

DIABETES MELLITUS IN HULL AND THE EAST RIDING OF YORKSHIRE

(A Survey by the Hull and East Riding Sub-Faculty of the College)

The aim of the survey was to establish the incidence of diagnosed diabetes mellitus in fourteen practices and to relate this, if possible, to the population as a whole.

The survey was carried out by fifteen members of the Hull and East Riding Sub-faculty of the College of General Practitioners. Each member made an age and sex analysis of his practice, including the lists of his partners. He also completed a *pro forma* for each diabetic in his practice during the quarter April to June 1957 and these results were transferred to Cope-Chat cards. The sample of the population so obtained was 52,777. This was then compared with the 1951 census figure of 510,904, for Hull and the East Riding, as to age and sex structure.

This data is given in table I.

TABLE I

AN ANALYSIS OF THE AGE AND SEX STRUCTURE OF THE WHOLE OF THE EAST RIDING INCLUDING HULL AT THE 1951 CENSUS COMPARED WITH A SIMILAR ANALYSIS OF THE 1957 DIABETIC SURVEY.

		<i>Males</i>		<i>Females</i>	
<i>Age</i>	<i>Census</i>	<i>Sample</i>	<i>Census</i>	<i>Sample</i>	
0—9	18.0	19.1	16.1	15.8	} 43.0
10—19	14.3	13.4	13.4	13.1	
20—29	14.2	10.4	13.8	14.1	
		} 46.5	} 42.9		
30—39	14.6	15.7	14.0	14.0	} 38.8
40—49	14.5	13.2	13.9	12.5	
50—59	10.8	11.5	11.7	12.3	
		} 39.9	} 40.4		
60—69	8.0	8.7	9.5	9.0	} 18.2
70—79	4.5	6.2	5.8	6.5	
80—89	1.0	1.7	1.6	2.6	
90—99	0.1	0.1	0.1	0.1	
		} 13.6	} 16.7	} 17.0	

(The figures are expressed as a percentage of the whole.)

When the age groups are analysed by the three main sections, namely 0—29, 30—59, and 60 and over, the table shows that,

especially in the case of females, the difference between the census data and those of the sample are quite small. In the case of the male population, there is a tendency for the younger age groups to be under-represented in the sample. It has been suggested that this might be due to the failure of some young men to register with a doctor when they return from national service.

Table I and the subsequent comment, together with other statistical work for this survey, are reproduced from the analysis of our data prepared by Mr R. J. Nicholson and Miss J. M. Bellamy of the economics department of Hull University.

From the above it appears that our sample was 10 per cent of the population and that it accurately represents in age and sex structure, the 1951 Census enumeration.

The Incidence of Diabetes Mellitus

184 diabetics were found in a population of 52,777, thus giving a gross incidence of 3.5 *per* 1,000. The male incidence was 2.56 *per* 1,000, the female incidence 4.35 *per* 1,000. There are almost twice as many females with diagnosed diabetes as there are males.

There are probably 1,840 diagnosed diabetics in Hull and the East Riding; 1,200 females and 600 males.

The rest of the collected data has been drawn up in graph form. Figure I shows the age of the patients when diabetes was diagnosed for the first time. It will be observed that there is a regular increase of diagnosis with age in males; there is doubling of the rate of diagnosis in females about the time of the menopause. This can be compared with figure 2 which shows the incidence of diabetes in the various age groups.

Figure 3 shows the percentage of patients attending hospital. 60 (32.7 per cent) of the diabetics attended hospital clinics regularly for treatment of their condition. Of these, 51 (85 per cent) had complications of diabetes at diagnosis or developed them later. It is of interest that only 15 (8 per cent) of all the diabetics in the survey required the help of the district nurse.

Figure 4 shows the number of patients requiring insulin. Tables II and III show an analysis of symptoms at onset, or rather at diagnosis, because the time from onset to diagnosis is difficult to assess.

