit and the amount of medical care received for it.

The causes of chronic illness as reported by the family informants were submitted to the attending physicians for confirmation or correction. The cases which had clinic attendance and those which had hospital admissions were also checked against the records of the clinic or hospital where the service was given. The only exception to this procedure was for cases hospitalized outside the City of Baltimore.

In order to make the illness record more objective and thus

increase the accuracy of information, a form was devised for recording on a calendar basis the onset and duration of cases of illness, the onset and duration of disability, the number of days confined to bed, and the number of days in the hospital.

Disability was defined as inability to pursue usual activity such as working, attending school, doing housework, or other usual activities.

It should be emphasized that cases of diabetes included in this analysis are those reported by the family, all of which have been diagnosed either by a private physician, at a clinic, or in a hospital.

Description of Persons with Diabetes Mellitus

Table 1 presents the position of the diabetic person in the household. The total number of cases included sixty-two females and twenty-seven males. In 20 per cent of the total cases a male head of the household was a diabetic. Forty-six per cent of the persons with diabetes were wives, and an additional 17 per cent of the total were classed as female heads of households. The preponderance of cases of diabetes among females may be due to the fact that there are more unrecognized diabetics among males than females (3).

It was thought to be of some interest to examine the eighty-seven persons with diabetes mellitus observed in this study in relation to the period of time in which the condition was first

Table 1. Percentage distribution of persons with diabetes as to their position in the household. Eastern Health District of Baltimore.

Position in the Household	Per Cent	Number of Persons
Total	100.0	89
Male—Head of Household	20.2	18
Female—Head of Household	16.9	15
Wife	46.1	41
Son or Daughter	6.7	6
Other Relative	7.9	7
Lodger	2.2	2

diagnosed.[2] These data are shown in Table 2. Fourteen per cent of the cases were diagnosed before 1930. In this group, two persons had been diagnosed as having diabetes in 1918; another two were diagnosed in the early 1920's. The remaining seven cases had a first diagnosis in the late 1920's. Thirty-seven per cent of the cases were diagnosed during the years 1930–1937, and an additional 49 per cent of the patients were diagnosed as being diabetic during 1938–1943. Eighteen of the cases diagnosed during the five study years, June, 1938–May, 1943, were new cases, that is, the first detection of the condition occurred during their observation.

Table 2. Persons with diabetes classified according to the year in which diabetes was first diagnosed. Eastern Health District of Baltimore

Year of Diagnosis	Number of Cases[1]
Total	87
Before 1930	11
1930–1937	29
1938–1943	39
Unknown Date	8

[1] Excludes two lodgers.

Table 3 and Appendix Table 1 present the distribution of

Table 3. Percentage distribution of males and females with diabetes according to the age at which the first diagnosis of the condition was made.[1] Eastern Health District of Baltimore.

Age at First Diagnosis	Both Sexes	Male	Female
	Per Cent		
All Ages	100.0	100.0	100.0
Under 35	5.1	16.0	0.0
35–39	11.4	12.0	11.1
40–44	11.4	4.0	14.8
45–49	6.3	4.0	7.4
50–54	20.2	24.0	18.5
55–59	16.5	20.0	14.8
60–64	13.9	12.0	14.8
65–69	5.1	4.0	5.6
70–74	7.6	4.0	9.3
75+	2.5	0.0	3.7

[1] Excludes eight persons of unknown age and two lodgers.

[2] The two lodgers are excluded in all of the following analyses.

males and females with diabetes according to the age at which a first diagnosis of the condition was made. Thirty-two per cent of the males and 26 per cent of the females were under 45 years of age when the condition was first diagnosed. When several age groups are combined, 60 per cent of the males and 55 per cent of the females had a first diagnosis some time during their 45th to 64th year. The percentage of persons who had a first diagnosis when they were 65 years of age or older was 8 and 19 per cent for the males and females, respectively.

