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HOUSEHOLD SURVEY DATA: THEIR USE IN NUTRITION POLICY PLANNING

Report on a WHO Workshop

Athens
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Promoting positive health behaviour

By 1995, in all Member States, there should be significant increases in positive health behaviour, such as balanced nutrition, nonsmoking, appropriate physical activity and good stress management.

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1. Introduction

The Workshop was convened by the WHO Regional Office for Europe in Athens from 30 September to 2 October 1987 so as to discuss the possibilities and problems of using dietary data from household budget surveys for nutrition policy planning and implementation and to look at ways of improving such surveys for this purpose.

There were 30 participants from 17 Member States in the WHO European Region; only three currently have official nutrition policies. About half of the participants were statisticians, representing institutions that conduct such surveys or use their results. The others were nutritionists, who were in one way or another interested in nutrition policy planning and the collection of dietary data.

The participants provided updated information from their own countries, showing how this type of data is currently collected, and this constituted the background documentation for the meeting; a summary of the information is given in Annex 1. The participants also gave short presentations on topics of general interest, and these are summarized in Annexes 2-6. The list of participants is given in Annex 7.

2. Summary of discussions and recommendations

It was pointed out that expenditure on household budget surveys is usually justified by the need to analyse the economic implications of trends in food consumption and by the need for information on which to base weights for price indexes. At the same time, data from such surveys are one of the most important sources of information on dietary patterns.

The group considered how nutrition policy planners could make better use of this type of dietary data, which is regularly collected in most European Member States. It is important, however, to establish clearly what type of information is needed to formulate alternative models for making nutrition policy. This can serve as the starting point for discussions with producers, manufacturers and educators.

The group discussed differences and similarities between household budget data sets and other population-based dietary data such as food balance sheets, individually based dietary surveys and small, special surveys.

Specific recommendations were made as to how household budget data on food acquisition could be improved at the stage of collection, analysis and presentation.

Since the most important phase is that of planning, it was recommended that nutritionists should be invited to be part of the planning team and should be ready to state explicitly what their data needs are and for what purpose they will use the information. Countries that have experience of this kind of collaboration have found that, to a large extent, the surveys can meet well considered wishes for special information.

It was also strongly recommended that, in future surveys, households should be asked to state the amounts of food acquired in addition to the expenses incurred.

3. Determination of food consumption patterns

To formulate action plans in a nutrition policy context, it is necessary to have a fair understanding of actual food consumption patterns in the population for which the plans are being made. Ideally, special surveys could be made at regular intervals so as to describe the usual food consumption pattern of the population. To date, only one country in the European Region has organized a regular survey of this kind. The costs of setting the surveys up and establishing the necessary organization to handle the collection and processing of the vast amount of data generated have prevented other countries from following this example.

In practice, therefore, most national nutrition policy planners will have to make do with existing data. Luckily, some dietary information is available in almost all European countries. A brief description of the sources of this information is given below.

4. An overview of different types of dietary data

Only two types of dietary data are collected regularly (in fact, for purposes quite other than nutrition): namely, agricultural supply and utilization data in the form of food balance sheets (prepared by the Food and Agriculture Organization of the United Nations, the Organisation for Economic Co-operation and Development, Eurostat or national administrations) and household budget survey data. These data bases are available in most European countries, but may need to be elaborated and adjusted to serve the needs of nutrition policy-makers. In addition, from time to time, some countries conduct special dietary surveys based on nationally representative samples of the population. These are often more closely tailored to the needs expressed by nutritionists. Fig. 1 shows the levels at which dietary surveillance is carried out and Fig. 2 the different steps involved in the derivation of food balance sheets.

At present, household budget surveys provide an opportunity for describing the diet of some consumer groups, since the data are collected so as to present a fairly representative sample of the population. This, of course, makes the data very interesting for nutrition planning purposes. Food balance sheets, on the other hand, give only average per capita values for the whole population. The advantage of the surveys is that they provide differential information about groups - the data can be disaggregated to, for example, urban, rural, occupational, income and family size groupings. They may therefore give valuable information on specific groups for policy-making purposes.

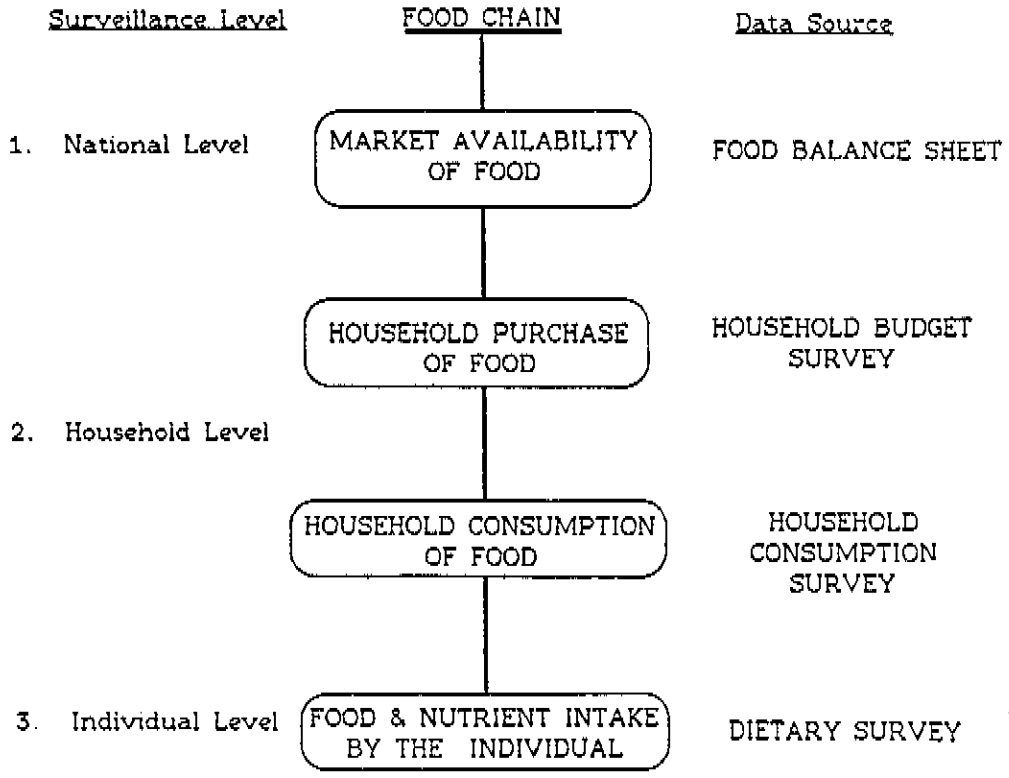
5. Dietary data in the context of a nutrition policy

For nutrition policy-makers, information on food consumption serves five main purposes.

5.1 Advocacy

Data about diet are necessary in advocacy for the adoption of nutrition policies. When, for example, policy-makers protest that it is unwise to alter people's diets, the nutrition policy advocate may point to the actual changes taking place in people's diets over time, as shown by existing dietary data. The demonstration of what may be rather dramatic changes provides an answer to

Fig. 1. Dietary surveillance operating at three levels: national, household and individual



Source: Kelly, A. Nutritional surveillance in Ireland. Report for 1985. Dublin, Medico-Social Research Board, 1986.

the argument that it is objectionable to interfere with people's right to freedom of choice in diet; the changes observed do not seem to indicate that there is objective freedom in dietary choice, but rather that it is determined by forces and considerations other than health.