The Accuracy of the Survey

It was necessary to answer two questions about the accuracy of this survey. How many diabetics have been missed, and how accurate was the diagnosis?

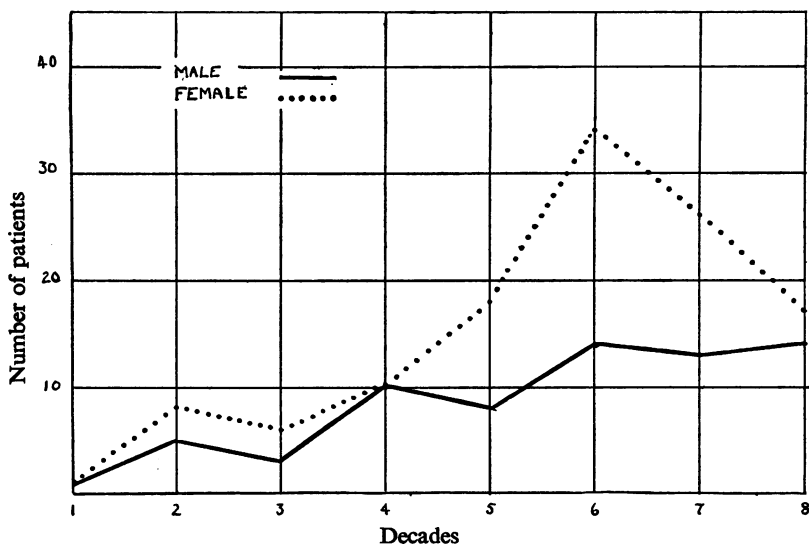


Figure 1. Age at diagnosis

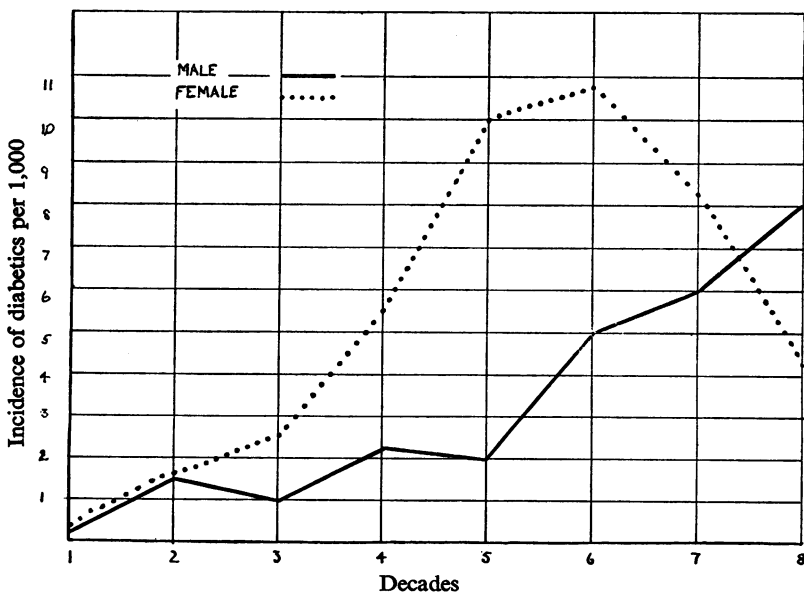


Figure 2. Incidence of diabetes in age groups

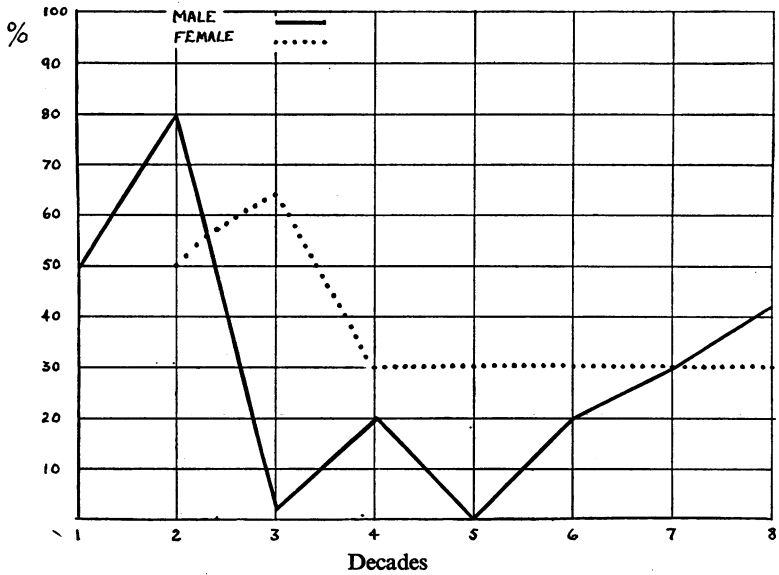


Figure 3. Percentage of patients attending hospital

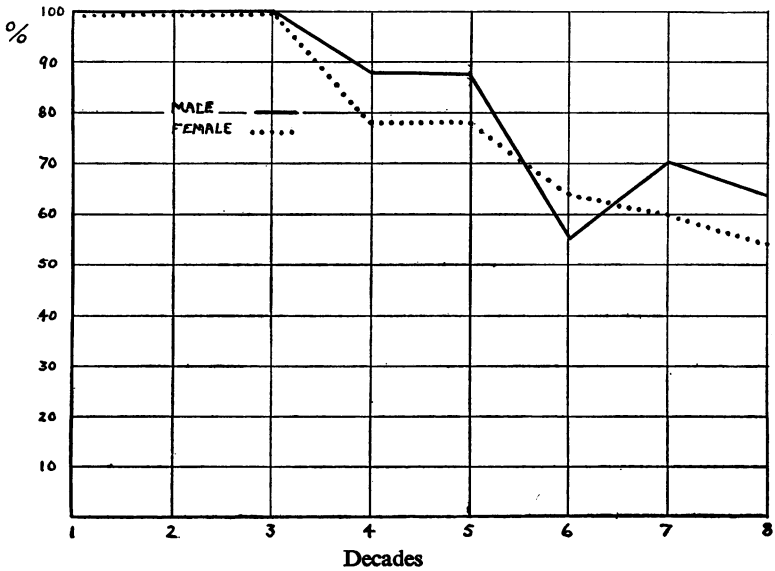


Figure 4. Percentage of patients having insulin treatment (Age is age at diagnosis not present age.)

TABLE II
SYMPTOMS AT ONSET OF DIABETES IN MALES BY PERCENTAGE

<i>Decade</i>	<i>Thirst</i>	<i>Tiredness</i>	<i>Weight loss</i>	<i>Balanitis</i>
1	<i>Per cent</i> 100	<i>Per cent</i> 50	<i>Per cent</i> 50	<i>Per cent</i> nil
2	80	100	20	nil
3	68	34	30	nil
4	90	24	nil	22
5	87	62	nil	12
6	43	64	nil	14
7	47	62	nil	nil
8	36	42	nil	nil

TABLE III
SYMPTOMS AT ONSET OF DIABETES IN FEMALES BY PERCENTAGE

<i>Decade</i>	<i>Thirst</i>	<i>Tiredness</i>	<i>Weight loss</i>	<i>Pruritis vulvae</i>
1	<i>Per cent</i> nil	<i>Per cent</i> nil	<i>Per cent</i> nil	<i>Per cent</i> nil
2	75	62	26	nil
3	50	16	66	33
4	78	56	66	44
5	78	60	39	50
6	77	62	50	42
7	66	62	66	42
8	60	50	50	54