The age at first observation of persons with diabetes is shown in Table 4 and Appendix Table 2. Since a considerable number of persons were diagnosed as having diabetes prior to observation, the age at first observation tends to be greater than it is at first diagnosis. This was especially true among females.

The first signs of illness as reported by the family informant are of interest in that they reveal the symptoms which originally caused many of these diabetics to seek medical attention. Table 5 shows the nature of the first symptoms of diabetes according to the family statement. Fourteen persons reported "general weakness or tiredness" as the first sign of illness. Another fourteen persons reported their first symptom of illness to be a sore,

Table 4. Percentage distribution of males and females with diabetes classified according to the age at first observation. Eastern Health District of Baltimore.

Age at First Observation	Both Sexes	Male	Female
	Per Cent		
All Ages	100.0	100.0	100.0
Under 35	3.5	11.1	0.0
35–39	3.5	11.1	0.0
40–44	9.2	7.4	10.0
45–49	6.9	3.7	8.4
50–54	16.1	18.5	15.0
55–59	24.1	11.1	30.0
60–64	14.9	29.7	8.3
65–69	8.0	3.7	10.0
70–74	8.0	3.7	10.0
75+	5.8	0.0	8.3

abscess, carbuncle, or an infection of the body which, unlike previous infections, healed very slowly. In ten instances the presence of diabetes was discovered when the patient went to the hospital for the treatment of some other illness. Seven persons reported severe itching of the skin as the nature of their first symptoms of illness. Of the total number of persons with diabetes who are included in this analysis, only six cases with no physical symptoms were discovered during the course of a routine medical examination.

It can be seen from Table 5 that the family statements of first signs of illness correspond very closely to the known clinical symptoms and signs of diabetes mellitus.

From an analysis of the first signs of illness, it was possible to classify persons according to an early or a late diagnosis of the condition. These data are shown in Table 6. An early diagnosis was one in which the patient had no physical symptoms of illness and diabetes was discovered during a routine medical examination. A late diagnosis was one in which dia-

Table 5. First signs of illness among eighty-seven persons with diabetes. Eastern Health District of Baltimore.

Family Statement of First Signs of Illness	Number	Family Statement of First Signs of Illness	Number
Total	95[1]		
General Weakness or Tiredness	14	Excessive Thirst	2
Sore, Abscess, Infection, Carbuncle, or Bruise that Would Not Heal on Some Part or Parts of Body	14	Excessive Thirst With: Burning Urination	1
Discovered When Patient Went to Hospital for Treatment of Some other Illness	10	Diabetic Stroke	2
Discovered on a Physical Examination	6	Feeling Ill	2
Itching of Skin (All Over Body or on Specific Parts of the Body)	7	Dizziness	1
Trouble with Feet	4	Upset Stomach	1
Pain in Some Part of Body	4	Excessive Appetite	1
Swollen Arm or Leg or Both	3	Other Symptoms	3
Loss of Weight Only	2	No Mention of First Signs of Illness (Unknown)	15
Loss of Weight With: Itching of Skin	2		
Nervous Spells	1		

[1] The total number of persons with diabetes was eighty-seven. There were eight instances in which patients reported first signs of illness which came under more than one category. These cases were counted in each category to which the symptoms applied. Two lodgers are excluded.

betes was discovered after the appearance of physical symptoms. These symptoms were often quite severe. They included diabetic ulcer, diabetic coma, gangrene, and slowly-healing sores and infections. As Dublin has said: "The development of gangrene, after even so slight an injury as stubbing a toe, is too often the circumstance that leads to the discovery of the disease." (3)

Only 8 per cent of the persons with diabetes had what may be considered an early diagnosis. Fourteen per cent of the cases were diagnosed in connection with other illness, that is, these cases of diabetes were discovered when the patient went to the hospital for the treatment of some other condition. The remaining 78 per cent of the cases had a late diagnosis. Either they were not diagnosed until symptoms appeared or the patient did not seek medical treatment until serious complications developed. When the eighteen new cases of diabetes which had their first diagnosis during observation are dealt with separately, it is unfortunately still true that the condition was usually not diagnosed until the appearance of symptoms or the development of complications. Eleven per cent of the new cases had an early diagnosis. Seventeen per cent were

Table 6. Percentage distribution of persons with diabetes classified according to early or late diagnosis. Eastern Health District of Baltimore.

