PAPERS AND ORIGINALS

Survey of dietary policy and management in British diabetic clinics

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Summary

Questionnaires about dietary policy were sent to 471 physicians in diabetic clinics throughout the United Kingdom, and usable replies were received from 281. Insulin-dependent patients were mostly taught to use carbohydrate-exchange units in regulating their diets; this method was used less often for maturity-onset diabetics. Restriction of sucrose and foods containing concentrated sugars was more rigorous in clinics in teaching hospitals than elsewhere; paediatric clinics were the most liberal. Maturity onset diabetics were generally advised to restrict their fat intake, but most clinics did not restrict fat for their insulin-dependent patients. Again teaching-hospital clinics were the most restrictive. Patients were rarely encouraged to weigh their food. In general physicians thought that insulin-dependent patients adhered to their diets but maturity-onset patients did not. There is uncertainty about the ideal dietary policy for diabetics and the best way of helping patients to follow the regimen prescribed.

Introduction

Diets are the one treatment used for all diabetic patients whether they are on insulin, tablets, or no specific medication. If oral hypoglycaemic drugs do increase the risk of cardiovascular disease¹⁻⁴ a greater emphasis may be placed on persevering with an effective diet in patients with maturity onset diabetes.

From the viewpoint of the nation's food consumption diabetic diets are the second most common therapeutic diet, after weight-reducing diets for non-diabetics. There are over a quarter of a

million diagnosed diabetics in England, Scotland, and Wales, and almost all are probably officially on some form of diet.

There is uncertainty about the ideal dietary prescription for diabetic patients. At the beginning of the insulin era diets were very low in carbohydrate and high in fat. At the London Hospital in 1931, for example,⁵ the diabetic diet provided only 15% of the energy intake as total carbohydrate, 17% as protein, but 68% as fat. Diets used today contain more carbohydrate and less fat; Davidson's *Principles and Practice of Medicine*⁶ recommends about 40% carbohydrate with 15% protein and 45% fat. Some workers, most in North America, are now advocating diets with around 64% of carbohydrate, 16% protein, and 20% fat.⁷ Similar diets are used in Asia and Africa⁸ and are being tried in at least one British clinic.⁹ The advocates of high-carbohydrate diets argue that since plasma lipids tend to be lower and glucose control is not usually more difficult than on standard British diabetic diets, the risk of atherosclerotic complications should be reduced without increasing the risks of hyperglycaemia. Furthermore, high-carbohydrate diets are less expensive, and therefore have been used for most diabetics in developing countries.

Each diabetic clinic in Britain has its own diabetic diet sheet(s). Theoretically, therefore, diabetic diets could vary more between individual consultants than insulin or drug treatment. There are only nine types of insulin and five types of tablet in common use but we have seen over 150 printed diet sheets for individual diabetic clinics, and there are more.

Apart from the type of diet prescribed, success in communicating dietary principles to diabetic patients and in helping them to make the necessary changes in their eating habits has been far from complete whenever this aspect of diabetic management has been investigated.¹⁰⁻¹²

For all these reasons we have made a survey to try to discover, firstly, what diets doctors prescribe in clinics throughout the country; and, secondly, what methods are used and what help is available for instructing patients how to make and take their diets.

Walker¹⁰ sent a questionnaire containing nine questions about diabetic diet policy to 142 doctors in charge of diabetic clinics and obtained 81 usable replies. Kellock¹³ sent a questionnaire containing six questions about availability of dietitians and about carbohydrate exchange units to 235 diabetic clinics in the UK; he received 138 replies. Our questionnaire followed this 10-year cycle and was sent out in 1973.

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Methods

The first six questions of our questionnaire dealt with clinic identification, numbers and ages of patients, and times of clinic sessions. Then followed 14 questions about dietary policy and 20 more general questions about metabolic control, methods of dietetic instruction, and follow-up. For most of the questions the doctor was expected to answer with ticks but was invited to comment in writing as well if he wished. Many questions had separate columns for insulin dependent (ID) patients, maturity onset (MO) diabetics of average weight, and overweight MO patients because dietary prescription and management is likely to differ for these three types of patient.

