SN 3481

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Archive Notes

Study No 3481

The following is clarification about the meaning of variables SUPPNO, MEDNO, PLN A/B, PLN 1/2 and the units of measure for the QUANT POR file

1) SUPPNO

This variable is a count of the number of supplements the child was taking at the time of interview It comes from question 39 on the main interview schedule SUPPNO = 1 for example, means that the child was only taking one supplement at the time of interview, and thus only the SUPPLEMENT I box was completed

2) MEDNO

This variable is a count of the number of prescribed medicines the child was taking at the time of interview / during the dietary recording period It comes from question F23 of the follow up questionnaire MEDNO = 1, for example, means that the child was only taking one medicine, and thus only the PRESCRIBED MEDICINE I box was completed

3) PNLA/B and PNL1/2

These variables refer to the product licence number Most prescribed and nonprescribed supplements and medicines have a product licence number which uniquely identifies the manufacturer and the product The first four digits refer to the manufacturer, the second four digits identify the product If the interviewer was not able to see the packaging for medicines or supplements this information was not recorded

4) Units of measurement for variables on the QUANT file

All food consumed by the child was weighed in grams Thus quantities of food consumed at either a daily (TDFDnnn) or weekly (WKFDmn) level are expressed in grams However data are held as integers and thus to convert these variables to their true values one must divide the value by 10 (see Table 4 6)

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Appendices

Glossary of abbreviations, terms and survey definitions

BMI	see *Body Mass Index*
Body Mass Index	A measure of body fatness which standardises weight for height calculated as [weight(kg)/height(m)^2] Also known as the Quetelet Index
Benefits (receiving)	Receipt of Income Support or Family Credit by the child's mother or her husband/partner
CSE	Certificate of Secondary Education
DH	The Department of Health
DNA	Does not apply
DSS	The Department of Social Security
Economically inactive	Those neither working nor *unemployed,* includes students, the retired and individuals who were looking after the home or family
Economic status	Whether at the time of interview the individual was *working*, *unemployed,* or *economically inactive*
EGRAC	The erythrocyte glutathione reductase activation coefficient
Emla cream	A topical local anaesthetic cream applied to the arm of some children at the site of the venepuncture
Extrinsic sugars	Any sugar which is not contained within the cell walls of a food Examples are the sugars in honey, table sugar and lactose in milk and milk products
Family	A unit within a *household* defined by their relationship to each other A family unit can consist of - married or cohabiting couple on their own, - a married or cohabiting couple/lone parent and their never married children, provided these children have no children of their own, - one person on their own

Frankfort plane — The desired position for the child's head when measuring standing height and *supine length*. The position is achieved for standing height, when the line between the external auditory meatus and the lower border of the orbit is horizontal. In measuring *supine length* this line should be vertical.

GCE — General Certificate of Education

GHS — The General Household Survey; a continuous, multi-purpose household survey, carried out by the Social Survey Division of OPCS on behalf of a number of government departments.

GP — General Practitioner

HDL cholesterol — High density lipoprotein cholesterol

Head of household — The head of household is defined as follows:
(i) in a household containing only a husband, wife and children under age 16 years (and boarders), the **husband** is always the head of household.
(ii) in a cohabiting household the **male partner** is always the head of household.
(iii) when the household comprises other relatives and/or unrelated persons the **owner, or the person legally responsible** for the accommodation, is always the head of the household.

In cases where more than one person has equal claim, the following rules apply:
(i) where they are of the same sex, the oldest is always the head of household
(ii) where they are of different sex the male is always the head of household.

Household — The standard definition used in most surveys carried out by OPCS Social Survey Division, and comparable with the 1991 Census definition of a household was used in this survey. A household is defined as a single person or group of people who have the accommodation as their only or main residence and who either share one main meal a day or share the living accommodation. (See E McCrossan *A Handbook for interviewers.* HMSO: London 1985.)

Highest educational qualification — Based on the highest educational qualification level obtained by the child's mother, grouped as follows:

Above GCE 'A' level
Degree (or degree level qualification)
Teaching qualification
HNC/HND, BEC/TEC Higher, BTEC Higher

		City and Guilds Full Technological Certificate Nursing qualifications (SRN, SCM, RGN, RM, RHV, Midwife)
		GCE 'A' level and equivalent GCE 'A' level/SCE higher ONC/OND/BEC/TEC not higher
		GCE 'O' level and equivalent GCE 'O' level passes (Grades A-C if after 1975) GCSE (Grades A-C) CSE (Grade 1) SCE Ordinary (Bands A-C) Standard Grade (Levels 1-3) SLC Lower SUPE Lower or Ordinary School Certificate or Matriculation City and Guilds Craft/Ordinary Level
		CSE and equivalent CSE Grades 2-5, and ungraded GCE 'O' Level (Grades D and E if after 1975) GCSE (Grades D-G) SCE Ordinary (Bands D and E) Standard Grade (Levels 4 and 5) Clerical or commercial qualifications Apprenticeship Other qualifications
		None No educational qualifications
		The qualification levels do not in all cases correspond to those used in statistics published by the Department for Education
	IgA, IgG, IgM	Three immunoglobulins - plasma antibodies - measured in the blood samples from some children
	Intrinsic sugars	Any sugar which is contained within the cell wall of a food
	MAFF	The Ministry of Agriculture, Fisheries and Food
	Manual social class	Children living in households where the head of household was in an occupation ascribed to *Social Classes III manual, IV or V*
	MCH	Mean cell haemoglobin
	MCHC	Mean cell haemoglobin concentration
	MCV	Mean corpuscular volume