Class of Diagnosis	Per Cent	Number of Persons[1]
Total	100.0	72
Early Diagnosis[2]	8.3	6
Diagnosed in Connection With Other Illness[3]	13.9	10
Late Diagnosis[4]	77.8	56

[1] Excludes fifteen persons who could not be classified and two lodgers.

[2] *Early Diagnosis:* This category consists of patients who had no physical symptoms, and diabetes was discovered in the course of a routine medical examination.

[3] *Diagnosed in Connection with Other Illness:* These are cases of diabetes which were discovered when the patient went to the hospital for treatment of some other illness.

[4] *Late Diagnosis:* These are cases of diabetes which were discovered after the appearance of physical symptoms. These symptoms were severe enough to cause the patient to seek medical treatment. Symptoms included: diabetic ulcer, diabetic coma, gangrene, sores that would not heal, weakness, itching, and thirst.

diagnosed in connection with other illness and 72 per cent had a late diagnosis. These findings are in accordance with the assertion that diabetes often progresses through half its course before it is clinically recognized (4).

Experience of Diabetics During Their Observation

Severity of Illness. The eighty-seven persons with diabetes were considered in relation to the severity or mildness of their condition during observation. These data are presented in Table 7.

Table 7. Number of males and females with diabetes classified according to the severity of their illness during observation. Eastern Health District of Baltimore.

Degree of Severity of Illness	Both Sexes	Male	Female
Total	87	27	60
Severe:[1]			
Without Gangrene	12	3	9
With Gangrene	8	3	5
Intermediate[2]	25	6	19
Mild:[3]			
Controlled	21	8	13
Not Carefully Controlled	11	3	8
Unknown if Controlled or Not	4	2	2
Unknown Type of Case	6	2	4

[1] *Severe:* This category is divided into two parts. The *first* consists of those cases of diabetes which were considered advanced in that the patients continually suffered from some combination of symptoms such as weakness, dizziness, unconsciousness, pains, severe itching and infections. While these diabetics were free from gangrene, control of the disease proved extremely difficult.

The *second part* consists of cases of diabetes which not only were advanced and had symptoms similar to the patients in the first category, but these cases were also complicated by the presence of gangrene.

[2] *Intermediate:* This category includes patients who did not suffer from the severe complications of diabetes but were rarely free from some symptom or manifestation of the condition. These diabetics frequently had traces of sugar in the urine and an excessive blood sugar level. They also complained of weakness and of feeling tired.

[3] *Mild Cases Controlled:* These are cases in which the patient apparently was suffering no ill-effects from diabetes and was effectively controlling the disease by either maintaining a proper diet, taking insulin or doing both of these things.

Mild Cases, not Carefully Controlled: This category includes patients who did not make a real effort to control their disease, but nevertheless suffered little or no ill-effects from diabetes.

Mild Cases, Unknown if Controlled or Not: These are cases in which the patient apparently was suffering no ill-effects from diabetes, but due to lack of information on the illness record, it was impossible to tell whether or not the patient was doing anything to control his illness.

The persons with severe conditions were grouped into two classes. The first class consisted of those cases which were considered severe in that the patients continually suffered from some combination of symptoms such as weakness, dizziness, unconsciousness, pains, severe itching, and infections. While these diabetics were free from gangrene, control of the disease proved extremely difficult. The second class consists of cases of diabetes which not only were advanced and had symptoms similar to the patients in the first category, but these cases were also complicated by the presence of gangrene.

There was a category termed as "intermediate" which included persons who did not suffer from the severe complications of diabetes but were rarely free from some symptoms or manifestation of the condition. These diabetics frequently had traces of sugar in the urine and an excessive blood sugar level.