The questionnaire was drafted in consultation with Dr A Bloom, Professor H Keen, and Dr T D Kellock of the Social Research Committee of the British Diabetic Association (BDA). The draft was sent to another 20 leading diabetic physicians throughout the country and their comments were incorporated into the final draft. Our objective was to send the questionnaire to all hospital diabetic clinics. It became apparent that there was no clear borderline between a small diabetic clinic and a general medical clinic whose doctor saw most of the diabetics in a hospital.

Questionnaires were sent out, with an explanatory letter, to 471 doctors in England, Scotland, and Wales. A response was obtained from 338 physicians (72%). Fifty-seven responses could not be used because they came from doctors who no longer had diabetic clinics, had retired, etc. Only two doctors refused to take part. The remaining 281 analysable questionnaires (60%) came from diabetic clinics (199), physicians in general medical clinics with a special interest in diabetes (64), and paediatricians who ran a children's diabetic clinic (18). Analysis of replies by region showed that the best responses came from Scotland and from the South-west Metropolitan region (77% of analysable questionnaires returned). The lowest returns were from Liverpool, Wessex, and Birmingham regions (45 to 49% analysable questionnaires). The location, size, and name of the hospitals which did not reply were examined to see if they seemed to be different from the responders. No obvious differences could be seen.

In reporting our analysis (and in the tables) we shall concentrate on the answers from diabetic clinics, the largest group, and only include replies from general medical clinics or from paediatricians when these showed substantial differences. For the sake of brevity some of the original 40 questions have been condensed and others omitted.

Results

NUMBERS OF PATIENTS AND TIMES OF CLINICS

In diabetic clinics the median number of patients was 850 (range 50-10 000). In general medical clinics total numbers of patients ranged from under 50 to under 600 (with three exceptions larger than this); the median was 150 patients.

The number of new patients a year correlated roughly with the total number on the records. The median for diabetic clinics was 140 patients a year, ranging from 12 to 1012 a year (at Birmingham General Hospital). In general medical clinics there were from 2 to 500 new patients a year, with a median of 30.

Half the diabetic clinics did not see children. In those that did the number ranged up to 150 (at King's College Hospital, London). In specialised paediatric clinics the median number on the records was 58, and ranged from 16 to 214. New cases averaged 7 a year, ranging from 2 to 34.

Most (53%) sessions in diabetic clinics were in the morning, 39% in the afternoon, and 8% out of ordinary working hours (evenings or Saturday morning); 4% of paediatric clinics but only 0.5% of general medical clinics were held in the evenings or on Saturday.

CARBOHYDRATE EXCHANGE UNITS

Carbohydrate exchange units were used for all ID patients in 158 of the 199 diabetic clinics, but were used less often for overweight patients with MO diabetes (table I).

Altogether 166 (83%) diabetic clinics used the 10-g carbohydrate exchange unit; 11 (6%) the 15-g unit (7 in Scotland); 6 (3%) the 5-g unit (2 in the Oxford area); and 7 (4%) used two or more units, depending on the consultant or on the dietitian. Nine clinics (5%) did not use carbohydrate units; one physician (in Wolverhampton) explained that he used a carbohydrate-restricting diet, which was simple and useful. Eight clinics (all in the north of England) used

Lawrence's line diet. Another 14 sent us diet sheets that mentioned black lines. The proportion of diabetic clinics using the 10-g carbohydrate exchange unit has gone up from 47% (65/138) in Kellock's 1962-3 survey to 83% (166/199) in 1973.

TABLE I—Use of carbohydrate exchange units in diabetic diets. Results are numbers of diabetic clinics

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
For no patients ..	10 (5%)	20 (10%)	63 (32%)
For selected patients ..	22 (11%)	51 (26%)	43 (22%)
For all patients ..	158 (79%)	119 (60%)	84 (42%)
No clear answer ..	9 (5%)	9 (5%)	9 (5%)

Ten years ago the BDA recommended that the 10-g unit should be the standard carbohydrate exchange throughout the country. Eighty-six (43%) clinics indicated that they had been using the 10-g unit for under 10 years; 55 had adopted it in the preceding five years. One or two of these may be new clinics but most had presumably changed from another unit. Use of the 15-g carbohydrate unit has declined from 18% in Kellock's survey to 6%. The proportions using 5-g units (16/138) and those not using carbohydrate exchange units (17/138) were also higher in Kellock's survey. On the other hand, four clinics, all in Scotland, have started using the 15-g unit in the last 10 years.