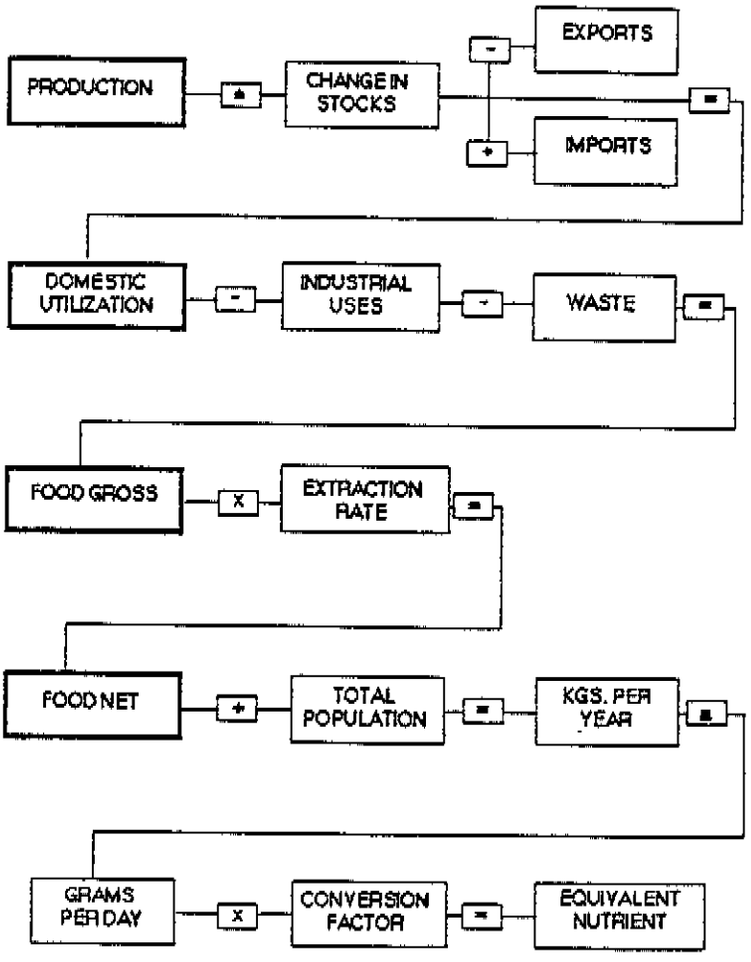
5.2 Formulating objectives

Dietary data constitute the basis for the formulation of objectives for a nutrition policy. Strategies and plans for changes in food intake towards a healthier diet have to be based on knowledge of what people are currently eating and on recent trends.

5.3 Guiding food production and processing

Dietary data serve to guide food production and processing, indicating what changes will have to be made in food production over time. In this context, they may also guide the use of price policy mechanisms to support healthy nutrition. Food manufacturers are likewise users of dietary data to determine the size of markets for the different types of commodity.

Fig. 2. Steps in the derivation of food balance sheets



Source: Kelly, A. Nutritional surveillance in Ireland. Report for 1985. Dublin, Medico-Social Research Board, 1986.

5.4 Formulating dietary guidelines

Dietary data are needed to formulate dietary guidelines for the public, which are one of several measures for dietary change available to the nutrition policy-maker. Such guidelines will, of course, closely reflect nutrition policy objectives, but they are of a more practical nature as they are designed to give advice on nutrition in the individual eating situation. Dietary guidelines are also of value for such purposes as mass catering, nutritional labelling and nutrition education through the primary health care system.

5.5 Monitoring nutrition policy implementation

Dietary data are needed to determine whether the implementation of a nutrition policy is having the desired effects, judged by the original objectives. Time series giving long-term trends are important, since changes in food habits usually take place relatively slowly.

6. Formulation of objectives for a nutrition policy

It was suggested that "nutrient goals" for a nutrition policy, i.e. the values contained in a recommended dietary allowance and with additions such as limitations of the relative intake of fat (30-35% of total energy intake), saturated fat, etc., are of a general nature and may not necessarily differ significantly from one country to another, at least within the European Region. These general recommendations will, of course, be revised from time to time in the future, as they have been in the past, to reflect scientific advances in the field of nutrition.

Nutrient goals will, however, for nutrition policy-making purposes, have to be translated into food goals and dietary goals. This translation will have to take place at a local level. It will have to take food production potential into account, as well as local food habits and traditions. Food goals will have to be adjusted to the level of understanding of health goals in the population.

It is in this process of translating nutrient goals into food goals that dietary information is necessary. If, for example, the goal is to reduce fat intake, current sources of fat in the diet will have to be identified, and the implications of a reduction in their production and manufacture will have to be considered. If, for example, the people are heavy consumers of whole milk, a reduction in milk fat consumption among adults may produce a far greater effect than the reduction of fat content in sausages. Alternative models on a macro-level should be worked out.

Household budget surveys can show differential consumption in different population groups and hence are important for the formulation of policy measures. They are also invaluable in forecasting the effect of proposed measures on food subsidies, taxes, labelling, quality standards, etc., and on the retail trade.

Food goals have to be flexible and will necessarily change over time. They could also be seen as sets of policy options. The intention is to see how well food production and procurement are adjusted to the reality of human physiology and human nutrition requirements. If the discrepancy between food needs and food production becomes too glaring, there is a danger of "malproduction" of food, i.e. a misallocation in the production of food. This is to the disadvantage of both producers, who will have to pay for storage bins, and consumers, who at times will be misled by price policies and other policy mechanisms to consume the food that has been produced even if it is against their health interests.

While nutrition policy objectives may be flexible in that broad food groups are recommended for consumption, monitoring consists of conversion from food consumed to nutrients. Comparing consumption with nutrient objectives in this way gives an indication of trends, and serves as a continuous monitoring tool allowing adjustment of the policy.

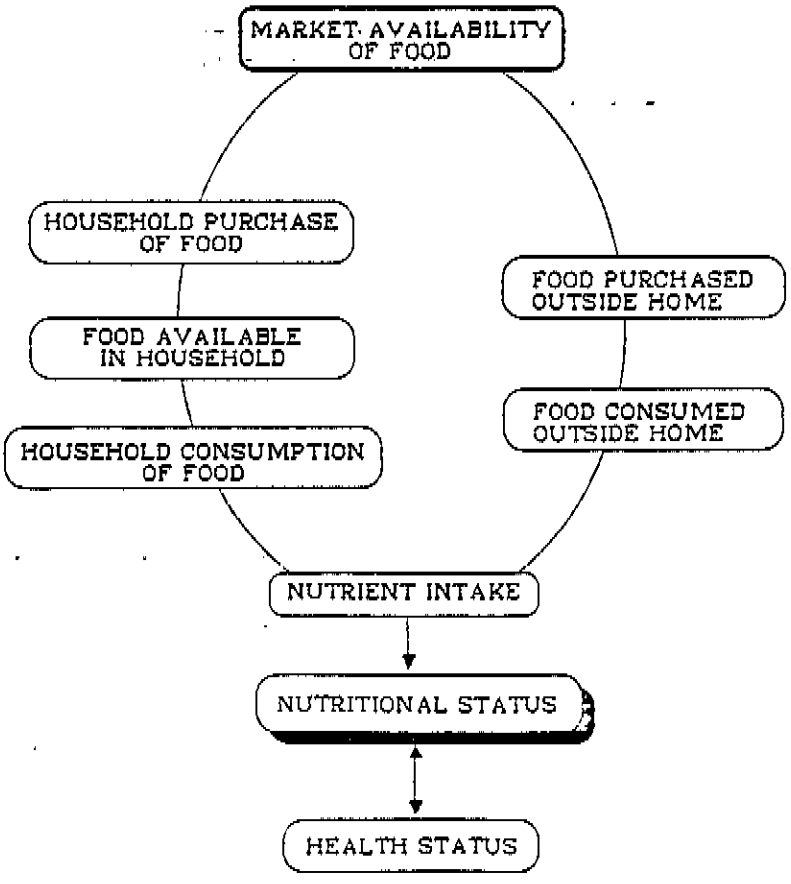
7. Household budget surveys in Europe

Almost all European countries more or less regularly collect data on the daily living expenses of households, including expenses for food, consumer goods and services. The frequency of the data collection varies from annual to five-yearly.

The information is used in monitoring and analysing trends so as to formulate and assess economic policy measures (credit control, food price control, etc.). It is also used to derive weights for the construction of consumer price indices. Because of the importance of this type of information, such surveys are given priority and the results are available to nutrition policy-makers. If the information is collected more or less regularly and with some degree of consistency in the methodology, the surveys will constitute valuable time series, showing trends in food consumption. They can also give invaluable information on what types of food are sources of the various nutrients.

Depending on the additional variables investigated, the surveys can provide information on differences between groups of households. This provides an opportunity to identify special groups and to plan food and nutrition policy interventions accordingly. A simple model of what such surveys describe is given in Fig. 3.

Fig. 3. A simple model of a household budget survey



Source: Kelly, A. Nutritional surveillance in Ireland. Report for 1985. Dublin, Medico-Social Research Board, 1986.