The last category consisted of mild cases of diabetes. This category was divided into three groups. The first group consisted of persons who were suffering no ill effects from diabetes and were effectively controlling their disease by either maintaining a proper diet, taking insulin, or doing both of these things. The second group consisted of persons with mild conditions who were not carefully controlling their disease, but nevertheless suffered little or no ill effects from diabetes. The third group was comprised of persons who reported no ill effects from diabetes, but due to lack of information on the illness record it was impossible to tell whether or not the patient was doing anything to control his illness. It should be noted that these classifications are based only upon frequency and severity of symptoms or complaints.

Twenty-four per cent of the males and 25 per cent of the females in this study were classed as persons with severe diabetes. Twenty-four per cent of the males and 34 per cent of the females were considered as intermediate cases or having moderately severe diabetes. Fifty-two per cent of the males as compared with 41 per cent of the females had diabetes in a mild form, that is, these cases showed little tendency to progress.

Method of Control of Diabetes. Table 8 shows the persons with diabetes classified according to the year in which the condition was first diagnosed and the method of controlling the disease while under observation. Forty-five persons utilized both a proper diabetic diet and insulin as a means of controlling diabetes. Thirty persons were on a diet only and five persons reported that they did not take insulin and did not adhere to any sort of regimen. In seven instances it was impossible to tell from the family records how or if the person was controlling the disease. These cases were classed as unknown.

Of the five persons in the "neither diet nor insulin" category, three had very mild diabetes; another case had a first diagnosis of diabetes shortly before death occurred; and the last case was a woman with severe diabetes who made no attempt to control her condition.

Table 8. Persons with diabetes classified according to the period in which diabetes was first diagnosed and the method of controlling the disease while under observation. Eastern Health District of Baltimore[1]

Period of Time of Diagnosis	Method of Control of Diabetes
	Diet Only
Total	30
Before 1930	5
1930–1937	8
1938–1943	13
Unknown Date	4
	Diet and Insulin
Total	45
Before 1930	5
1930–1937	18
1938–1943	20
Unknown Date	2
	Neither Diet nor Insulin
Total	5
Before 1930	0
1930–1937	1
1938–1943	3
Unknown Date	1
	Unknown
Total	7
Before 1930	1
1930–1937	2
1938–1943	3
Unknown Date	1

[1] Excludes two lodgers.

Thirteen persons who were on a diet only had a first diagnosis prior to observation. Similarly, there were thirteen persons who had a diagnosis during observation and were also on a diet only. Of the persons who had a first diagnosis prior to observation, twenty-three were taking insulin and adhering to a diet as compared with twenty persons who were diagnosed during observation and were using the same method of control. It is apparent that the year of first diagnosis had little effect upon the means of controlling diabetes among these persons.

It is of interest to examine more closely the records of those persons who maintained only a diet to control their condition. The following are comments either made by the family informant or by the clinic physicians who treated these patients: "On a diet, but gaining weight all the time;" "mild diabetes easily regulated, even on the diet he keeps," "patient warned to adhere to diet;" "does not stick to diet;" "unable to keep diet;" "on diet, but sometimes breaks it;" "does not keep too close to her diet;" "gained weight, not adhering to diet, warned;" and "diets off and on." In their inability to maintain a proper diet, these diabetics show a close affinity to many nondiabetics. However, there were other persons in the "diet only" category who really adhered to a diabetic regimen and in so doing were able to control their condition effectively.

Medical Care. Table 9 presents the type of medical attend-

Table 9. Distribution of persons with diabetes according to the type of medical attendant during their observation. Eastern Health District of Baltimore.