DIETARY CARBOHYDRATE POLICY

Type of carbohydrate diet usually prescribed—This question on the type of carbohydrate diet usually prescribed was not easy to set or answer, especially for doctors who prescribed the absolute carbohydrate intake—for example, 250 g/day—and not the calorie (energy) intake. The average carbohydrate intake in Britain recently has been 46-50% of dietary calories, but the intake varies between different groups of the population and is changing.^{14 15} Most diabetic clinics (table II) gave their ID diabetics "average" proportions of carbohydrate; 21% gave a low-carbohydrate diet, and 5% gave an average-to-high or even a high-carbohydrate diet, but a low carbohydrate diet was prescribed for 92% of overweight MO diabetics. Altogether 154 diabetic clinics sent diet sheets with the questionnaire. In 58 of these the calories (energy) and carbohydrate content were stated or could be estimated: the proportion of carbohydrate ranged from 25% to 45% of total calories. Diet sheets from clinics that prescribed average-to-high carbohydrate diets showed carbohydrate contents of only 32-40% of energy.

TABLE II—Type of carbohydrate diet usually prescribed by clinics

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
Low carbohydrate ..	41 (21%)	84 (42%)	183 (92%)
Average (carbohydrate about 50% dietary calories) ..	138 (69%)	107 (54%)	10 (5%)
Average/high carbohydrate ..	10 (5%)		
High carbohydrate ..	2 (1%)	1 (1%)	
Variable ..	4 (2%)	3 (2%)	2 (1%)
No clear answer ..	4 (2%)	4 (2%)	4 (2%)

TABLE III—Numbers of clinics restricting sucrose and concentrated sugars

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
Completely ..	112 (56%)	115 (58%)	166 (83%)
Moderately ..	67 (34%)	69 (35%)	22 (11%)
Only avoid excess ..	14 (7%)	9 (5%)	5 (3%)
No clear answer ..	6 (3%)	6 (3%)	6 (3%)

Restriction of sucrose and foods containing concentrated sugars—Of the diabetic clinics 112 aimed to restrict sucrose and concentrated sugars completely for ID patients and 166 aimed to do so for overweight MO diabetics (table III). Clinics in teaching hospitals were

more restrictive than others: 28 out of 37 restricted sucrose completely for ID diabetics. Paediatric clinics were more liberal; only 6% completely restricted sucrose, 61% restricted it moderately, and 33% only avoided excess.

DIETARY FAT POLICY

Routine policy with dietary fat—One hundred and thirteen diabetic clinics did not restrict dietary fat for ID patients, but 117 restricted fat for all overweight MO diabetics (table IV). The commonest combination for the three types of patients was no restriction of fat for ID or average-weight MO patients but restriction for all overweight MO patients (39 clinics). Twenty-three diabetic clinics did not restrict dietary fat even for overweight MO patients. On the other hand, 14 diabetic clinics (six in Scotland) restricted fat in all three types of patient. Teaching hospital diabetic clinics tended to restrict fat more: only 16 did not restrict fat for ID patients though most of the remainder restricted fat in selected patients. All teaching hospitals restricted dietary fat for overweight MO diabetics. Thirteen paediatric clinics had no fat restriction, three restricted fat for selected patients, and only two did so for all patients.

TABLE IV—Number of clinics restricting fat routinely

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
No restriction ..	113 (57%)	105 (53%)	23 (12%)
Restriction for selected patients ..	65 (33%)	71 (36%)	53 (27%)
Restriction for all patients ..	15 (8%)	17 (9%)	117 (59%)
No clear answer ..	6 (3%)	6 (3%)	6 (3%)

Fat exchanges in diabetic diets—Only seven diabetic clinics used fat exchanges in diets, but they included three teaching hospitals (Hammersmith and the Middlesex Hospitals and Edinburgh Royal Infirmary). Fat exchange units were used for selected patients of certain types, and their size varied: 5 g, 6 g, 9 g, 12 g, and 20 g fat, 0.5 MJ (110 kcal), and "2 oz (57 g) meat." Fat exchanges are a standard part of the diabetic diets of the American Diabetes and Dietetic Associations, and their size is 5 g fat.