At present, the dietary part of the survey data is collected using a variety of methods and is therefore not comparable between countries. The main differences are found in sampling, food grouping and conversion from food to nutrients and in different concepts of what constitutes a household. Moreover, only about half of the countries actually request the households to record amounts of food purchased; the others ask for information on expenditure only (see Table 1). To convert the expenditure data into food quantities, the researcher has to know the actual prices of food at the time of acquisition. This has been done in some cases.[a,b]

The further conversion of information on household acquisitions to data on food available to the individual may be done in various ways: from simple division of the total by the number of people in the household, to a weighted scaling of households by different factors, or even a differentiated weighting for individual types of food (see Annex 4). In some countries, there are also problems inherent in the data base for conversion from food to nutrients. At present, there is easy access to good, locally developed food tables in some countries, and in others nutrition planners have to use "borrowed data" to a large extent.

The solution to the problem of assessing the amount of food eaten outside the home varies between countries. In some surveys, this problem is simply disregarded, and in others people are asked to provide estimates of the expenditure on and amounts of food eaten out.

Another problem is posed by the increase in bulk buying, i.e. families tend to buy large provisions of some commodities at long intervals. This can distort the seasonal pattern of consumption and may produce misleading results if the sample is not representative. The potential distortions may, however, be reduced by using a longer survey period. Recording time currently varies between countries from one week to one month.

8. Collection of nutrition information from household budget surveys

The meeting provided a forum for discussing what nutrition information can be obtained from household budget surveys, as well as showing how existing surveys can be improved and also what their practical limitations are.

Armed with this knowledge, nutritionists need to be clear about (and agree on) what precise information they require and why. In particular, it has to be recognized that the value of the information is not always self-evident to either policy-makers or those who control the purse strings.

The surveys serve other economic and administrative purposes. Some people argue that this means that the cost of extracting information for nutrition purposes is therefore minimal. In practice, the cost of additional analysis should not be underestimated, nor should the fact that financial stringency in many countries is putting pressure on the performance of the surveys. With less danger of food shortages and less interference in the market in many Western countries, some people would argue that the need for

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[a] Kelly, A. & Kevany, J. Nutritional surveillance in Ireland. Report for 1984. Dublin, Medico-Social Research Board, 1985.

[b] Kelly, A. Nutritional surveillance in Ireland. Report for 1985. Dublin, Medico-Social Research Board, 1986.

Table 1. Dietary information from the European Region, 1960-1974

Country	Year of study[a]	Year of study[b]	Scope
Austria	1964	1964	C/E
Belgium	1963-1964		
Bulgaria	1972		
Czechoslovakia	1970		
Denmark	1966	1967-1968	(C?)/E
Finland	1971	1971	(C?)/E
France	1971, 1972	1969, 1970	C/E
Germany, Federal Republic of	1969	1973	(C/E)
Greece	1963-1964	1957-1958, 1962-1963, 1963-1964, 1968-1969	(C?)/E
Hungary	1972	1970, 1971	C/E
Ireland	1965-1966	1973	E
Italy	1963-1964	1974	E
Luxembourg	1963-1964		
Netherlands	1963-1964	1963-1965	E
Norway	1967	1967	E
Poland	1971		
Portugal		1967-1968	E
Spain	1964-1965	1973-1974	(C?)/E
Sweden	1969	1969	E
Switzerland	1972	1971, 1972, 1973	C/E
Turkey	1965-1966, 1969-1970		
USSR	1972		
United Kingdom	1972	1970, 1971, 1972, 1974, 1974	C/E

[a] International Labour Office.
[b] Food and Agriculture Organization of the United Nations.

C = consumption data. E = expenditure data.

Source: Household income and expenditure statistics, No. 2. Geneva, International Labour Office, 1976. Review of food consumption surveys 1977, Vol. 1. Rome, Food and Agriculture Organization of the United Nations, 1977.

household budget information for economic purposes could be met from more limited surveys. This means that it will be even more necessary for all users to work together to justify the continuing expenditure. Even where the surveys are not in doubt, nutritionists will have to face the reality that any extra expenditure has to be justified and that additional nutrition questions may add disproportionately to costs because of the negative effects it may have on the response rate.

9. Recommendations on household budget surveys

The participants discussed the planning, collection, analysis and presentation of data from household budget surveys in detail and suggested how each stage might be better suited to nutrition policy-makers' needs. They further agreed that some degree of harmonization of data collection would be desirable. This would be particularly important in cases such as the radioactive fallout contamination of food sources over parts of Europe in 1986. Existing data sources and their problems were mentioned by the representative from the Commission of the European Communities. It was recognized, however, that, because of the differences noted above, complete international comparability is unlikely to be achieved.

9.1 Planning

9.1.1 Formulating objectives

The objectives of data collection must be stated both in terms of broad overall goals and in more specific detail. It may be useful to distinguish between long-term strategy planning for periods of 10-30 years, shorter term tactical planning to specify priorities and measures within a time frame of 5-10 years, and operational planning covering only the next 1-5 years.

Because the surveys may give information about socioeconomic and demographic variables, they have the special potential of identifying and describing special groups.

The data collected may eventually serve several purposes.

First, they may provide a basis for the formulation of food strategies in a nutrition policy context by describing current dietary patterns.

Second, they may help to evaluate the implementation of nutrition policy in relation to its objectives by showing dietary trends, even at a disaggregate level. To be of value in trend assessment, they should, however, be conducted at no more than three-year intervals.

Third, they may monitor the process of food and nutrition policy-making and assess its outcome, again in relation to objectives. They may also help in evaluating the relative effect of various measures taken to influence dietary patterns.

9.1.2 Motivating users

Actual and potential users of household budget data ought to be invited to so-called user conferences organized by those responsible for the surveys. There are very positive experiences of doing this in the United States. Users are encouraged to state what type of information they need and in what format they would like to see it presented.

Such conferences should be held in the preparatory phase of a survey and after its completion. In the preparatory phase, it may be useful to consider the findings of pilot studies. At the stage of presentation of results, user conferences provide an opportunity to assess the outcome of the survey and to consider the value of the information obtained and the funding of future surveys.

Nutritionists and statisticians must, at the planning stage, discuss what is feasible from the standpoint of statistical processing and dietary data collection.

Survey questionnaires should be formulated through this kind of interdisciplinary work. This is especially true when deciding on the level of breakdown of categories: the statistician will need to judge whether the resulting cell size is sufficient for conclusions to be reached.

The variables to be included in the study are partially predetermined by their traditional use in an economic policy context, but it may be possible to obtain additional information at a disaggregate level. Nutritionists, sociologists and possibly historians and commercial users will have to be specific about which factors they think are important as determinants of food patterns.

9.1.3 Sampling

There should be a common understanding of what constitutes the sampling unit. Today, different countries have different notions about the meaning of the word *household*. Some, for instance, do not count single-person households. Usually some population groups are not included, such as foreign workers and people in institutions (e.g. prisons, old people's homes, military services). Moreover, users are often not aware of the limitations that this imposes on the surveys.

There are alternative models of sampling. For example, to save costs, it has been suggested to use subsamples for the dietary part of the household budget survey or to use the same samples twice for that survey and for the dietary survey, i.e. parallel sampling.

9.1.4 Non-response

Difficulties in getting an adequate response rate were acknowledged by all the participants, although the rates of non-response reported varied between 5% and 50%. It was also noted with concern that the response rate seems to be going down all the time.

Several explanations were offered, including one about people tending to spend their leisure time in a different way than before. In particular, the proportion of women working outside the home is growing in most countries, making them less positive about the idea of the extra work burden imposed by keeping records and being interviewed.

It was also suggested that researchers in the past had not been too conscientious about reporting the results of surveys to the participants and that this had contributed to development of a certain "survey fatigue".

There was some positive experience of extensive use of advance media coverage of surveys, including a clear explanation of their objectives. Advance notification of participants had also improved response.

However, it was emphasized that the interviewers and the way they conducted themselves in the interview situation were of the greatest importance. Their selection and training should therefore be given proper

attention. Among other things, they ought to be given the necessary arguments to present to different respondent groups so as to persuade them to participate, in much the same way as marketing people are trained to do.

Interviewer experience is a precious commodity, which may be easier to safeguard if surveys are conducted on a continuous basis rather than being done at long intervals such as four to five years.

The frequency of data collection may be determined by the objectives of the survey and the consequent quality of the data requested. In practice, costs will have to be weighed against the use to which the surveys are put. The use of subsamples that are investigated in more depth will also have to be weighed against the cost of extra surveys and the need for information. Further, sample size is, of course, important for frequency of data collection, which again will determine the financing needs.

To deal with a potentially high rate of non-response, the survey plan should provide answers to such questions as:

- should one try to re-motivate people and, if so, how intensively?
- should non-respondents be substituted and, if so, how should this be handled?
- how should information be obtained to analyse the non-response?