Type of Attendant	Per Cent	Number of Persons[1]
Total	100.0	87
Private Physician Only	37.9	33
Clinic Only	27.6	24
Private Physician and Clinic	8.0	7
Private Physician and Specialist	3.5	3
Clinic and Specialist	2.3	2
Hospital Only	1.2	1
None	19.5	17

[1] Excludes two lodgers.

ant utilized by diabetic persons during their period of observation in this study. Thirty-eight per cent of the persons with diabetes went only to a private physician for medical treatment. Twenty-eight per cent utilized the services of a clinic only, and 8 per cent were treated by a private physician and also attended a clinic. Approximately 20 per cent, or seventeen persons with diabetes, had no medical care during the time in which they were observed. Twelve of these seventeen persons had diabetes in a mild form and, in general, were observed for a very short period of time. In two other instances the patient died so soon after the discovery of diabetes that there was no time for observation of medical care. An additional two persons could not be classified as to the severity of their diabetes, but nevertheless were able to manage with no medical treatment during their observation. One other diabetic

Table 10. Number of males and females with diabetes, classified according to the type of medical attendant and the degree of severity of the case. Eastern Health District of Baltimore.

Type of Medical Attendant	Total	Degree of Severity of Condition			
		Severe	Intermediate	Mild	Unknown Type of Case
	Male				
Total	27	6	6	13	2
General Practitioner Only	9	0	3	5	1
Clinic Only	10	3	2	5	0
General Practitioner and Clinic	2	2	0	0	0
General Practitioner and Specialist	0	0	0	0	0
Clinic and Specialist	1	0	1	0	0
Hospital Only	1	1	0	0	0
No Medical Attendant	4	0	0	3	1
	Female				
Total	60	14	19	23	4
General Practitioner Only	24	6	7	9	2
Clinic Only	14	3	9	2	0
General Practitioner and Clinic	5	2	1	2	0
General Practitioner and Specialist	3	2	0	1	0
Clinic and Specialist	1	0	1	0	0
Hospital Only	0	0	0	0	0
No Medical Attendant	13	1	1	9	2

took insulin and apparently did not feel the need for any additional medical care.

The persons with diabetes were then considered according to the type of medical attendant they utilized and the degree of severity of the case. These data are presented in Table 10. It can be seen that regardless of the severity of the condition, most of these patients employed the services of a general practitioner, a clinic, or both a general practitioner and a clinic. Only 15 per cent of the males had no medical care as compared with 22 per cent of the females.

The rate of medical calls among diabetic patients by the degree of severity of the condition and by type of medical attendant is shown in Table 11.[3]

Table 11. Rate of medical calls among diabetic patients, classified according to the type of medical attendant and the degree of severity of the condition. Eastern Health District of Baltimore.[1]

Degree of Severity of Condition	Total	Type of Medical Attendant				
		General Practitioner	Clinic	General Practitioner and Clinic	General Practitioner and Specialist	Clinic and Specialist
	Rate Per 1,000 Person Days					
	Male					
Total	30.2	8.8	14.5	4.7	—	2.2
Severe	49.9	—	28.6	21.3	—	—
Intermediate	49.5	30.4	9.2	—	—	9.9
Mild	14.9	3.9	11.0	—	—	—
	Female					
Total	19.9	9.6	4.8	3.1	1.8	0.6
Severe	30.8	16.8	4.2	3.9	5.9	—
Intermediate	22.7	10.1	10.1	0.8	—	1.7
Mild	8.9	3.5	0.6	4.5	0.3	—

[1] Includes persons who were classed as permanently disabled.

[3] The population which composed the denominator included a total of 193 person-years of observation of the eighty-seven diabetics. The numerator included the total medical calls reported during their observation. These data are shown in Appendix Table 3. The 193 person-years which form the denominator are expressed in person-days (Appendix Table 4).

Age Group	Rate Per 1,000 Person-Days at Risk		
	Both Sexes	Male	Female
All Ages	21.4	29.6	18.3
Under 45	15.6	16.3	15.1
45–64	13.2	34.5	4.6
65+	55.5	20.9	58.3

Table 12. Rate of disabling days among males and females with diabetes who were at risk of disability. Eastern Health District of Baltimore.