Marital status	Informants were categorised according to their perception of marital status. Married and cohabiting took priority over other categories. Cohabiting includes anyone living with their partner (of the other gender) as a couple.
MUAC	Mid upper-arm circumference
MRC	The Medical Research Council
NDNS	The National Diet and Nutrition Survey
NA	Not answered
Non-manual social class	Children living in households where the head of household was in an occupation ascribed to *Social Classes I, II or III non-manual.*
Non-milk extrinsic sugars	Extrinsic sugars, except lactose in milk and milk products.
NSP	Non-starch polysaccharides. A precisely measurable component of foods. The best measure of 'dietary fibre'.
OPCS	The Office of Population Censuses and Surveys
PAF	Postcode Address File; the sampling frame for the survey
Plasma 25-hydroxy	Plasma vitamin D
Plasma ascorbate	Plasma vitamin C
PSU	Primary Sampling Unit; for this survey, postcode sectors.
PUFA	Polyunsaturated fatty acid
Quetelet Index	see *Body Mass Index*
Region	Based on the Standard regions and grouped as follows: **Scotland** **Northern** North Yorkshire and Humberside North West

Central, South West and Wales
East Midlands
West Midlands
East Anglia
South West
Wales

London and South East
London
South East

The regions of England are as constituted after local government reorganisation on 1 April 1974 The regions as defined in terms of counties are listed in *Section 4*

SI units — Systeme Internationale d'Unités (International System of Units)

Social Class — Based on the Registrar General's *Standard Occupational Classification,* Volume 3 HMSO (London, 1991) Social class was ascribed on the basis of the occupation of the head of household The classification used in the tables is as follows

Descriptive description	Social class
<u>Non-manual</u>	
Professional and intermediate	I and II
Skilled occupations, non manual	III non-manual
<u>Manual</u>	
Skilled occupations, manual	III manual
Partly-skilled and unskilled occupations	IV and V

Social class was not determined for those whose head of household had never worked, was a full-time student, was in the Armed Forces or whose occupation was inadequately described If the head of household was male social class was determined on the basis of their present (main) occupation, if they were currently unemployed on the basis of the last occupation and if they were waiting to take up a new job, on the basis of that new occupation If the head of household was female, social class was determined on the basis of what the informant regarded as her 'main' life occupation

Supine length — Body length measured with the child lying down, face upward

Unemployed — Those actively seeking work, those intending to look for work but prevented by sickness (28 days or fewer) and those waiting to take up a job already obtained

Working	In paid work, as an employee or self employed, at any time in the 7 days prior to the interview or not working in the 7 days prior to interview but with a job to return to, including, for women, being on maternity leave.
ZPP	Zinc protoporphyrin

Section 1 Background, purpose and research design

1.1 The National Diet and Nutrition Survey Programme

The National Diet and Nutrition Survey programme (NDNS) is a joint initiative, established in 1992, between the Ministry of Agriculture, Fisheries and Food and the Department of Health

The NDNS programme aims to provide a comprehensive cross-sectional picture of the dietary habits and nutritional status of the population of Great Britain It will also contribute to the health monitoring programme set out in the Government's Health of the Nation White Paper[1]

The programme aims to

- provide detailed quantitative information on the food and nutrient intakes, sources of nutrients, and nutritional status of various subgroups in the population to inform Government policy,

- describe the characteristics of those with intakes of specific nutrients above and below the national average,

- provide a database which could be used to estimate dietary intakes of natural toxicants, contaminants and additives for risk assessment,

- measure haematological, biochemical and other indices that give evidence of nutritional status and relate these to dietary, physiological and social data,

- provide height, weight and other measurements of body size and examine their relationship to social, dietary and other data, including data from blood analyses;

- monitor the diet of the population to establish the extent to which it is nutritionally adequate and varied,

- monitor the extent to which quantitative dietary targets set by Government are being met, and

- help determine possible relationships between morbidity, cause of death and diet

Because different methodologies may be appropriate for different age groups, the programme is separately considering different age groups in the population, children aged 1½ to 4½ years, school children aged 4 to 18 years, adults aged 16 to 64 years, and older adults aged 65 years and over It is expected that it will take two to three years to carry out a survey for each age group, hence it is intended that the whole population will have been studied in an eight to ten-year period

1.2 The need for the survey

Preschool children were chosen as a priority group for study because of the paucity of up-to-date information at a national level on their diets and nutritional status. Data on the diets of British school children[2], on infant feeding practices[3,4] and on the diets of British adults[5] have been collected since 1985 but no data on those aged 1½ to 4½ years have been collected since 1968.[6]

Preschool children are identified in the Government's White Paper the Health of the Nation as a key group. It notes that '...the adoption of healthy lifestyles during childhood encourages optimum growth and resistance to ill health, both emotional and physical. There is increasing evidence to suggest that there is a relationship between growth and development starting from before birth and during childhood, and risk in later life of coronary heart disease, raised blood pressure and other risk factors'.[1]

These considerations led the Ministry of Agriculture, Fisheries and Food and the Department of Health to commission the Social Survey Division of the Office of Population Censuses and Surveys (OPCS) and the Medical Research Council (MRC) Dunn Nutrition Unit at Cambridge to carry out this survey.