Replacement of saturated fats by polyunsaturated fats—Though most clinics did not encourage replacement of saturated fats by polyunsaturated fats, there were eight diabetic clinics and one general medical clinic that did so routinely for all types of patient (table V). Three were teaching hospitals (Aberdeen, Dundee, and a research clinic at Guy's Hospital, London). One paediatrician had a similar policy. Doctors who routinely encourage polyunsaturated fats tended also to restrict total dietary fat.

TABLE V—Number of clinics encouraging replacement of saturated by polyunsaturated fats

	Insulin-dependent Diabetics	Maturity Onset Diabetics
No encouragement ..	110 (55%)	101 (51%)
Occasional encouragement ..	76 (38%)	83 (42%)
Routine encouragement ..	8 (4%)	10 (5%)
No clear answer ..	5 (3%)	5 (3%)

OTHER ASPECTS OF DIETARY POLICY

Most clinics did not use protein exchanges. Nine diabetic clinics used them for both ID and MO diabetics and a further six for ID patients only. Two clinics commented that protein exchanges would be discontinued shortly. One teaching hospital (Western General, Edinburgh) used protein exchanges that appear in two standard textbooks.^{6 16} In a few clinics protein exchanges were used as part of Lawrence's line system.

Prescription of calorie (energy) content of diet—About half (91) the diabetic clinics did not prescribe the calorie (energy) content of the diet for any ID patients (table VI), and 118 prescribed the calories for overweight MO diabetics. The units used were kcal in 167 and kJ in only one diabetic clinic (Northwick Park, Harrow). One physician

commented, "We intend keeping the calorie as long as possible as we find that most people know about calories. A 'low energy' diet causes problems and a megajoule is quite incomprehensible at the moment." Another comment was that "all diets have on them the SI equivalent, though these are not in common use."

TABLE VI—Numbers of clinics prescribing calorie (energy) content of diet

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
For no patients ..	91 (46%)	90 (45%)	28 (14%)
For selected patients ..	42 (21%)	52 (26%)	41 (21%)
For all patients ..	54 (27%)	45 (23%)	118 (59%)
No clear answer ..	12 (6%)	12 (6%)	12 (6%)

Calculation of carbohydrate, fat, protein, and calorie (energy) components—We also asked whether any other nutrients were usually calculated in diets. Carbohydrate was by far the commonest dietary component prescribed for ID patients (carbohydrate 93%, energy 36%, fat and protein 12%), and even for overweight MO diabetics carbohydrate was prescribed more often than calories (carbohydrate 82%, energy 68%, fat 25%, protein 20%). Eight out of 18 paediatricians calculated carbohydrate and four both carbohydrate and calories. One paediatrician did not calculate either.

Types of food that patients are instructed to weigh—Most commonly (in diabetic clinics) patients were not encouraged to weigh any of their foods. The next largest group (17%) instructed all diabetics to weigh carbohydrate for limited periods. Seventeen clinics asked ID and average-weight MO patients to weigh only carbohydrate foods and overweight MO patients to weigh all foods for a limited period. Only eight clinics instructed all patients to weigh all foods, in five for limited periods. Comments indicated that when weighing was used, it was continued until the patient could estimate with fair accuracy how much food equalled a 10-g carbohydrate exchange. Thereafter weighing was used occasionally: one doctor advised once a week, others said "if in doubt" or "for a check periodically." Most paediatric clinics (12) instructed parents to weigh carbohydrate foods for limited periods. Three advised weighing carbohydrate indefinitely, while two did not advise weighing any food. None asked for all food to be weighed.

INFORMING PATIENTS ABOUT DIABETIC DIETS

Literature given to patients—The commonest (19%) answer about literature was that all diabetics were given all five types of literature shown in table VII. Eight per cent of clinics gave all but the proprietary foods list and another 7% all but the diabetic recipes. The remaining answers fell into 67 combinations. In several clinics patients were encouraged to buy *Carbohydrate Countdown*, listing carbohydrate values of proprietary foods, from the BDA.¹⁷ Altogether 156 (78%) diabetic clinics sent literature, and the diet sheets have been reviewed elsewhere.^{18 19} Eighty-three per cent of paediatric clinics gave diet sheets and 78% diabetic recipes.