9.2 Collecting dietary data

It was stated that the surveys can only realistically collect information from households; for food intake data on individuals, dietary surveys are needed.

9.2.1 Response problems

Random sampling, even with stratification, may result in very low response rates. People may be reluctant to participate in such exercises for both conditional and non-conditional reasons.

If the reasons are conditional, it will be necessary to try to identify the problems and propose measures to remedy them. There may, for example, be a need for additional help from the interviewer, better timing of interviewer visits or flexibility in the time of entry into the survey.

If the reasons for reluctance to participate are non-conditional, it may be possible to increase motivation to participate by more publicity, better training of interviewers or possibly higher remuneration. This could be in the form of gifts or money, but a balance has to be kept so that remuneration does not bias the sample towards, for example, people who need money. Apart from that, remuneration increases the income of every participant, and income and consumption data may then be biased upwards.

Regular feedback of the information collected in the survey may improve participation. The feedback may be in the form of overall results or the results for each individual household in relation to the results overall. The latter type of feedback may be difficult to obtain in cases where families have been assured confidentiality.

In one country where it was not possible to obtain an adequate response using random sampling techniques, a system of self-selection is used. Information about the survey is first communicated to the public through the mass media, and people interested in participating then constitute a pool from which they are allocated to predetermined strata. This approach gives better stratification and a higher response rate, although it may be difficult to obtain a sample that is completely representative of all groups in the population.

9.2.2 Technique

Form. Simplicity is a basic requirement in data collection. Usually, it will be based on a two-part questionnaire, supplemented by diaries to be kept over a period of time.

Interviewers. Interviewer training and experience is again crucial. Specialist knowledge in nutrition is not necessary and may actually be counterproductive in that it may bias both the questioning and the answering.

Computer assistance. At least some precoding of recording books and questionnaires may be useful, since it simplifies record keeping for both the householder and the interviewer. It definitely simplifies data processing. It may, however, be a source of errors owing to misunderstanding of the codes or other mistakes. Self-coding has been tried but is not so easy to apply.

Regrettably, there is usually little harmonization in coding between national users, not to speak of the international situation. 'Some degree of standardization seems to be called for. Reference was made to the work done by the Eurofoods group to create a standardized European system of food coding (Eurocode). Changes Changes in food types - geographically and over time - also pose a problem in precoding.

9.2.3 Coverage

Recording period. The recording should preferably be done for at least two weeks, since it has been noted that food acquisition is slightly higher in the first week, either because of initial "survey enthusiasm" or because of "survey fatigue" in the second week. Longer periods reduce the problems of bulk buying and food in stock at the start of the recording period. The possible effect of the season should be kept in mind.

Food. It was recommended that the expenditure on and quantity of all food should be recorded. Food grown in home gardens or on farms should also be recorded. Meals taken outside the home and those served to guests in the home should be described, giving the following details:

- who takes part in meals at home or eats out;
- number of occasions;
- types of meal (snack or main meal);
- description of meal (a checklist may act as an aide-memoire).

Gifts into and out of households are assumed to cancel out and may be ignored.

In analysing data for nutrition purposes, waste should be estimated according to predetermined criteria.

Food given to pets may be estimated if it is possible to obtain reasonable information on how much is regularly purchased for this purpose.

Vitamin and mineral supplements should be included.

Other nutrition-related factors. The ownership of food-related assets such as microwave ovens, refrigerators or freezers may be of nutritional importance and should be recorded.

Sex, age, height, weight and other simple anthropometric variables for household members may be recorded if feasible.

9.3 Data analysis

9.3.1 Non-response

Because of the size of the non-responding group, methods must be found to describe the characteristics of non-respondents, at least with regard to the reason for non-response, household composition, etc.

The representativeness of the final sample will have to be estimated.

The effect of non-response on results, both for the whole sample and for different subgroups, should be analysed. In subgroups, it may be necessary to stratify the sample according to response attitude so as to obtain a sufficient number of households. It may even have been decided in the planning stage to oversample some subgroups so as to obtain sufficient numbers for analysis.

9.3.2 Validation

To validate the survey results, they should be compared with data from other sources such as:

- sales statistics for certain products;
- data from market surveys, e.g. from food companies, when they can be obtained;
- food balance sheets (food production statistics) and individually based dietary surveys.

A comparison of food groups for distribution of nutrients according to different data sources may serve to demonstrate whether the data are compatible. Some groups are, however, notoriously difficult to compare, since they are known to vary considerably depending on the data source, e.g. sugar, fish and vegetables.

9.3.3 Waste and food given to pets

If separate studies of waste exist, they should be used to estimate its size. Otherwise, separate studies are required as waste may change between countries, regions, social classes and over time.

Similarly, when outside data are available on food given to pets, they should be used if specific questions on this subject have not been included in the survey.

9.3.4 Time series

To compare data with those from other data sets and previous data collected in household budget surveys, disaggregation to the lowest possible level should be made for background variables such as region, age and socioeconomic status.

The original data collected on the household level should always be retained.

9.3.5 Food groups

Reference was again made to the plans for a standardized European system of food coding (Eurocode).

In household budget surveys, disaggregation should be carried as far as possible: the better the description of food, the more useful the results. The number of food items included in the surveys varied from 50 to 3500.

When drawing up the food code, it should be checked against the national food composition tables for consistency in grouping and nomenclature (see section 9.2.2).

9.3.6 Consumer units

Methods might be developed to determine the distribution by family members of the food consumed. One step in this direction might be the study of a subsample using, for example, the "food frequency" method (including portion size) so as to deduce a unit scale (see Annex 4).

9.3.7 Economic factors

In the analysis phase, it will be desirable to use multivariate techniques for analysing consumption of, and expenditure on, different types of food and nutrients in relation to other variables. In particular, the estimation of the response to price and income is regarded as important for economic analysis. Price and income elasticities should be determined.

9.3.8 General considerations

Original data should be provided by statistical offices to nutritionists and others for further analysis.

Cooperation between users and producers of data with respect to their interpretation is important. Other areas where the disciplines may help one another include assessment of the statistical quality of data and the reliability of nutrition information, the statistical versus public health significance of data and the permissible size of food groups versus their nutritional importance.

9.4 Presenting and using data

9.4.1 Time lag

For most users of household budget data for nutrition purposes, a time lag of up to one year is perfectly acceptable. Where this period is currently exceeded, producers of data should strive to reduce it to one year. Making

preliminary data available at an earlier date would satisfy a perceived need of many users. Some participants reported being able to supply the first data for use within eight months of completion of the collection period. In the United Kingdom, it was reported, some of the results from the annual national food survey are made available six weeks after the survey period. Annual reports should normally be published within 12 months of the end of the year to which they refer.

9.4.2 User characteristics and needs

There is a huge number of actual or potential users, each having specific requirements, not all of which can be met by one single method of data presentation. Examples of users mentioned were:

- policy-makers: to assess the dietary consequences of changes in programmes, to assess the use of additives, and to judge the effects of changes in pricing levels;
- educators and journalists: to address groups with special characteristics;
- researchers from various disciplines;
- commercial companies: to analyse markets, to find niches, and to carry out lobbying.

9.4.3 What to present

There is no need for presentation of information that is more detailed than that currently given in national food composition tables. At higher levels of aggregation, the presentation of product quantity and nutrient availability data in addition to product expenditure data is a minimum requirement.

Users with specific requirements should have access to the raw data.

9.4.4 Use of the recommended dietary intake (RDI)

Caution is necessary in comparing survey findings with RDI values, particularly when data are for general use. The limitation of this type of comparison should be clearly stated (see Annex 6). The reference of the RDI values actually used should be given, as these vary considerably between countries.

9.4.5 Feedback

Feedback of survey results is always desirable and may be important to increase participation rates in the future. However, there are restrictions in some countries on the use of individual data, and this type of feedback may therefore not be legal in all cases.

9.4.6 Harmonization

Since there is a tendency for international comparisons to be made although the data are not suited for this purpose, harmonization of methods of

data collection and presentation is clearly desirable. As a long-term goal, we should work towards common definitions of at least food aggregates, socioeconomic characteristics, time coverage, urban and rural grouping, etc.

Efforts towards standardization - which are already under way, particularly with regard to food composition - should be encouraged.

9.4.7 User conferences

To date, there are few countries that use this means of communicating survey results. Experience in those that do organize conferences suggests that this is a very useful educational tool and a possible means of securing further public support for such endeavours.