1.3 The aims of the survey

The survey is designed to meet the aims of the NDNS programme in providing detailed information on the current dietary behaviour and nutritional status of preschool children living in private households in Great Britain.

Additionally this survey will:

(i) provide data to assist with the development of dietary guidelines for preschool children;

(ii) characterise the socio-demographic and domestic circumstances which may affect how young children are fed;

(iii) determine the pattern of stool frequency in this age group;

(iv) provide baseline data for some anthropometric and biochemical indices in this age group; and

(v) provide information on the dental habits and dental condition of preschool children.[7,8]

To meet these aims it was necessary to design a survey capable of collecting detailed information about the quantities of foods and nutrients consumed by preschool children. The survey also had to include anthropometric measurements and measurements of blood indices, and collect information on household circumstances and stool frequency.

1.4 The sample design and selection

A nationally representative sample of preschool children living in private households in Great Britain was required It was estimated that an achieved sample of about 1500 children was needed for analysis, ideally evenly distributed across the three age groups 1½ to 2½, 2½ to 3½ and 3½ to 4½ years and covering all months of the year to represent any seasonality in eating behaviour

The study focused on one eligible child per selected household to reduce clustering of similar dietary patterns within households, and also to reduce the burden on informants, which might have affected co-operation rates and the quality of the data A more detailed explanation is given in *Appendix C*

The sample was selected using a multi-stage random probability design, with postal sectors as first stage units The small users' Postcode Address File (PAF) was used as the sampling frame The frame was stratified by region, and by 1981 Census variables

A total of 100 postal sectors were selected as first stage units, with probability proportional to the number of postal delivery points, from each sector 280 addresses were randomly selected To identify households which contained an eligible child, each address was sent a sift form which asked for details of the sex and date of birth of every person living in the household Non-responding addresses were called on by an interviewer who attempted to collect the same information as on the sift form Copies of the sift forms are reproduced in *Appendix A* From the returns households containing an eligible child were identified A child's eligibility, being aged between 1½ and 4½ years, was determined by taking the mid point of the fieldwork period as the reference date for defining eligible dates of birth As each wave of fieldwork covered a three month period, eligible children, at the time of interview, could have been slightly under 1½ years or slightly over 4½ years For further details on eligibility refer to *Appendix C*

One eligible child was randomly selected from each household Interviewers were told which child had been selected before they started the fieldwork

Since the requirement was for a sample of children living in private households, institutions were excluded at the sample selection stage wherever possible, institutions identified at the fieldwork stage were excluded from the interview sample

To allow for seasonality in eating behaviour, fieldwork was distributed over four waves, each of three month's duration The four fieldwork waves were

Wave 1 July to September 1992
Wave 2 October to December 1992
Wave 3 January to March 1993
Wave 4 April to June 1993

At the selection of the first stage units, that is the 100 postal sectors, 25 sectors were allocated to each of the four fieldwork waves The allocation took account of the need to aim to have equal numbers of households in each wave of fieldwork, and for each wave to be nationally representative

A letter was sent to each eligible household in advance of the interviewer calling, telling them about the survey.

1.5 The elements of the survey

To meet the aims of the research it was necessary to design a study which would incorporate both dietary and physical measurements.

This was achieved by asking the parent(s) or guardian(s) of the child to:

- answer an interview questionnaire, giving information about themselves and their household, and general information on the child's dietary habits;

- keep a four-day weighed intake record of all food and drink consumed by the child, both in and out of the home;

- keep a record of the number of bowel movements the child had over the dietary recording period;

- provide information on the use of dietary supplements, for example, vitamin tablets, and on all prescribed medicines being taken by the child;

- agree to the following measurements being taken - height, supine length (for those children aged under 2 years on the day the measurement was taken), weight, mid upper-arm circumference and head circumference;

- give written consent to a sample of the child's blood being taken;

- agree to answer a short questionnaire covering the child's dental habits and history and to the child having a dental examination. (The methodology and results of this dental survey are covered in a separate report[8]).

To assist the survey nutritionists in evaluating the quality of recording in the food diary, the parent or guardian was also asked to answer a short interview questionnaire after the recording period had finished, concerning any difficulties or problems in keeping the dietary record, and about any circumstance which may have affected the child's eating habits during the recording period, such as illness.

Copies of the fieldwork documents are provided in *Appendix A*.

As a token of appreciation, £10 was paid to the parent or guardian who kept the diary for four days. The child was given a height chart as thanks for their co-operation with the anthropometric measurements.

Feasibility work carried out by the Social Survey Division of OPCS and the MRC Dunn Nutrition Unit in 1989 tested the questionnaire and dietary methodology and developed protocols for the taking of anthropometric measurements. The validity of the dietary data was tested using the doubly-labelled water technique to assess energy expenditure against reported

energy intake' The results of this study showed that the methodologies proposed were feasible, that the accuracy and validity of the dietary data were acceptable and that the survey protocol was acceptable to informants

The main purpose of pilot work which was carried out in 1991 was to test sampling procedures and develop the protocol for taking blood Further details of these development stages are documented in *Appendix E of the National Diet and Nutrition Survey children 1½ to 4½ years Report, Volume 1*[10] and in the Feasibility Study for the National Diet and Nutrition Survey of Children aged 1½ to 4½ years report [11]

