

## Objective, Scope and General Plan of the Irish National Nutrition Survey

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The National Nutrition Survey was first considered in 1944 because it appeared that, up till then, there were no very definitive figures extant in Ireland to show what the consumption levels of various foods were, or how the various sections of the population compared with each other in the consumption of the food available. It is true that certain consumption figures were available from agricultural statistics, but it was felt necessary to investigate consumptions at a level nearer to the consumer than the sources from which these statistics were derived.

It may be said that the information required was: (1) what were the amounts of the various foods which people in this country ate, (2) how these amounts, when translated into terms of nutrients and calories, compared with somewhat arbitrarily chosen standard requirements and (3) what generally were the prominent food habits of the people. As a corollary to such information, it was felt that it would be useful to carry out at the same time an investigation into the state of nutrition of the population, or at least of those parts of it where significant information might be expected to be available, namely the vulnerable groups typified by schoolchildren, adolescents, and expectant and nursing mothers.

It was therefore decided that the Survey as a whole should comprise a dietary survey and a clinical survey. Both have been completed, and the findings are in course of publication. The sections published up till now consist of almost the whole of the dietary survey (Department of Health (Republic of Ireland), 1949*a, b*, 1950*a, b*). There remain still to be published the reports on two small groups in the dietary survey, namely, farm workers and 'special' families (i.e. those in peculiarly unfavourable economic circumstances such as the families of unemployed persons and pensioners), and those on the clinical survey.

As to the scope of the surveys, another speaker (Geary, 1950) will provide details of the statistical considerations, the size of the samples, the method of their selection and so on. In this communication I propose to describe the scope of the surveys only as regards the investigations carried out on each unit making up the samples, namely the family in the dietary survey and the individual in the clinical survey.

### *Methods of survey*

#### *Dietary survey*

*Amount and cost of food.* The method employed in the dietary survey was what has been called the 'log-book' or 'food-record' method. The objective in this method was to arrive at a measure of the amount and cost of all food examined in the household during the period of the survey—in our case 1 week. This was done by first weighing all the food in the house at the beginning of the period, weighing and recording all food brought into the house during the week, and finally again weighing all the food remaining at the end of the survey period. Made-up dishes in either first or final stock

introduced a difficulty, but this was surmounted by getting the recipe and reducing the dish to its original constituents. All food was costed. Home-grown food was included in the count, and was costed at the current local retail price, so as to provide a basis for comparison with families comprising other parts of the total sample. If the intention had been to present a picture of the economic conditions of families where home-grown food was consumed, rather than to compare such families with others, it would have been necessary to cost home-grown foods at wholesale prices to eliminate costs of transport, handling and retail profit. Food obtained free, as with school meals or gifts, was included as to quantity only.

Allowance was made for meals eaten away from home or supplied in the home to visitors by means of the 'diet-head' device of ascribing an arbitrary value to main and other meals, and making the requisite allowance on the basis of these values for meals eaten out or supplied to visitors. In estimating diet-heads, a member of the household who had more than half his total meals out during the week was not counted as a member of the family. In the event, the number of diet-heads found did not differ materially from the number of persons in any section of the total sample; in fact, it was plainly not worth the additional calculations entailed to have made allowance at all for meals of this kind.

A record was kept also of the kind of meals eaten by the various members of the household, e.g. whether cooked or not, and also of the type, e.g. for dinners, whether consisting of meat and vegetables, whether a pudding was included, and so on.

Household waste, e.g. waste of edible food such as stale or unused bread and sour milk, was not allowed for. It would have been simple enough to fix an arbitrary figure of, say, 10 % to cover waste in the home, but it was thought to be more satisfactory to return the full amount of the food used in the survey period with the statement that waste had not been considered. Provision was, however, made in the food conversion tables used for inedible parts of food such as bones, potato peelings and outer leaves of vegetables.

*Other information.* Certain other information was collected in addition to the food details. The number of persons in the family (not 'the size of family' which might be ambiguous) was noted for the purpose of comparing families of different sizes as to food intake. A domestic servant living in was counted as a member of the family. The number of rooms, exclusive of such rooms as bathrooms, was counted, and in Dublin the type of house was noted, whether slum, artisan or middle-class.