Annex 1

A REVIEW OF HOUSEHOLD BUDGET SURVEYS IN THE COUNTRIES REPRESENTED AT THE WORKSHOP

by
Wlodzimierz Sekula
Poland

This review was prepared on the basis of the country reports on household budget surveys presented during the Workshop.[a]

Bulgaria

Surveys were started in Bulgaria in 1925, and they have been conducted systematically since 1952, under the responsibility of the Central Office of Statistics.

Purpose

The general purpose of the surveys is to study the levels and patterns of income and expenditure, and food consumption.

Coverage

The surveys cover the entire country, the urban and rural population, the various administrative districts and all the major socioeconomic groups.

Description

The surveys are conducted annually, and the reporting period is one month. In 1977, a rotation method of sampling was introduced in place of the continuous one used before. Collected information includes receipts and expenditures for commodities and services. Quantities of food, whether purchased, home-produced or bartered, are recorded. Survey households are randomly selected through a two-stage sampling procedure. Food consumed away from home is recorded in money terms.

Denmark

The National Statistical Office (Danmarks Statistik) has carried out several surveys of the economic conditions in private households since the turn of the century. The latest surveys cover the years 1966, 1971, 1976, 1981 and 1987.

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[a] When necessary, additional information was derived from (a) Review of food consumption surveys 1985. Rome, Food and Agriculture Organization of the United Nations, 1986; (b) Review of food consumption surveys 1988. Rome, Food and Agriculture Organizations of the United Nations; (c) Review of national practices and methods of food consumption surveys. Rome, Food and Agriculture Organization of the United Nations, 1977 (paper prepared by the FAO secretariat for the tenth session of the study group on food and agricultural statistics, Geneva, 3-7 January 1977).

Purpose

The general purpose of the surveys is to study levels and patterns of income and expenditure, and specifically to obtain revised weights for the wage-regulating price index.

Coverage

Since 1976, the surveys have represented all private households in Denmark (excluding Greenland and the Faroe Islands), regardless of the nationality of the head of the household. People living in institutions have been excluded.

Description

For the 1987 survey, 50 000 addresses of private households were randomly selected from the Central Population Register. The participation rate was expected to be about 53%. The households were divided into 26 groups. Each group kept a record over four weeks for total expenditure and over two weeks for expenditure on food and beverages. The households were asked to record what food products they purchased, in what quantity and at what price. A combination of interviewing and accounting was used for the data collection. The unit of renumeration was the household.

Finland

Surveys have been carried out by the Central Statistical Office every five years or so since 1966.

Purpose

The purpose of the surveys is to study the structure of private consumption.

Coverage

The latest survey was conducted in 1985 and represented, like the former ones, all private households in the country. For the 1985 survey, 11 800 people were selected from the Central Population Register; 8200 households provided fully acceptable data.

Description

Data on expenditure were collected by means of interviews and household bookkeeping records covering a period of two weeks. Home-produced food (agricultural garden) and gathered products were also recorded. Information on the number of meals eaten away from the home was collected during the interviews. Up to 1985, over 200 food items had been recorded, and these were grouped for presentation of the 1985 results.

France

Household budget surveys are conducted periodically by the National Institute of Statistics and Economic Studies (INSEE) so as to study living conditions and the behaviour of different categories of the population. The latest survey was carried out in 1978/1979.

Coverage

All private households in the country were represented in a sample of 10 645 households, surveyed in the period 6 November 1978 - 4 November 1979.

Description

The reporting period was ten days, and the data consisted of consumption expenditure records. Both the interview and record-keeping methods were used. Expenditure was reported for 12 groups of food and beverages and for 40 food items.

Special food consumption surveys are also carried out, using a representtive sample of private households in France. The most recent survey was conducted in 1982 on more than 10 000 households representing the whole country. Its purpose was to determine the value and quantity of retail food products consumed; 100 items were covered for expenditure data and 76 items for consumption data, including alcoholic beverages. The record-keeping period per household was one week. The results of the survey were published by INSEE in 1986.

Federal Republic of Germany

Sample surveys on income and expenditure are conducted by the Federal Statistical Office at three- to five-year intervals. Up to now, five sample surveys have been carried out: in 1963/1964, 1969, 1973, 1978 and 1983.

Purpose

The purpose of the surveys is to obtain a comprehensive view of the economic and social situation of private households.

Coverage

The surveys represent the entire territory of the country and all private households, with the exception of the households of foreigners, institutions and households with particularly high incomes.

Description

In the 1983 survey, the sample size was around 50 000 households, comprising those that voluntarily agreed to participate. The survey period was the calendar year. The recording period per household for food, beverages and tobacco was one month. The quantities bought and expenditure were recorded. Data were aggregated into 130 food items.

Greece

The first survey took place in 1957/1958 and covered only urban areas. The last two surveys conducted in 1974 and 1982 covered the entire country. A new survey started in November 1987. The National Statistical Office of Greece is responsible for the surveys.

Purpose

The main purpose of the surveys is to obtain data on the levels and patterns of household expenditure, which are used for revising the consumer price index.

Coverage

In the 1974 and 1982 surveys, the sample was randomly selected from all private households. For the 1982 exercise, the sample numbered over 6000 households, and the survey period was November 1981 to October 1982.

Description

For seven consecutive days, interviewers visited selected households, recording the value of goods and services entering them. Quantities of the main food items were also recorded. Data were aggregated into 58 food items and 12 food groups, including alcoholic beverages.

Ireland

National surveys are carried out by the Central Statistical Office every seven years, the most recent being in 1973, 1980 and 1987. Between 1973 and 1980, a series of urban household surveys was carried out.

Purpose

The main purpose of the 1980 survey was to determine the current pattern of household expenditures so as to update the weighting basis for the consumer price index.

Coverage

The 1980 survey represented all private households in both urban and rural areas of the country. The final sample was 7185 households.

Description

The reporting period was 14 days. Special questionnaires, expenditure diaries and farm account booklets were used. Food expenditure details covered 124 food items, excluding alcoholic beverages, but in the final presentation this number was reduced to 51. To monitor changes during the years between the large-scale national surveys, the annual small-scale surveys are also carried out.

Italy

Surveys are conducted annually by the Central Statistical Institute (ICS).

Purpose

The main objective of the surveys is to study levels of consumption and expenditure so as to provide information for national accounts.

Coverage

The surveys cover all types of family, both rural and urban, but exclude people in institutions. A two-stage sampling design is used. In the 1984 survey, 3200 families participated each month, making a total of about 38 500 families at the end of the year. The average response rate was 88.2%.

Description

The recording by each family lasted ten days. Data were collected using two survey forms: the record of household expenditure by item and a summary of household expenditure. Expenditure tables gave data for 22 food items, including alcoholic drinks, while consumption data were presented on 15 food groups.

Netherlands

Since 1978, budget surveys have been conducted annually by the Central Statistical Office.

Purpose

The surveys serve several economic purposes, particularly revision of the weighting scheme for the consumer price index.

Coverage

Private households throughout the country are selected for the survey, using a two-stage sample design. The sample size was 2000 households in 1978 and 1979 and 3000 in subsequent years.

Description

The survey period is the calendar year and the reporting period one month. Both interview and record-keeping methods are used. Households are asked to record all expenditure, and food expenditure is reported for 19 items. In 1987/1988, a survey focusing entirely on food consumption was carried out. A two-day record from a sample of about 2000 private households was obtained for this exercise, which it is planned to repeat every five years.

Norway

Nationwide surveys of consumer expenditure were carried out in 1958, 1967 and 1973 and have been conducted annually since 1974. The responsible agency is the Central Office of Statistics.

Purpose

The principal aim of the surveys is to give a detailed description of the consumption of private households so as to update the weights used in calculating the consumer price index.

Coverage

The samples are drawn annually in three stages among all private households in the country, excluding institutions. Each year, approximately 2500 households are selected and some 60% respond.

Description

Consumption expenses are recorded during a 14-day period by means of detailed accounting and an interview. Quantities and values of purchased food and beverages are accounted for, as well as consumption of home-produced meat, fish and berries. Data are presented for 41 food items.

Poland

Surveys are conducted annually by the Central Statistical Office.

Purpose

The main objective of the surveys is to provide information on the structure of households, on levels and sources of income, and on levels and patterns of household expenditure, food consumption and use of durable goods.

Coverage

The surveys cover households in all socioeconomic groups, but exclude institutions.