1.6 Fieldwork

All interviewers working on the survey had been fully trained by the Social Survey Division of OPCS and were experienced, having worked on other surveys In addition each interviewer attended a personal briefing over 5 days conducted by research and professional staff from Social Survey Division including three nutritionists who were recruited to work on the survey, staff from the two client departments, and from the Dunn Nutrition Unit, who were responsible for gaining ethical approval to take blood and the recruitment of the blood takers Prior to the briefing interviewers were asked to keep their own three-day weighed intake record and to code a day from a preschool child's diary[12] At the residential briefings interviewers received feedback on their record keeping and coding from the nutritionists and were trained in all aspects of the survey including how to complete the weighed intake record, techniques for checking and detailed probing of the dietary record and training on how to code the entries in the diaries Interviewers were also trained to take the anthropometric measurements, and instructed in the procedures for obtaining parental consent to the blood sample being taken and results being reported back to the parents and the child's GP Emphasis was placed on the need for accuracy in the recording and coding of the dietary information and the measurement techniques

In addition to the personal briefings written instructions were provided for interviewers and for those taking blood samples Interviewers working on more than one fieldwork wave were recalled for a one-day refresher briefing between waves to maintain the accuracy of the diary coding and anthropometric measurements

Section 2 gives further details of the survey methodology The key instructions issued to interviewers are reproduced in Section 3 along with details on coding both the interview schedule and the dietary record The database structure, derived variable specifications and quality checks on the data are discussed in Section 4

References and notes

1 Department of Health *The Health of the Nation a strategy for health in England* HMSO (London, 1992)

2 Department of Health Report on Health and Social Subjects 36 *The Diets of British Schoolchildren* HMSO (London, 1989)

3 White A, Freeth S, O Brien M *Infant Feeding 1990* HMSO (London, 1992)

4 Mills A Tyler H *Food and Nutrient Intakes of British Infants aged 6 to 12 months* HMSO (London, 1992)

5 Gregory J, Foster K, Tyler H, Wiseman M. *The Dietary and Nutritional Survey of British Adults*. HMSO. (London, 1990)

6 Department of Health and Social Security. Report on Health and Social Subjects: 10. *A Nutritional Survey of Preschool Children, 1967-68*. HMSO. (London, 1975)

7 Parents who had taken part in the dietary survey were asked to agree to an OPCS interviewer calling back with a Community dentist, to carry out an examination of the child's teeth. Parents were asked about the child's dental health and habits without the dentist present. Results of this survey are presented in a separate report.

8 Hinds K, Gregory J. *National Diet and Nutrition Survey of children aged 1½ to 4½ years. Volume 2: Report of the Dental Survey.* HMSO. (London, 1995).

9 Davies PSW, Coward WA, Gregory J, White A, Mills A. *Total energy expenditure and energy intake in the pre-school child: a comparison.* Brit. J. Nutr. 1994; 72:1:13-20.

10 Gregory JR, Collins DL, Davies PSW, Hughes JM, Clarke PC. *National Diet and Nutrition Survey: children aged 1½ to 4½ years. Volume 1: Report of the diet and nutrition survey.* HMSO. (London, 1995).

11 White A, Davies PSW. *Feasibility Study for the National Diet and Nutrition Survey of Children aged 1½ to 4½ years*. Crown Copyright. OPCS. (London, 1994) (NM22).

12 The coding exercise given to interviewers before attending the residential briefing was based on weighed intake records collected at the pilot stage. It was designed to give interviewers an idea of the kinds of foods preschool children were eating, and practice in coding them.

Section 2 Dietary, anthropometry and blood sampling methodologies and procedures

This section describes the methodologies and procedures used on the preschool children's dietary survey Further details on the dietary methodology and anthropometric techniques are contained in *Appendices D and G*

2.1 The choice of dietary methodology

The survey used a weighed intake methodology since the study's main aims were to provide detailed information on the range and distribution of intakes of foods and nutrients for children aged 1½ to 4½ years in Great Britain, and to investigate relationships between intakes of selected nutrients and various health measures

The advantages and disadvantages of this method and the factors affecting its choice are discussed in *Appendix D*

2.2 Choice of number and pattern of recording days

In deciding to use a weighed intake methodology, the period over which to collect information for an individual needed to be considered Ideally it needed to be long enough to give reliable information on usual food consumption, but this had to be balanced against the likelihood of poor compliance if the recording period was lengthy

Analysis of the feasibility study data, carried out by MAFF, showed that among children in this age group, intakes of certain nutrients and energy varied according to the day of the week Intakes of energy, carbohydrate, starch, sugar, and iron were significantly different when weekdays were compared with weekend days, and protein intakes were significantly different when data for Saturdays and Sundays were compared[1] In respect of the nutrients and energy intakes examined, there appeared to be no significant differences in intakes between different weekdays (see *Appendix J of the NDNS children 1½ to 4½ years Report, Volume 1*)[2]

The feasibility report concluded that four days was likely to be the maximum period acceptable to respondents if a high level of co-operation was to be obtained, financial constraints also meant that this was the maximum period that could be covered for the required sample size in the main survey[3]

In the light of findings from further analysis of the energy and nutrient data collected in the feasibility survey it was decided that, at the main stage, a four-day weighed intake record should be sought, and each record should include both weekend days A placement pattern was determined, such that within four consecutive days, Mondays, Tuesdays, Thursdays and Fridays would be equally represented

2.3 The questionnaire

Before starting the dietary record mothers were asked to agree to an interview to provide

background information about the household and their child's usual dietary behaviour[4]. Information was also collected on the child's consumption of artificial sweeteners, herbal teas and herbal infant drinks; the age at which different types of milk were introduced into the child's diet; the use of fluoride preparations and dietary supplements, and information on the child's health status. The interview questionnaire is reproduced in *Appendix A*.