*Income and expenditure.* Finally, an attempt was made to collect details of income from all sources, as well as of fixed outgoings such as rent, rates, and cost of fuel and light. This aspect of the inquiries turned out to be most difficult and unsatisfactory. In general, it was evident that there was a marked tendency towards understatement of income, and the statements of expenditures such as on fuel and light varied so widely in similar households that they were obviously inaccurate. In many instances the counted outlay on food alone came to more than the total of the stated income, without allowing for money spent on clothing, transport or anything else. Of course, the possibility of credit was considered, but even then the margin of difference made it obvious that the income had been grossly understated. With farm families, the

informants, even with the best will in the world, were quite unable to tell even their approximate income. One means or another was therefore tried to estimate farm incomes from certain existing statistics, supplemented by information collected by the investigators. The attempt was a failure. Eventually, the Poor Law Valuation of the land was recorded as giving a rough figure representing the wealth of the holding.

The figures collected on income, and on expenditure other than food expenditure, were treated with great reserve throughout. The income figures were used only to provide broad bases for comparing those families with lower incomes with those having higher incomes; the expenditure figures (other than on food) were not used at all.

*Nutritional standards.* The standards of nutrient and calorie requirements for the various age, sex and occupation groups were based on the table worked out by Magee (1945) from the recommendations of the League of Nations Technical Commission, with figures for riboflavin and nicotinic acid taken from the relevant literature. In estimating the requirements of the various groups into which the total sample was divided, for the purpose of comparing the actual intake with the requirements, the constitution of the group as to age, sex and occupation (i.e. whether work performed was sedentary, medium or heavy) was taken into full consideration.

The food conversion tables used were based on those of the Accessory Food Factors Committee (1945).

#### *Clinical survey*

In the clinical survey, the same procedure (excepting the use of the slit-lamp) was adopted as in the rapid estimations of nutritional status carried out in England according to the method introduced by Sydenstricker (Magee, 1944; Sydenstricker, 1944). The results of this aspect of the work are not yet ready for publication.

#### *Organization of surveys*

The field-work of the dietary survey was done by a team of ten women and occupied about 2½ years. The clinical work was done by one medical man and lasted 2 years. The dietary investigators received 3 months' preliminary training in England on similar work and were given opportunities of observing, and taking part in, dietary surveys there as part of this training. They also received instruction in the office procedures involved. The medical man employed for the clinical survey underwent a preliminary course of training in England with the Ministry of Health teams engaged on this work.

*Practical problems.* Certain practical considerations arose in the course of the work, and some of these will be briefly mentioned. As an incentive to co-operation, the sum of 2s. 6d. was paid to each housewife completing a log-book. Whether this procedure had any effect in securing co-operation was doubtful, and, on the whole, probably it had no effect.

It was at times difficult, particularly in the early stages, to overcome a reluctance to give any information as to foods bought; apparently the informants, despite repeated assurances to the contrary, felt that the information collected might be made use of in some way to their disadvantage, say in connexion with income tax or rationing. In one area, where families were visited twice at an interval of 6 months, it unfortunately

happened that rationing of bread and flour was introduced between the two surveys, with the result that, at the second visit, many of the housewives were found to have formed the opinion that this rationing had been imposed as a direct result of the information given by them at the first visit. In some cases, reluctance to give information arose from the fact that some foods (such as tea) were being bought on the black market, and there was a fear of stating anything about such transactions, in particular the cost.

Anonymity was guaranteed, and this too sometimes gave rise to difficulty, as in cases where a statement of income was not forthcoming, but the employment was known; the guarantee was always fully observed, however, and no informant's name was divulged at any time.

One omission was not adverted to until it was too late to deal with it. It would have been desirable to know at the end of the survey what the refusal rate was, i.e. what proportion of the persons invited to co-operate refused to do so; unfortunately, such a simple count was overlooked. It was the impression of the investigators, however, that the rate was not high; their estimate in Dublin City placed it at less than 10 %.

In some cases, particularly in the congested districts, the informants entered foods in the log-books which were not at all what one would have expected. This was probably done in an endeavour to hide poverty, but experienced and sympathetic investigators had little difficulty in arriving at the truth.