Description

A two-stage stratified random sample design was used. Since 1983, the surveys have covered 5400 households in each quarter of the year, 21 600 households being surveyed each year. In 1986, the sample size was extended to nearly 25 000 households and to over 28 000 households in the subsequent year. The sample numbered nearly 25 000 households in 1986 and over 28 000 in 1987. The reporting period is three months. Data on income, expenditure and food consumption are recorded by the households in so-called budget books. They are collected and checked by the enumerators every two weeks. Monthly quantities per person are presented for approximately 70 food items or groups. Only food items that "enter" the households are included. Food eaten away from the home is recorded in money terms. It is included in calculations on the energy and nutrient content of the household diet, assuming that this content is the same as that of meals eaten within the home.

Portugal

Household income and expenditure surveys were carried out in 1967/1968, 1973/1974 and 1980/1981 by the National Institute of Statistics, and another is foreseen for 1989.

Purpose

The main purpose of the surveys was to collect data for calculating new weights for the consumer price index, for preparing national accounts and statistics, and for studying levels of living within households.

Coverage

The whole country was surveyed, using a three-stage sample design. For the 1980/1981 survey, a sample numbering over 8000 households was selected.

Description .

The households were interviewed every other day, and they kept a diary of daily expenses for a week. Quantities of acquired food (shopping, home production, etc.) were recorded but not published by the statistics agency. In tables presenting food expenditure data by household income group, expenditure is reported for 12 items, while in tables presenting such data by household expenditure group, expenditure is reported for 51 items.

Spain

The latest household budget and expenditure survey was carried out in 1980/1981 by the National Institute of Statistics.

Purpose

The main objective of the survey was to revise the weights for calculation of the consumer price index. The survey results were also used to prepare the national account statistics and to study levels and patterns of consumption and expenditure, and sources of income and their distribution.

Coverage

The whole country was covered by the survey. A two-stage stratified sample design was used. About 28 000 households were selected, and the final sample amounted to 24 000 households. All types of private household in urban and rural areas were covered.

Description

The reporting period was one week. A combination of the interviewing and record-keeping methods was used. Food expenditure data were presented on 53 items and food consumption data on 157 items, including alcoholic beverages.

Sweden

Studies of household consumption have been performed since the beginning of this century, the latest being the 1985 family expenditure survey. Similar surveys were performed in 1958, 1969 and 1978, i.e. about every ten years. From 1985, the frequency has increased to every three years. A special survey on food alone is planned for 1989.

Coverage

In the 1985 survey, the sample comprised some 6000 households selected by the sampling of individuals, whose household members were then also included. The sample was divided into 26 subsamples of equal size. Every other week, a new subsample started its record-keeping.

Description

Information about household expenditure is obtained from household records of expenditure over one month. Expenditures are recorded in detail, except for food, which is recorded as total without a breakdown by item. The findings of the surveys are used by various ministries, government agencies, the labour market and cooperative organizations, and private businesses. In particular, they are used to calculate weights for the consumer price index.

United Kingdom

Since 1950, the national food survey has been conducted by the Ministry of Agriculture, Fisheries and Food. It is a continuous sampling inquiry into the domestic food consumption and expenditure of private households. Family expenditure surveys are also conducted by the Department of Employment. They have been carried out annually since 1953/1954 and cover all types of private household in the country. Household recording lasts 14 consecutive days. The surveys have a multipurpose character.

Purpose

The main official use of the data is to monitor trends in household food consumption.

Coverage

Since 1950, the surveys have been nationwide. The national food survey sample is selected by means of a three-stage stratified random sampling scheme. The sampling frame covers the whole country.

Description

The reporting period is one week, and reporting weeks are spread over the year. The reference period in the tabulation is one year, stratified by quarters. Data are collected by personal interviews coupled with the maintenance of a diary record over a period of one week. Quantities and expenditures of individual types of food are recorded as purchased and, if necessary, reweighted in respect of the household. Food is classified within 12 groups, each group being further divided into several subgroups. Food consumption is expressed in terms of expenditure, quantities consumed and nutritive value.

United States

Two types of survey are carried out. The first is the consumer expenditure survey, which has been conducted since 1882. Although the exercise was previously undertaken every ten years, data collection has been ongoing since September 1979, and the data have been available on an annual basis since 1984. The surveys are carried out by the Census Bureau under contract with the Bureau of Labor Statistics.

Description

The consumer expenditure survey consists of two components: a quarterly interview panel survey and a diary survey. Each component has its own questionnaire and independent sample. The interview panel survey is designed to obtain data on the types of expenditure that the respondents can be expected to recall for a period of three months. The diary survey records expenditures made on certain small, frequently purchased items during two consecutive one-week periods. For example, data are obtained on such items as food and beverages, both in the home and in eating places.

The second survey is the nationwide food consumption survey, which is a data series that presents information about the types and quantities of food that households consume, as well as its monetary and nutritive value. The

survey is conducted by the Nutrition Monitoring Division of the Human Nutrition Information Service of the US Department of Agriculture. For the last nationwide survey in 1977-1978, the basic sample was a multistage, stratified probability sample of all households in the country. Information was collected from about 15 000 households. Personal interviews were conducted using aided-recall questionnaires recording each food and beverage used in the household for seven days prior to the interview.

Yugoslavia

Surveys on household budgets are carried out by the Federal Institute of Statistics every five years. Data are collected four times a year in 6000 randomly sampled households. The surveyed sample comprises 19 000 households, with socioeconomic groups represented in equal numbers.

Purpose

The results are used only for economic purposes.

Coverage

The surveys cover all households in the country.

Description

Data are collected on food quantities consumed in households, purchased and home-produced. Data on expenditure for food eaten away from the home are also collected. The reporting period is one month in each season (four months a year).

Annex 2

NUTRITION SURVEILLANCE - DATA QUALITY REQUIREMENTS

by Alan Kelly
Ireland

Nutrition surveillance is, above all, a decision support system for use when making nutrition policy. An operational definition of nutrition surveillance would be:

> Nutrition surveillance is accomplished by observing, analysing and reporting regularly on a wide range of variables indicative of food consumption, nutrition status and health impact. Such information then provides an empirical basis for decision-making and policy planning.

The process consists of a continuum of ongoing collection, analysis, dissemination and utilization of data. The focus is entirely pragmatic in that one is concerned with planning and policy-making and not primarily with scientific requirements.

Types of nutrition surveillance system

Four different types of nutritional surveillance system may be distinguished, namely those that are (a) designed for medium-term to long-term policy planning, (b) designed to act as early warning systems, (c) part of programme planning and evaluation, and (d) primarily designed to support advocacy.

The 24 or so existing systems in developing countries are primarily designed for medium-term to long-term planning. A few are intended for early warning, but come up against certain difficulties in providing feedback that is rapid enough to be of practical use. Some nutrition surveillance systems designed for programme planning and evaluation also exist, although not in large numbers. The advocacy-oriented type of system is now being launched in an interagency initiative of the United Nations.

Design

In designing an information system, one has to consider the characteristics of the strategic planning that will influence its structure and composition. How, for instance, will the data be used in decision-making? This will determine the requirements with regard to data quality.

Different types of data will be appropriate to the various stages of the planning process, and this should be considered in advance.

The contact between the surveillance unit and the end users should be described in advance as far as possible, so that each party knows what he or she can expect.

Some considerations in the use of nutrition surveillance in nutrition planning

Five relevant stages can be identified.

First, the nutrition problem has to be recognized. At this stage, an active search for relevant data has to be undertaken. Some data will then be found, and there will be a need for criteria to judge their relevance and quality. It may be necessary to establish an expert committee to review the evidence of what constitutes the nutrition problems. It will be necessary to summarize the current knowledge of national dietary and disease patterns, as well as their evolution and comparison with other countries. The committee then draw up national nutrient goals and food strategies, and possibly also dietary guidelines for the public.

Second, the problem has to be formulated. Some of the questions that have to be answered are the following. Who are improperly nourished and in what ways? In what circumstances and why? How are conditions changing with time? The responses to these questions should be relevant, precise and timely, and in the light of them it should be possible to specify the output expected from a given strategy.

Third, strategies for dealing with the problem have to be chosen.

Fourth, the strategies must be implemented.

Fifth, the results must be fed back and evaluated.

Dietary surveillance: what information?

At national level, the various types of information about dietary patterns can be obtained, as follows.

The relative importance of the major food components, i.e. cereals, meat, vegetables, etc., in the national diet can be established. The quality with regard to the various macro-nutrients can also be assessed, e.g. in the form of "profiles" of fat, sugar, fibre, etc. The changing dietary profile of the nation over time may also be assessed.