Information was also collected which was of use to the interviewer when checking the dietary record. If, for example, the mother worked, whether the child was looked after by anyone else; whether the child attended a nursery or playgroup where food was provided; and whether the child was allergic to, or not given, particular foods. A record was also made of the child's
usual eating pattern on weekdays and at weekends.

When the interviewer called back on the household at the end of the four dietary recording days the main diary keeper was asked if there had been any special circumstances which may have affected the child's eating behaviour during the period, such as going to a party. Other questions provided information on any problems the informant had with weighing and recording. Information was also collected on any illness the child had during the recording period and any prescribed medication taken.

2.4 The dietary record

The parent or carer of the child was asked to keep a weighed record of all food and drink consumed by the child, both in and out of the home, over four consecutive days including a Saturday and Sunday.

Parents were issued with a set of accurately calibrated Soehnle Quanta digital food scales. Two recording documents were also given to the parent; the 'home record' diary for use when it was possible for foods to be weighed, generally foods eaten in the home, and a smaller 'eating out' diary for use when foods could not be weighed - generally foods eaten away from home. These documents are included in *Appendix A*.

The parent or carer was shown by the interviewer how to use the scales to weigh food and drinks, including how to zero the scales after each item was weighed so that a series of items put on to the same plate could be weighed separately. Instructions were also given on how to weigh and record leftovers, and how to record any food that was spilt or not eaten which could not be re-weighed.

The 'home record' diary was the main recording and coding document. For each item consumed over the four days a description of the item was recorded, including the brand name of the product, and where appropriate the method of preparation. Also recorded was the weight served and the weight of any leftovers, the time food was served, whether it was eaten at home or away from home, and for fruit and vegetables, whether the item was home grown, defined as being grown in the household's own garden or allotment.

2.4.1 The recording procedure

Recording what the child consumed in the diaries started from the time the interviewer left the home, the interviewer called back approximately 24 hours after placing the diary in order to check that the parent or carer was recording items correctly, to give encouragement and to re-motivate where appropriate Entries made up to midnight on the day the interviewer left the diary were discarded at the analysis stage as the dietary recording period started at midnight

Everything consumed by the child had to be recorded, including medicines, vitamin and mineral supplements and drinks of water Where a served item could not be weighed, the parent or carer was asked to record a description of the portion size, using standard household measures, such as teaspoons, or to describe the size of the item

Each separate item of food in a served portion needed to be weighed separately in order that the nutrient composition of each food item could be calculated For example, for a sandwich the bread, spread and filling(s) all needed to be weighed and recorded separately

The amount of salt used either at the table or in cooking was not recorded as it would have been very difficult to weigh accurately However questions on the use of salt in the cooking of the child's food and the child's use of salt at the table were asked at the interview All other sauces, pickles and dressings were recorded Vitamin and mineral supplements and artificial sweeteners were recorded as units consumed, for example, one teaspoon of Canderel Spoonful

A large amount of detail needed to be recorded in the dietary record to enable similar foods prepared and cooked by different methods to be coded correctly, as such foods will have different nutrient compositions For example, the nutrient composition of crinkle cut chips made from new potatoes and fried in a polyunsaturated oil is different from the same chips fried in lard Therefore, depending on the food item, information could be needed on cooking method, preparation and packaging as well as an exact description of the product before it could accurately be coded

Interviewers were responsible for coding the food diaries so they could readily identify the level of detail needed for different food items, and probe for missing detail at later visits to the household In addition, recipes for all homemade dishes were collected Details on the coding of the dietary records are presented in *Section 3*

Parents and carers were encouraged to record details in the diary, including weight information if at all possible, of any leftovers or food that was spilt or dropped Further details on the recording of leftovers and spillages are given in *Appendix D*

The eating out diary was intended to be used only when it was not possible to weigh the food items In such cases, record keepers were asked to write down as much information as possible about the food item consumed, particularly the portion size To encourage this the diary had a centimetre rule printed on the bottom of each page Prices, descriptions, brand names, place of purchase and where the food was consumed were all recorded, duplicate items were bought and weighed by the interviewer where possible

2.5 Anthropometry

One of the main aims of this survey was to provide anthropometric data on a representative sample of children, which could be related to socio-demographic and dietary data.

Anthropometry, the measurement of body size, weight and proportions, is an intrinsic part of any nutritional survey and can be an indicator of health, development and growth. Derived indices, for instance to assess the proportion of body weight that is fat, provide additional information.

2.5.1 Choice of anthropometric measurements

In deciding which measurements should be taken a number of factors needed to be considered; these included the acceptability of the measurement to the child and parent, whether equipment suitable for use in the home was available, and whether interviewers could be trained to take the measurements accurately.

Measurements of standing height, weight, mid upper-arm circumference and head circumference were required for all children. Additionally supine length was measured for children who were under two years of age because growth standards for this age group are based on supine length rather than height.

Height and weight can also be used to calculate the Quetelet or Body Mass Index (weight[kg]/height[m]^2) or other indices which control for variations in body weight associated with height. Mid upper-arm circumference was measured to give information on body size, and head circumference is a standard measure of development and growth.