Males with severe diabetes had a rate of 49.9 medical calls per 1,000 person-days for all types of medical attendants. Corresponding rates for males with intermediate and mild conditions were 49.5 and 14.9, respectively. The females present a different picture; the rate of medical calls decreased with a decrease in the severity of the condition. The total rate among females with severe diabetes was 30.8 per 1,000 person-days. Intermediate conditions had a rate of 22.7 medical calls per 1,000 person-days, and mild cases a rate of 8.9.

During the period of observation there were nine persons who were hospitalized due to the development of serious complications of diabetes. These 9 persons had a total of thirteen hospital admissions, or an average annual rate of 67.4 admissions per 1,000 person-years at risk. There was a total of 361 hospital days for the thirteen admissions which yielded a mean of 30.1 hospital days per hospitalized case.

Disability. Table 12 presents the rate of disabling days among males and females with diabetes. All persons who were permanently disabled throughout their observation and therefore not at risk of disabling episodes of illness are excluded from this particular analysis.[4]

The total person-days at risk of disability was 16,899 for males and 45,031 for females, as shown in Appendix Table 4. The rate per 1,000 person-days at risk for males at all ages was

[4] Nine of the eighty-seven diabetics were permanently disabled throughout observation and one additional case became permanently disabled during observation.

29.6. The corresponding rate for females was 18.3 disabling days. This means that, on the average, males were disabled 3 per cent and females 1.8 per cent of the time they were observed. The ratio of the rate among males to that among females indicates that the rate of disabling days was 62 per cent higher among males than that among females.

These data do not reveal the total days which may be classed as "nonproductive" days due to diabetes because the persons who were permanently disabled have been excluded. If these persons be included, 15.8 per cent of the observed days among male diabetics were disabled days. The corresponding per cent for females was 13.5. It is apparent that efforts should be made toward the prevention of permanent disability from diabetes because such disability represents a great loss to the patient and to the community.

A previous study has shown that when disabling episodes are related to the particular population at special risk of such episodes, that is, the cases themselves, males had a greater risk of disability than did females for certain chronic conditions, namely, arthritis, heart disease, hypertensive vascular disease and arteriosclerosis, varicose veins, diabetes, psychosis, and malignant neoplasm. Males also suffered considerably more disability in terms of days disabled than did females. One of the most outstanding classes of chronic illness in this respect was again diabetes mellitus (5).

When days of disability were related to the degree of severity of the condition, the rate of disabling days was higher for males than for females regardless of whether the condition was severe, intermediate, or mild. For both males and females there was a decrease in the rate of days disabled as the severity of the condition decreased.

Summary

The data presented in this study afford a description of the persons in a sample population of the Eastern Health District of Baltimore who had diabetes mellitus.

The position of the diabetic in the household, the year of first diagnosis of the condition, and the age at first diagnosis are discussed, as is the age at first observation of persons with diabetes.

The family statement concerning the nature of the first signs of illness was shown to be in accordance with the known clinical symptoms of diabetes mellitus. An analysis based on the first signs of illness was presented which sought to determine whether or not these diabetics had an early or a late diagnosis of their illness. It was found that only 8 per cent had an early diagnosis as compared with 78 per cent which had a late diagnosis.

The eighty-seven persons with diabetes were considered according to the severity or mildness of their chronic illness during observation. Approximately 25 per cent of the cases among both males and females were severe. Fifty-two per cent of the males had diabetes in a mild form, the corresponding figure for females being 41 per cent.

The method of controlling the condition while under observation was discussed. It was apparent that many of the persons who were attempting to maintain internal equilibrium by means of a diet only, experienced extreme difficulty in adhering to a diabetic regimen.

Regardless of the severity of the condition, persons who had medical attention during the study utilized, for the most part, the services of a general practitioner, a clinic, or both a general practitioner and a clinic.

When the rate of medical calls was considered, males with severe diabetes had a rate of 49.9 medical calls per 1,000 person-days of observation compared with a rate of 30.8 for females. The rate of medical calls for mild conditions was 14.9 and 8.9 for males and females, respectively.