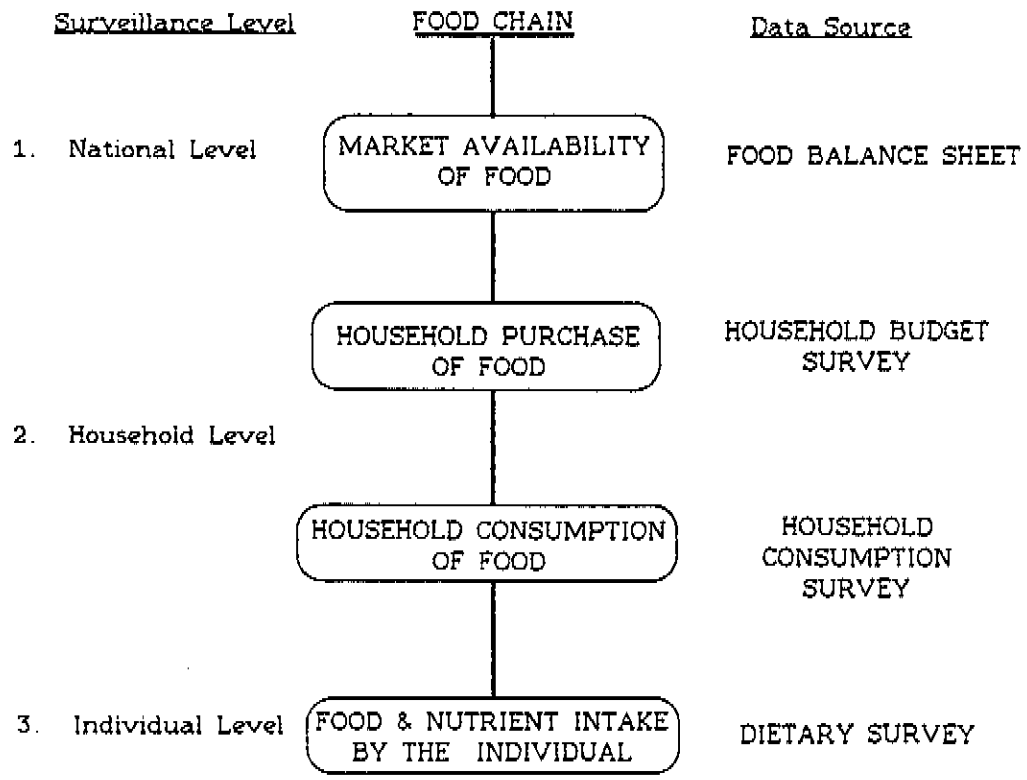
At the level of subgroups of households, the structure of the diet may be determined and, in particular, the choice of foodstuffs and family purchasing/consumption patterns may be described. Again, the quality of the diet can be demonstrated, e.g. by the mean group consumption of macro- and micro-nutrients. Patterns of group consumption over time may be assessed.

At the level of subgroups of individuals, the same information as above may be obtained, as well as information on knowledge and attitudes.

For an overview of the sources of dietary surveillance data at these three levels, see Fig. 1.

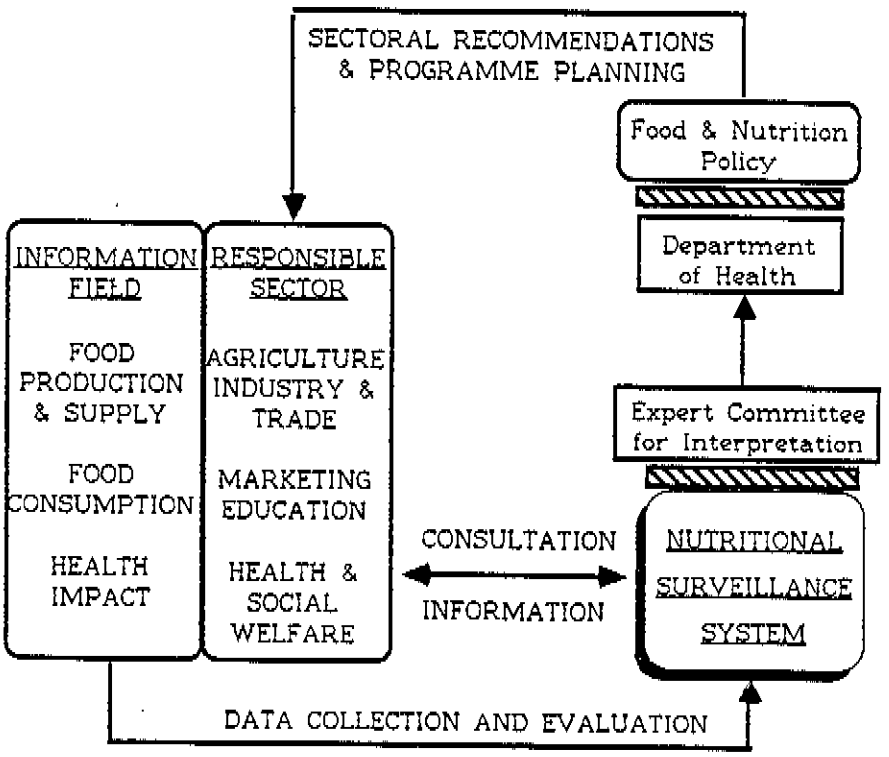
The information system described above has been tried out in the Irish nutrition surveillance programme. A graphic presentation of the information cycle in this programme is given in Fig. 2.

Fig. 1. Dietary surveillance operating at three levels: national, household and individual



Source: Kelly, A. Nutritional surveillance in Ireland. Report for 1985. Dublin, Medico-Social Research Board, 1986.

Fig. 2. Information cycle in the Irish nutrition surveillance programme



Source: Kelly, A., ed. National surveillance in Europe: a critical appraisal. The Hague, CIP-gegevens Koninklijke Bibliotheek, 1986 (EURO-NUT Report, No. 9).

Annex 3

HOUSEHOLD BUDGET SURVEYS IN NUTRITION POLICY-MAKING: NORWAY

by
Stein Opdahl and Kari Lund-Larsen
Norway

Norway's nutrition policy was adopted by Parliament in 1975, and since then the country has carried out annual household budget surveys that provide the main data basis for nutrition policy implementation and monitoring. The data are collected by the Central Office of Statistics and analysed and presented by the Dietary Research Section at the University of Oslo. They are subsequently used by the National Nutrition Council to describe the current dietary situation and interpret trends in nutrition. The data are also used as reference material by policy-makers and for nutrition education and information.

Although the data suffer from the weaknesses experienced in many countries, such as the exclusion of institutions, meals outside the home and bulk buying, and a large rate of non-response, they are extensively used and quoted. Collaboration between the Central Office of Statistics and nutritionists led, inter alia, to a special survey of fish acquisition in 1984, which showed that this food item, which is important in Norway, was underreported by some 20-25%. There is still room for improvement, e.g. in the conversion from household units to per capita averages. The use of additional background variables of importance for nutrition and health, such as level of education and income, could be increased, and this would allow for more meaningful disaggregation of the data. The time lag before publication of the data could be shortened.

On the positive side, it can be concluded that the inclusion of food amounts in addition to expenditure in the account books, which are kept for 14-day periods throughout the year in respect of 2500 households and 226 food categories, has not significantly affected the response rate.

The special survey of fish acquisition that was instigated by nutritionists has proved useful, and extra questions on this subject are now included in the household budget surveys as a regular feature, since the relative expense of adding them is not too great.

Annex 4

ALLOCATION OF CONSUMPTION DATA TO HOUSEHOLD MEMBERS

by
Georg Karg
Federal Republic of Germany

The problem of allocating household consumption data on food to household members is not new. Engel (1) recognized this problem and proposed a solution. The problem arises in the following situation.

Data on food consumption of various households are available. However, the households differ in composition, e.g. with respect to age, sex and number of household members. Moreover, this makes it difficult to compare the material wellbeing of the people in the different households. According to Engel, this problem can be solved in the following way. The people of a household are measured in consumer units. The units are determined independently from the consumption sample on the basis of anthropometric measures of the weight and height of people varying in age and sex. On this basis, Engel set a newborn baby as the consumption unit, which increases every year by 0.1 up to 3.0 for women at the age of 20 years and up to 3.5 for men at the age of 25 years. In both cases, additional years do not change the amount of consumer units of a person. In this way, Engel computed the size of different households in consumer units. To make comparisons of the material wellbeing of people in a cross-sectional or longitudinal sense, he compared the consumption per consumer unit in different households.