Measures of skinfold thickness were not included in this survey as it was felt that inter-observer variability would be too great for the measures to be reliable and there were concerns regarding the extent to which children would tolerate such measurements being attempted. The feasibility study had found it extremely difficult to achieve consistent measures of waist and hip circumferences, and thus these measures were not included in the main stage of this survey (see *Appendix E of the NDNS: Children 1½ to 4½ years Report, Volume 1*).

2.5.2 Techniques and instruments used

Deciding on the appropriate equipment, techniques, and training for interviewers when measuring preschool children was a requirement of the feasibility and pilot studies (see *Appendix E of the NDNS: Children 1½ to 4½ years Report, Volume 1*).

All interviewers were trained in accurate measurement techniques at personal briefings. Once trained, any interviewer working on a subsequent wave of fieldwork attended a one-day refresher briefing where the techniques were checked. Interviewers were able to practice the measurement techniques on young children at the briefings.

Interviewers were allowed to take the measurements at any point after the initial

questionnaire had been completed, it was thought that specifying a particular time to take the measurements could affect response, as gaining the co-operation of young children might be problematic and more than one attempt might be needed

Interviewers recorded the measurement, the date on which it was taken, how many attempts were made and if there were any special circumstances which might have affected the accuracy of the measurement The Department of Health advised on circumstances which were likely to affect the accuracy to such an extent that the measurement should be excluded from the analysis for the main Report, these included wearing a wet nappy when the child was being weighed, and the child being unable to keep the correct posture when standing height or supine length were being measured Further details on the coding of special circumstances for the various anthropometric measurements are produced in *Section 3*

Standing Height the measurement was taken using a portable, digital, telescopic stadiometer, modified to OPCS specification from a building surveyor's measuring device Measurements were taken to the nearest millimetre

The measurement was taken with the child wearing only vest and pants The child's head was positioned such that the Frankfort plane was horizontal, and while maintaining this position, gentle traction was applied to attain the maximum unsupported height For further details on the equipment used and the Frankfort plane see *Appendix G*

As the stadiometer had a fixed minimum height of 0 75m any child less than 0 75m tall could not be measured, four children could not be measured for this reason

Supine length the techniques and instruments used were the same as for standing height except the child laid on his or her back on a hard, flat surface The head was positioned so that the Frankfort plane was vertical, and while maintaining this position, gentle traction was applied to achieve maximum length

If the child was less than 0 75m tall a metal spacer block 10cm square, was placed at the feet The measurement was then taken and 10cm deducted before recording Use of the spacer block was recorded on the questionnaire Only two children needed the spacer block for their length to be measured

Weight Soehnle Quantratronic digital personal weighing scales, calibrated in kilogram and 100 gram units were used, and placed on a hard level surface for taking the measurement Where no hard level surface was available the interviewer made a note on the questionnaire All the scales were checked for accuracy prior to each fieldwork wave before being issued to interviewers

Children were asked to undress to vest and pants The measurement was not taken at a standard time of day

Mid upper-arm circumference for consistency of technique this measurement was taken from the left side of the child's body If for any reason the interviewer was unable to take the measurement on the left side, then the measurement was taken on the right and a note made

on the questionnaire.

Mid upper-arm circumference was measured in two stages using a standard tape to identify the mid-point of the upper arm, and an insertion tape to measure the circumference.

Interviewers were instructed to take the measurement on bare skin with the child in a vest. Where the child was unable or unwilling to comply with this request the measurement was not taken.

The position of the child's arm was standardised for each stage of the measurement. The mid-point of the upper arm was identified as halfway between the inferior border of the acromion process and the tip of the olecranon process. In taking the circumference measurement care was taken to ensure that the tape was horizontal and that the tissues of the upper arm were not compressed. Circumference measurements were taken to the nearest millimetre.

Head circumference: this was taken using an insertion tape. The tape was placed around the child's head just above the brow ridges, at the point of maximum circumference. The measurement was taken over the child's hair, under slight tension. Head circumference was not measured for children whose hair was dressed in a 'permanent' hairstyle which would affect the measurement. The measurement was recorded to the nearest millimetre.

As a token of thanks, children were given a height chart for co-operating with the measurements.

2.6 Purpose of obtaining a sample of venous blood

One of the main aims of the NDNS programme is to measure haematological and other blood indices which give evidence of nutritional status and to relate these to dietary and social data. In the preschool children's survey a main concern was to measure haemoglobin concentrations and other indicators of iron status, since iron deficiency is common among this age group in Britain[5]. Blood concentrations of other nutrients and analytes would give valuable information about the nutrient status of preschool children, and in many cases establish normative ranges for a healthy preschool population of children in Great Britain. To measure haematological status, a venous blood sample is preferred to a capillary sample and it is widely accepted that venepuncture is usually less painful and a more managed technique for obtaining a blood sample than fingerprick techniques.