TABLE VII—Types of literature on diabetes and diets given to patients. Results are percentages of clinics giving such literature

	Insulin-dependent Diabetics	Maturity Onset Diabetics
Diet sheet ..	96%	95%
Carbohydrate exchange list ..	91%	77%
Carbohydrate values of proprietary foods ..	51%	39%
Diabetic recipes ..	62%	52%
Explanatory booklet on diabetes in general ..	75%	61%

Diet teaching methods—Twelve per cent of diabetic clinics used posters, 15% food models, 8% group teaching, and 59% advised the spouse. Only seven clinics used films or slides and the same number quiz type games. Visual aids were less used in general medical clinics but 85% advised the spouse. Different clinics mentioned a diabetic health visitor, periodic lectures by the dietitian, BDA playing cards, help with menu planning, BDA clubs, instruction of inpatients by the ward sister, and visits to new diabetics' homes by the social worker.

A tape/slide teaching machine was in active preparation in Cardiff. About 20% of diabetic clinics did not use aids but relied on individual instruction given by the doctor and sometimes also by the dietitian and health visitor.

Special dietetic advice for immigrant diabetics—seventy-six (38%) diabetic clinics had such advice and most mentioned the group of immigrants. Patients from India, Pakistan, and Bangladesh were most frequent, the commonest languages being Hindi, Urdu, Gujarati, Punjabi, and (less common) Bengali and Tamil. Other immigrant groups, each mentioned by five clinics, were Chinese, West Indians and Italians. Smaller numbers of clinics mentioned Arabic, Spanish, Ugandan Asian, Turkish, Polish, Greek, West African, Jewish, and French patients. Four clinics sent immigrant diet sheets in English, all for people from the Indian subcontinent. Two sent sets of diet sheets in immigrant languages. Birmingham General Hospital had these in five different languages—Hindi, Bengali, Punjabi, Gujarati, and Arabic. A few clinics sent a special exchange list for immigrants and nine included one or more immigrant foods on their standard exchange lists.

We calculated the total carbohydrate of the four most complete diet sheets for immigrants. It came to 43, 45, 47, and 51% of total calories. The last was a vegetarian diet, but in all the percentage of energy from carbohydrate was higher than in typical British diabetic diets.

Explaining diets to patients—The diet was explained to the patient at the clinic by the dietitian alone in 42% of diabetic clinics (table VIII). In 20% of general medical clinics compared with 7% of diabetic clinics the doctor alone explained the diet. Most paediatric clinics relied on the dietitian, but in nearly 30% doctor and dietitian were both involved. In 4% of diabetic clinics the health visitor had the primary responsibility for explaining the diet. Not all clinics had dietitians. Altogether 168 diabetic clinics, 38 general medical clinics, and 15 paediatric clinics had a dietitian as an integral part of the staff. Some doctors indicated that a dietitian was available in the hospital on request. Others mentioned that the post was temporarily vacant and being advertised. Dietitians were the most common paramedical staff in diabetic clinics, followed by chiropodists (108 clinics), social workers (65), and health visitors (49).

TABLE VIII—Staff who explain diet to patients

All Patients	Selected Patients	No. (%) of Clinics
Dietitian	Doctor	83 (42)
Dietitian	Doctor	37 (19)
Doctor and dietitian	Doctor	15 (8)
Doctor	Doctor and/or dietitian	13 (7)
Dietitian	Doctor and health visitor	9 (5)
Doctor	Dietitian	6 (3)
Dietitian	Health visitor	6 (3)
Health visitor	Doctor and/or dietitian	4 (2)
Health visitor	Doctor and/or dietitian	4 (2)
Other arrangements		3 (2)
		19 (10)

TABLE IX—Number of clinics routinely measuring blood glucose

	Insulin-dependent Diabetics	Maturity Onset Diabetics
For no patients	10 (5%)	14 (7%)
For selected patients	48 (24%)	52 (26%)
For all patients	139 (70%)	131 (66%)
No clear answer	2 (1%)	2 (1%)