The days of disability were also related to the degree of severity of the condition. The rate of disabling days per 1,000 person-days at risk was higher for males than for females regardless of the severity of the case. For both sexes there was

a decrease in the rate of disabling days with a decrease in the severity of the condition.

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References

1. Wilkerson, Hugh L. C. and Krall, Leo P.: Diabetes in a New England Town. *The Journal of the American Medical Association,* September 27, 1947, Vol. 135, No. 4, pp. 209–216.

2. Downes, Jean and Collins, Selwyn D.: A Study of Illness Among Families in the Eastern Health District of Baltimore. The Milbank Memorial Fund *Quarterly,* January, 1940, XVIII, No. 1, pp. 5–26.

3. Dublin, Louis I.: THE FACTS OF LIFE—FROM BIRTH TO DEATH. New York, The Macmillan Company, 1951, pp. 144–160.

4. Dolger, Henry: Vascular Complications of Diabetes Mellitus. *Bulletin of the New York Academy of Medicine,* December, 1950, Vol. 26, No. 12, pp. 779–785.

5. Downes, Jean and Keller, Marguerite: The Risk of Disability for Persons with Chronic Disease. The Milbank Memorial Fund *Quarterly,* October, 1952, XXX, No. 4, pp. 311–340.

Appendix Table 1. Number of males and females with diabetes according to the age at which the first diagnosis of the condition was made. Eastern Health District of Baltimore.

Age at First Diagnosis	Both Sexes	Male	Female
All Ages	87[1]	27	60
Under 35	4	4	0
35–39	9	3	6
40–44	9	1	8
45–49	5	1	4
50–54	16	6	10
55–59	13	5	8
60–64	11	3	8
65–69	4	1	3
70–74	6	1	5
75+	2	0	2
Unknown Age	8	2	6

[1] Includes one child age 4 and excludes two lodgers.

Appendix Table 2. Number of males and females with diabetes classified according to the age at first observation. Eastern Health District of Baltimore.

Age at First Observation	Both Sexes	Male	Female
All Ages	87[1]	27	60
Under 35	3	3	0
35–39	3	3	0
40–44	8	2	6
45–49	6	1	5
50–54	14	5	9
55–59	21	3	18
60–64	13	8	5
65–69	7	1	6
70–74	7	1	6
75+	5	0	5

[1] Includes one child, age 8. Excludes two lodgers.

Appendix Table 3. Number of medical calls among diabetic patients classified according to the type of medical attendant and the degree of severity of the condition. Eastern Health District of Baltimore.

Degree of Severity of Condition	Total	Type of Medical Attendant				
		General Practitioner	Clinic	General Practitioner and Clinic	General Practitioner and Specialist	Clinic and Specialist
	Male					
Total	543	158	261	85	—	39
Severe	199	—	114	85	—	—
Intermediate	194	119	36	—	—	39
Mild	150	39	111	—	—	—
Unknown Type of Case[1]	—	—	—	—	—	—
	Female					
Total	985	476	241	152	88	28
Severe	436	238	60	55	83	—
Intermediate	380	170	169	13	—	28
Mild	166	65	12	84	5	—
Unknown Type of Case	3	3	—	—	—	—

[1] Unknown number of calls to a general practitioner.

Appendix Table 4. Disabling days and person days at risk of disability among males and females with diabetes, classified by age. Eastern Health District of Baltimore.

Age Group	Number of Disabling Days			Number of Person-Days at Risk		
	Both Sexes	Male	Female	Both Sexes	Male	Female
All Ages	1,323	501	822	61,930	16,899	45,031
Under 45[1]	133	63	70	8,507	3,866	4,641
45–64[2]	556	420	136	42,002	12,171	29,831
65+[3]	634	18	616	11,421	862	10,559

[1] Excludes one male who was permanently disabled throughout observation and another male whose permanent disability took place during observation.

[2] Excludes two males and four females who were permanently disabled throughout observation.

[3] Excludes two females who were permanently disabled throughout observation.