Approval from National Health Service (NHS) Local Research Ethics Committees for blood sampling was subject to a maximum volume of 4ml blood being taken and thus the number of analyses which could be carried out was restricted. Therefore analytes were prioritised according to nutritional interest for analysis dependent on the volume of blood obtained. The order was as follows:

measures of iron status; haemoglobin and other haematological indices;
measures of vitamin status; water and fat soluble vitamins including retinol and vitamin D;
levels of blood lipids, including high density lipoproteins, plasma total cholesterol and

triglycerides,
acute phase proteins,
red cell folate and plasma ascorbate,
markers of immune function, IgA, IgM, IgG
A full list of analytes, in priority order, is produced in Figure 1

It was hoped that any residual plasma left after the haematological analyses could be used to measure levels of a number of trace elements of toxicological interest However the level of incidental contamination of the sample was too great to give reliable results (see *Chapter 10 of the NDNS children 1½ to 4½ years Report, Volume 1*)

Approval was obtained from the NHS Local Research Ethics Committees for any unused sample remaining after the above analyses to be stored, subject to parental consent, and an undertaking was given that neither the original sample nor any stored sample would be tested for HIV

2.7 Procedures for obtaining the blood sample

All procedures associated with obtaining and analysing the blood samples were contracted to the Medical Research Council Dunn Nutrition Unit in Cambridge whose staff worked closely with OPCS throughout all stages of the survey

All the procedures were tested prior to the main stage survey to ensure that they were safe and acceptable to children, to their parents, to those taking the blood samples and to the medical profession[4]

2.7.1 Ethical approval

The Dunn Nutrition Unit sought ethical approval for the study from the NHS Local Research Ethics Committees covering each of the 100 sampled areas, one area failed to give consent in sufficient time for work to begin, all other Committees gave their approval The Ethical Committees of the British Medical Association and of the British Paediatric Association were informed about the survey Information about the survey was also sent to Directors of Public Health, Chief Constables of Police and Directors of Social Services with responsibility for the areas of residence of participant children, they were asked to inform appropriate local staff[7]

2.7.2 Training and recruitment of the blood takers

As taking blood from small children is more difficult than bleeding adult subjects it was decided that those recruited to take the blood samples should have recent paediatric experience of taking blood Thus the majority of those recruited by the Dunn Nutrition Unit were phlebotomists working with infants and young children, the remainder were paediatricians or GPs A total of 80 suitably qualified personnel were recruited, some worked on more than one wave of fieldwork, some in more than one area, and some worked in pairs All received written instructions and attended for a half day during the five-day interviewer briefing sessions where they had the opportunity to meet the interviewer with whom they

would be working, and were given training in the protocols for obtaining the sample, despatching part of it and processing and storing the remainder. Emphasis was placed on the need to standardise procedures and adhere strictly to the protocol that had been presented to and agreed by the NHS Local Research Ethics Committees. Further details of the recruitment of blood takers are described in *Appendix L of the NDNS: children 1½ to 4½ years Report, Volume 1*.

2.7.3 Outline of consent procedures

Explicit formal consent was required for taking the blood sample from the child. Interviewers were required to tell parents at the time they conducted the questionnaire interview that their consent to a blood sample being taken would be sought, to avoid the possibility that having built a rapport with the interviewer, parents might have felt obliged to consent to this procedure against their true wishes.

Parents received a written statement of the purpose and procedures involved in taking the blood sample and were given time to discuss this with others, for example their child's family doctor, and with the blood taker. Written, witnessed consent for the procedure was sought, as well as consent for OPCS to waive the confidentiality pledge in respect of informing the Dunn Nutrition Unit of the child's name and address and the name of the child's GP (General Practitioner). This was needed in order that parents could be routinely informed of the result of the haemoglobin analysis and that, with consent, the child's GP could be told of any abnormal result for certain specified analytes, such as low iron status or high lipid levels.

It should be noted that agreement to this aspect of the survey was independent of agreement to other elements in the survey, the payment of £10 for completing the dietary record, and the gift to the child for co-operating with the anthropometric measurements.

Parents were informed that consent to the procedure could be withdrawn at any time, even after written consent had been given, and blood takers were instructed that they should stop the procedure at any point if they felt the child or family became unduly distressed.

A copy of the consent forms used and information sheet handed to parents is given in *Appendix B*.

2.7.4 Outline of venepuncture procedure

Blood was taken in the child's home with the OPCS interviewer present.

Parents were advised that a venepuncture procedure would be less painful for their child than a finger prick; nevertheless if they requested a finger prick then this was complied with. Topical anaesthetic cream (Emla cream) was only used for children in areas where NHS Local Research Ethics Committee approval was conditional on its use.

The approved protocol allowed for a maximum of two attempts at bleeding and for a maximum of 4ml of blood to be obtained by venepuncture or 1ml by finger prick. The

preferred site for the venepuncture was the antecubital fossa, although some phlebotomists opted for the back of the hand

It was not felt appropriate in the context of a voluntary survey of small children to require a fasting sample nor was the time at which the sample was taken standardised, although it was acknowledged that these arrangements might compromise the accuracy of results of the triglyceride assay Details of the procedures for taking blood samples and the processing procedures are described in *Appendices L and N of the NDNS children 1½ to 4½ years Report, Volume 1*

2.8 Procedures for reporting results to parents and General Practitioners

Subject to parental consent, GPs were notified of the child's participation in the survey and they and the parents were informed of the results of the haemoglobin analysis

As noted earlier, for many analytes this survey was intended to establish baseline normative values for preschool children, for such analytes it was not possible to identify 'abnormal' results nor could General Practitioners be advised on the clinical significance of any particular result

In respect of haemoglobin, ferritin, zinc protoporphyrin, retinol, vitamin D and lipids, ranges for preschool children were defined and any result outside the range was sent to the child's parents and, subject to parental consent, to the child's GP Parents were advised to arrange for their child to see his or her GP[8]