With regard to the first question, although the survey only covered three months, the participating doctors had it in mind for four to five months. It has been said that in general practice 4 patients per 1,000 are seen with a new complaint every day so that many more than 18,000 patients of the total sample of 52,777 were seen in the three months. Added to this is the fact that diabetes is

often a familial disease, so that a member of the diabetic's family, seen in surgery or visited, would recall to the doctor's mind the diabetic patient who would then be included in the survey. Again, all diabetics need fairly frequent prescriptions either for insulin, or reagents for testing urine. Secondly, how accurate was the diagnosis? 115 patients had confirmatory blood tests. Of the others, 7 had ketosis at some stage, 32 had a combination of glycosuria, thirst and tiredness, and 14 patients were having more than 20 units of insulin daily. These 168 patients can fairly be called diabetic. From a close scrutiny of the *pro forma* and in some cases by means of conference with the doctor concerned, it was accepted that all the patients in the survey were suffering from diabetes in the usually accepted sense.

Comment

Diabetic surveys reported in the literature have been based on the issue of special rations to diabetics in war time, or on samples of general practitioner's records without age and sex analysis. Ration card surveys are available from Australia, Britain, Norway, Sweden, Finland, and Denmark. The exclusion of service personnel, and the fact that mild diabetics may not have collected their rations limit the value of these findings.

The surveys of eight practices (Logan, 1953) and the West Cornwall survey of 1957 (Andrews) produced incidence figures of 3.8 and 5.6 per 1,000 respectively. Andrews states that 19 per cent of the Cornish diabetic population is over 60 years old. The figure for our survey gives an incidence of 3.5 per 1,000 with 14 per cent over 60 years old. The Oxford (Mass. U.S.A.) Survey of 1945 used blood testing as a screen test but only covered 3,516 persons, or only about 70 per cent of the total population. The incidence in that survey was 8 per 1,000.

Much is made by Jeff and Spellberg (1945) of the high incidence in Jews and the low incidence in coloured peoples. There are only about 2,000 Jews in Hull and the East Riding probably has less, so that the incidence can be little affected by them. The coloured population is only one tenth of that of the Jews.

Goslin (1945) states that "The incidence is highest (1) where the average age is oldest, (2) where women predominate, (3) where obesity is most frequent, (4) where the proportion of Jews is greatest, (5) where medical supervision is closest, and (6) where deaths are most accurately reported.

This survey certainly supports the first two statements. It may be held to support the fourth statement and the pilot survey by

Crombie (1959) supports the fifth statement.

Acknowledgments

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THE AUSTRALIAN COLLEGE OF GENERAL PRACTITIONERS

The Victoria Faculty of the Australian College publishes a newsletter, and the June edition of this gave details of the programme planned for a General Practitioner's Convention held in Melbourne from 10th to 15th October, 1960. Monday, the first day, was kept free of set lectures, and was allowed for getting to know the city's facilities. On Tuesday two symposia were planned—*Hypertension*, and *Low Back Pain*—to be followed by a dramatized trial around a case of tetanus in which prophylactic A.T.S. was not given and death ensued. A member of the judiciary gave his comments, and also a barrister. A report on the faculty's survey *Allergic Reactions to A.T.S.* rounded off that day.

On the Wednesday a number of papers were given on *Home Accidents*, *Holiday Accidents*, and *Socio-economic Consequences of Accidents*. The afternoon was taken up by the business session of the Australian College. Thursday was devoted to lectures on *Preventive Medicine in Childhood* and *The Scope of Research in General Practice*. A practical demonstration of *Emotional Problems in Family Practice* was staged. On Friday a panel discussion on *Can the University Prepare us for General Practice?* was followed by a "quiz session" on *Modern Drugs and Chemotherapy*. The afternoon was taken up by a number of clinical discussions including *Virus Infections*, *Rheumatic Ailments*, *Respiratory Infections in Childhood*, *Recurrent Furunculosis*, *Varicose Veins*, and *Asthma*. Saturday's programme included the giving and discussing of the faculty's results of surveys on *Postpartum Haemorrhage* and *The Effect of Rubella in Pregnancy*.

The usual social functions were arranged, not forgetting those for the ladies. Many British doctors will wish they could have attended so interesting a convention.