A recurring trouble was the problem which arose fairly frequently, mostly in towns, of an informant who for one reason or another abandoned the keeping of the log-book after, say, 4 or 5 days. It was disturbing to the arrangements of the investigators, who might have intended to move on to another area, to find that their records were short at the last moment; to some extent also it interfered with the desired number of informants in a particular town being reached. In one instance, the informant unfortunately died during the survey week and the uncompleted record had of course to be abandoned.

In all work of this kind, the question of reliability of the results arises, and it is proper that they be examined from this point of view. The question has been dealt with in each of the published reports. In areas such as Dublin, for which known statistics from other sources were available, a comparison between these and the survey figures tallied sufficiently closely to indicate reliability in the latter. In other areas, the amounts found in the survey as representing consumptions of foods rationed at fixed amounts, when compared with the amounts of the rations, also corresponded reasonably closely. In addition, probably the most important fact is that the survey figures are themselves internally consistent, suggesting reliability.

Grateful acknowledgement must be made of help received from Dr H. E. Magee and Dr E. R. Bransby. Dr Magee made possible the training of the officer employed on the clinical survey. Dr Bransby made corresponding arrangements for the training of the field workers in the dietary survey and in addition provided advice on the planning and organization of the whole undertaking, and on several occasions visited Ireland for consultation on the progress of the work. His wide experience in this field was un-failingly at our disposal and was freely taken.

## REFERENCES

- Accessory Food Factors Committee (1945). *War Memor. med. Res. Coun., Lond.*, no. 14.
- Department of Health (Republic of Ireland) (1949a). *Methods of Dietary Survey and Results from Dublin Investigation*. Dublin: The Stationery Office.
- Department of Health (Republic of Ireland) (1949b). *Dietary Survey of the Congested Districts*. Dublin: The Stationery Office.
- Department of Health (Republic of Ireland) (1950a). *Dietary Survey of Large and Small Towns*. Dublin: The Stationery Office.
- Department of Health (Republic of Ireland) (1950b). *Dietary Survey of Farming Families*. Dublin: The Stationery Office.
- Geary, R. C. (1950). *Brit. J. Nutrit.* **4**, 274.
- Magee, H. E. (1944). *Mon. Bull. Minist. Hlth*, **3**, 146.
- Magee, H. E. (1945). *J. med. Ass., Ire*, **17**, 98.
- Sydenstricker, V. P. (1944). *J. Amer. diet. Ass.* **20**, 4.

### Statistical Plans and Methods of the Irish National Nutrition Survey

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I propose dealing almost exclusively with some methodological aspects of the National Nutrition Survey from the narrowly statistical point of view, leaving statistical inferences and general comments on the results to other speakers. The Central Statistics Office was privileged to collaborate with the Department of Health, but not in so intimate a way as to render it unbecoming for us to congratulate the Minister, Dr Deeny and Dr Hourihane warmly on the various excellences of the inquiry or for the Office to address itself frankly to a criticism of the methods used, even though we have a measure of responsibility for these methods and the wisdom is after the event. What emerges in this short paper is commentary rather than criticism. This is a first inquiry and one of the most useful objects of a first inquiry was indicated by the late Lord Stamp to a colleague of mine when he remarked (in regard to a statistical inquiry in which Ireland was a pioneer): 'While it is interesting to know just what you have done, it would be still more enlightening to hear what you would not do if you were repeating the inquiry.' It is well to remember that considerable advances have been made in the sampling techniques applicable to surveys of this kind since the present survey was planned.

The Central Statistics Office helped in the selection of the families to be surveyed, in making the computations from the machine tabulations and in preparing the tables in the report for printing.

#### *Selection of families*

It was decided that the survey should extend to 2500–3000 families, i.e. to about one in 250 of the private families in the country. The number of families surveyed in each of six main categories is shown on p. 275. The Dublin City sample was selected from four wards, Mountjoy, Rotunda, Crumlin and Drumcondra. The families in each ward were selected on a random basis from the 1943 Register of Population. Assignment to the three grades, slum, artisan and middle-class, was based on the characteristics of