Diets explained by health visitors in patients' homes—At 90 diabetic clinics health visitors also explained diets to the patient at home, at 75 this was done occasionally, and at 15 it was done routinely. The latter included three teaching hospitals (Birmingham General, Aberdeen Royal Infirmary, and Liverpool Northern), the Leicester Royal Infirmary, and Dr P A Thorn's "mini-clinics" in general practice.²⁰ Health visitors were occasionally used by some clinics in the follow-up of immigrants and the elderly. In a few clinics the dietitian rather than the health visitor occasionally visited the homes to explain diets. A London physician pointed out that health visitor services were not practicable in a London teaching hospital, to which patients came from a wide area.

Most (75%) diabetic clinics encouraged patients to join a social organisation for diabetics, usually the local branch of the BDA. The activity and enthusiasm of BDA branches varied in different areas, and in one large city the branch had "faded away" at the time

of the questionnaire. Some diabetic clinics (61) and general medical clinics (22) encouraged appropriate patients to join classes, such as Weight Watchers or a hospital weight-reducing group (mentioned by doctors from four clinics). One physician commented, "I do not encourage but I certainly do not discourage my obese patients from joining the local Weight Watchers group."

BIOCHEMICAL MONITORING

Routine measurements of blood glucose—Blood glucose was measured routinely for all ID patients in 70% of diabetic clinics (table IX), 45% of general medical clinics, and six paediatric clinics. Some physicians commented, "but not at every visit." Blood glucose was not routinely measured at evening clinics.

Screening for high serum cholesterol—Only 26% of diabetic clinics did this for all types of diabetics and some of these measured cholesterol only in inpatients or depending on the patient's age (table X).

Screening for high serum triglycerides—Only 22 (11%) diabetic clinics did this, nine being in teaching hospitals (table XI). All clinics that screened routinely also measured cholesterol, but 30 clinics that screened for serum cholesterol did not measure triglycerides.

TABLE X—Numbers of clinics that screen for high serum cholesterol

	Insulin-dependent Diabetics	Maturity Onset Diabetics
Never	37 (19%)	37 (19%)
Occasionally	105 (53%)	111 (56%)
Routinely	57 (29%)	51 (26%)

TABLE XI—Number of clinics screening diabetics for high serum triglycerides

	Insulin-dependent Diabetics	Maturity Onset Diabetics
No	76 (38%)	76 (38%)
Occasionally	101 (51%)	101 (51%)
Routinely	22 (11%)	22 (11%)

FOLLOW-UP

Frequency of follow-up—In diabetic clinics ID patients were usually seen at intervals of not longer than one month by 5%, one to two months by 6.5%, two months by 11.5%, two to three months by 4%, three months by 43%, three to six months by 10%, and six months by 10.5% of clinics. Thus 27% of diabetic clinics saw patients more often than once every three months. By comparison 31.5% of teaching hospitals, 38.5% of paediatricians and, 20% of general medical clinics followed up patients at these relatively short intervals. Follow-up of paediatric patients was fitted into school holidays and half-terms if possible. Patients with MO diabetes were seen in diabetic clinics every one to two months by 2%, two months by 5.5%, two to three months by 1.5%, three months by 13.5%, three to six months by 39%, six months by 20%, and less frequently by 8%. The follow-up interval would, of course, be more frequent for new patients and for those with unstable diabetes. Some clinics had arrangements for patients to be seen or advised quickly if they were in difficulty—for example, "all patients can attend any Friday if in trouble" and "patients are instructed to telephone the metabolic unit for advice or an early appointment if in any doubt or difficulty." The average follow-up interval would also vary with the extent to which the physician involved general practitioners in the follow-up of diabetic clinic patients.

Involvement of dietitians in follow-up—This varied. The commonest arrangement (100 clinics) was for the dietitian to see the patient only if problems had arisen. In 50 clinics she saw the patient for the first 1-5 visits and thereafter only if problems arose. Fewer (12) saw patients on every visit; half of these were in Scotland. In some clinics obese patients were followed up more regularly by the dietitian. A few clinics had a separate appointment system for the dietitian, but 24 had no dietitian, dietetic follow-up being carried out by the health visitor in a few.