Later on, Prais and Houthakker (2) extended the idea of consumer units in the following way. First, they recognized that consumer units should not be defined independently of the consumption sample. Instead, they should be estimated using information on the consumption and the composition of the various households in the sample. Second, they stressed that consumer units should be differentiated with respect to single and all goods.

These ideas will be explained by an example. It refers to two households (A and B) and three goods (bread, milk and wine). Table 1 contains data on the composition and consumption of the households. The consumption is given in money units per unit of time. Physical units will be introduced later.

For simplicity of the discussion, the allocation of the household consumption to its members in household A is given. The above method then proceeds as follows. The consumption of the adult person is set at 1 for every item and for all goods, i.e. the adult person is the consumption unit. From this, it follows that the consumer units of the child are 0.5 for bread, 2.5 for milk, 0 for wine and 0.46875 for all goods. In this way, one can conceive of a set of consumer units differentiated with respect to single goods and all goods and with respect to person groups. Similarly, one distinguishes between specific (single goods) and general (all goods) consumer units. If this set is known, one can easily and exhaustively allocate household consumption data (measured in money or physical units) to the individual members. For instance, household A consists of 1.5 consumer units with respect to bread. The amount of bread consumed is then 20 units per

Table 1. Composition and consumption of two households

Composition	Household A	Household B
	One adult, one child	One adult
Consumption		
Bread	30 (20 + 10)	20
Milk	7 (2 + 5)	2
Wine	10 (10 + 0)	10
Total	47 (32 + 15)	32

consumer unit and 20/10 units per adult/child. If physical units are used, the consumption data can easily be converted into nutrient intake by referring to the nutrient content of food items.

In general, the above allocation and the corresponding consumer units are not known. However, they can be estimated using the information on the composition and the consumption of the various households in the sample. Moreover, restrictions may be applied in the estimation of these units. For instance, some specific consumer units may be known in advance, e.g. the consumer units of a child with respect to wine and of an adult with respect to milk. Finally, it is intuitively clear that the general consumer unit for a given person group cannot be estimated independently of the specific consumer units. In fact, the first one is always a weighted average of the latter. The weights have been defined by Cramer (3).

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Annex 5

USE OF LAP-TOP COMPUTERS IN DATA COLLECTION

by
Robert L. Rizek
United States

The experience from the United States with the use of small, transportable computers for interviewers has proved very successful. It has cut the interview time by 10% and completely eliminated the coding step. Internal consistency checks are built into the programme, and the disks are checked for consistency as soon as the interview is completed, with provision, if necessary, for rapid return of an interviewer to the family to complement or check the information provided. This has cut errors by approximately 10%. The programme has sufficient capacity to include information on 3500 food items and approximately 100 000 varieties.

Publication time is also shortened, computer tapes being available within eight months of the completion of data collection. This method does, of course, presuppose that the interviewers are properly trained, but overall it has been found that the use of lap-top computers has cut the cost of surveys.

There has been very little problem with the hardware; out of 225 computers purchased, only one had a breakdown and one was stolen.

Annex 6

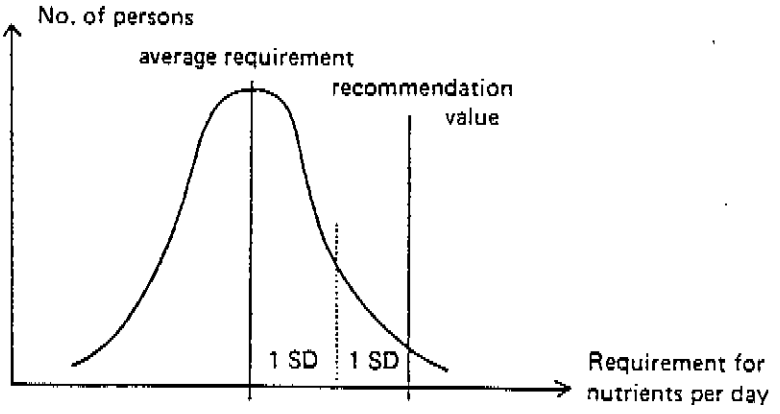
USE AND MISUSE OF RECOMMENDED DIETARY INTAKES

by
Jorgen Hojmark Jensen
Denmark

A distinction has to be made between nutrition requirements and nutrition recommendations. Individual requirements for a certain nutrient vary greatly from person to person, even within homogeneous groups. The distribution across a population usually looks like a bell-shaped curve (see Fig. 1). To cater for the majority of the population, the recommended intakes are set so high that they cover the requirements of about 97% of people. This means that the recommended intakes are actually 2 standard deviations or approximately 30% above the known mean requirement. The recommendations, which are known variously as recommended dietary intakes, recommended dietary allowances or recommended daily intakes are published by most countries in Europe. They vary somewhat from one country to another. The most authoritative set of recommendations are generally acknowledged to be those of the US National Academy of Sciences, not the least because they are published with a very thorough description of the rationale behind each of them. They were last published in 1980, and the next issue has been expected for some time. The delay may reflect some of the problems now seen in the publication and use of this type of nutrient recommendation.

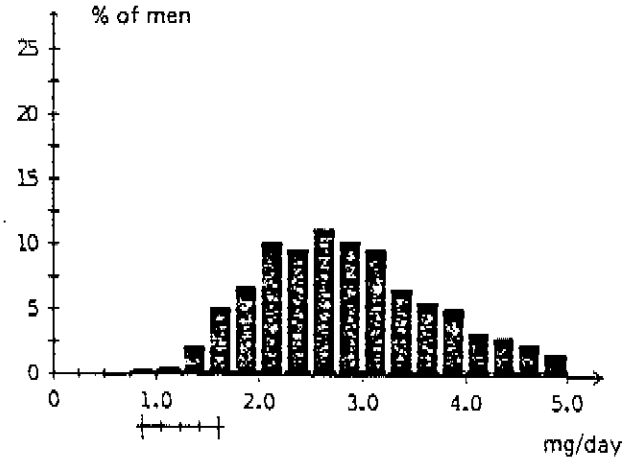
When the results of a dietary survey are to be evaluated, it would not make public health sense to declare a population deficient in any given nutrient if the group mean intake is below the recommended intake. One way of presenting the findings would be to evaluate how large a proportion of the group is at how large a risk of deficiency. Also, it may be useful to compare the actual intakes with the minimum safe intakes if such a figure can be estimated. This type of "graded" assessment is probably closer to the physiological reality of the group than a one-point cut-off evaluation system (see Fig. 2 and 3 for an example of this type of presentation from the Danish dietary survey).

Fig. 1. Recommended nutrient intakes
(normally calculated as the average requirement
plus two standard deviations)



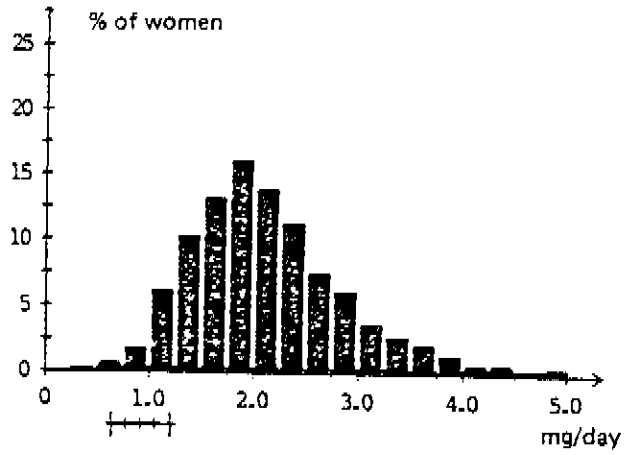
Source: Naeringsstofanbefalinger og deres anvendelse [Nutrient recommendations and their use]. Soborg, Danish Food Agency, 1981.

Fig. 2. B2 vitamin intake, men



Source: Haraldsdóttir, J. et al. Danskernes kostvaner 1985. I. Hovedresultater [Danish dietary habits 1985. I. Main results]. Copenhagen, Danish Food Agency, 1986.

Fig. 3. B2 vitamin intake, women



Source: Haraldsdóttir, J. et al. Danskernes kostvaner 1985. I. Hovedresultater [Danish dietary habits 1985. I. Main results]. Copenhagen, Danish Food Agency, 1986.

Annex 7

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