Follow-up by general practitioners—In 52 diabetic clinics neither ID nor MO patients were normally followed up by their general practitioner. In 76 some MO but no ID patients were followed up in this way, and in 66 some ID patients and a larger number of MO

patients were followed up in general practice. Some of these, notably Exeter, Poole, Swindon, and Wolverhampton, had a deliberate policy of active participation of interested general practitioners in the area.²⁰ Some MO patients, therefore, were transferred to general practitioners by 71% of diabetic clinics and 77% of general medical clinics. Seventeen of the paediatricians said that no patients were followed up in general practice.

POLICY AND ADHERENCE TO DIET

General diabetic diet policy—Possibly what one doctor would call a "strict" diet another would regard as "middle of the road," and so on. Nevertheless, most physicians considered their policy for ID patients moderate and nearly as many saw themselves as strict. On the other hand, 66% had a strict policy for overweight MO patients (table XII). Fifteen paediatricians adhered to a "middle of the road" policy. Several doctors noted that timing of meals and avoidance of "carbohydrate binges" were more important than restriction of the total consumption over the day. Six others indicated that a strict policy, especially for overweight patients, was optimistic. Other physicians commented that the degree of strictness should be adjusted for the individual patient.

TABLE XII—General diabetic policy. Results are numbers of clinics

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
Strict and exact diet ..	78 (39%)	34 (17%)	131 (66%)
A middle of the road policy ..	98 (49%)	133 (67%)	52 (26%)
Free or minimal changes to diet ..	7 (4%)	16 (8%)	0
No clear answer ..	16 (8%)	16 (8%)	16 (8%)

Proportion of patients adhering to their diet—Eight doctors in diabetic clinics did not say what proportion of patients they thought were adhering to their diets. In general most doctors considered that ID patients adhered to their diets fairly well but that most overweight MO patients did not (table XIII). Comments included: "The good dieters tend to be discharged to the general practitioners because their control is good"; "Strict only for a few days before each visit." The answers to our questionnaire were similar to those obtained by Walker,¹⁰ though he did not separate MO from ID patients. In Bloom's study¹¹ the diets of over 100 ID patients were assessed by two independent observers: 15% adhered meticulously, 54% in a general way, and 31% did not bother. Tunbridge and Wetherill¹² reported satisfactory dietary control in 30%, tolerable in 38%, and hopeless in 32% of 63 ID and MO diabetics whose diets were weighed for a week. Adherence was poorer in elderly patients and in MO patients on hypoglycaemic tablets.

TABLE XIII—Views of doctors on how well patients were adhering to diets. Results are numbers of clinics

	Insulin-dependent Diabetics	Maturity Onset Diabetics	
		Average Weight	Overweight
All or nearly all ..	8 (4%)	2 (1%)	0
Most ..	129 (65%)	95 (48%)	27 (14%)
About half ..	49 (25%)	75 (38%)	91 (46%)
A minority ..	4 (2%)	18 (9%)	59 (30%)
Very few ..	1 (1%)	1 (1%)	14 (7%)
No clear answer ..	8 (4%)	8 (4%)	8 (4%)

Conclusion

This survey was intended to reflect current dietary policy and practice in Britain as far as it can be examined by questionnaire. Our analysis is, naturally, subject to uncertainties of interpretation, of both the questions and the answers. But we analysed the answers manually and took into account the many interesting comments that were made alongside the ticks in the boxes on the questionnaire. We have attempted to report the analysis concisely and without critical comment.

There were considerable variations in the size and loads of clinics. There were differences in patient populations, dietary policy, especially for fat, and biochemical and dietetic facilities in different clinics. There seems to be a prevailing uncertainty about the ideal dietary prescription(s) for diabetes and difficulty in helping many patients to change their eating behaviour when a therapeutic diet is prescribed.

Fifty years after the introduction of insulin there are still unanswered questions about the dietary treatment of diabetes mellitus. This survey may serve to highlight some of them. Our findings also suggest that there is an opportunity in this country for long-term trials in which the results of, for example, strict versus laissez-faire diets and of low carbohydrate versus low fat regimens can be carefully compared.

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