References and notes

1 White A, Davies PSW *Feasibility Study for the National Diet and Nutrition Survey of children aged 1½ to 4½ years* Crown Copyright OPCS (1994) (NM22)

2 Gregory JR, Collins DL, Davies PSW, Hughes JM, Clarke PC *National Diet and Nutrition Survey children 1½ to 4½ years Volume 1 Report of the diet and nutrition survey* HMSO (London, 1995)

3 Davies PSW, Coward WA, Gregory J, White A, Mills A Total energy expenditure and energy intake in the pre-school child a comparison *Brit J Nutr* 1994, 72,1 13-20

4 The child's mother or female parent-figure was interviewed if she was in the household as certain questions, such as whether the child was ever put to the breast, could best be asked of her The questionnaire is reproduced in *Appendix A* In a few cases where there was no mother or female parent-figure in the household the father was interviewed Some interviews were with both parents

5 Department of Health Report on Social Subjects 45 *Weaning and the weaning diet* HMSO (London, 1994)

6 See *Appendix E of the National Diet and Nutrition Survey children 1½ to 4½ years Report* for a report on the pilot study

7 Copies of these letters are given in *Appendix B of the National Diet and Nutrition Survey children 1½ to 4½ years Report*

8 Results were reported to the GP as follows

Haemoglobin: less than 11g/dl

Ferritin: this value is age related and varies between 12μg/l at age 1½ years to about 18μg/l at age 4½ years.

Zinc protoporphyrin (ZPP): values are increased due to iron deficiency, lead toxicity and inflammatory diseases. This value is age related and, for this study, ZPP levels at or above the 90th centile of data from a study carried out at the Hospital for Sick Children, Great Ormond Street in 1992 were reported to the GP.

The values were:

age 1½ to under 2 years	75μmol/mol/haem
age 2 to under 3 years	113μmol/mol/haem
age 3 to under 4 years	80μmol/mol/haem
age 4 to under 5 years	78μmol/mol/haem

Retinol: less than 0.3μmol/l

25-hydroxyvitamin D: less than 12.5nmol/l

Lipids: for all cases where plasma total cholesterol was greater than 5.5mmol/l full lipid results were scrutinised for clinical significance before referral.

Section 3 Questionnaire and diary coding

This section describes the main coding instructions which were issued to interviewers and office coders All fieldwork documents are reproduced in *Appendix A*

3.1 Main interview questionnaire coding instructions

3.1.1 Instructions to interviewers

1 Background and purpose

The preliminary interview provides

* basic classificatory information about the child, his or her parents and household,

* basic information about the child's diet and health, and

* information about the child's dietary habits which helped the interviewers, the coders and the nutritionists code and check the 4-day dietary records.

The follow-up interview was intended to provide information on the quality of the weighed intake record and asked about any problems there may have been with the weighing and recording of foods eaten in and out of the home There were also questions on the follow-up schedule which applied to everyone, even those not completing a dietary record, about the current use of prescribed medicines by the child

2. Who should be interviewed as the informant?

As some questions only applied if the informant was the child's birth mother interviewers were asked to interview her if she was present in the household However, if the father looked after the child most of the time then the interview was conducted with both parents

If the child's natural mother was not living in the same household as the child, but there was a 'female parent-figure', for example, the child's stepmother or grandmother, then the interview was conducted with her

In the few cases where there was no mother or female parent-figure in the household, the interview was conducted with the father, or 'male parent figure'

However interviewers could not interview anyone in the household who was not a parent or parent-figure as described above, proxy information could not be taken from other members of the household, for example live-in nannies The exceptions were parents who did not speak English or were deaf/dumb In such cases the interview could be conducted through

a translator, as long as the parent(figure) was present during the interview.

3) Specific question instructions

Interviewers were issued with instructions on the applicability of certain questions and how they should be asked. These are reproduced below.

Front page

The person number of the informant comes from the household box.

Household box The selected child was assigned to family unit 1.

The family unit of other members of the household was determined in terms of their relationship to THE SELECTED CHILD. The head of household[1] will always be person 01.

One family unit can consist of:

- a married or cohabiting couple on their own;

- married or cohabiting couple/lone parent and their never married children, provided these children have no children of their own;

- one person on their own.

Note that, in general, grandparents and grandchildren cannot belong to the same family unit. A household with mum, dad, their never-married children, and granny would therefore have two family units:

Family unit 1 = mum, dad and the children;

Family unit 2 = granny.

The exception to this would be if the grandparents were responsible for looking after the children in the absence of natural parents.

Adopted and step-children have the same family unit number as their adoptive/step parents. A foster child, however, has a separate family unit number from his or her foster parents.

Q2 The description of the accommodation only refers to the space used by the household. Thus in the case of a house owner-occupier who sublets some rooms code 3 was used to indicate that the household only occupies part of the house.

'Dwelling with business premises' covers those places where there was access between the private and business parts without going outside the building. If the address was a flat in a block, the bottom storey of which was a row of shops, then code 2 was used.

Public houses, inns and hotels were specified as such and the appropriate code rung (usually 4)

Caravans includes mobile and static caravans

Q3 Note that the question refers to the 'main living part of the accommodation' This means the living room, lounge or whatever it may be called

Q4 Ideally we wanted to know how much exposure to sunlight the child had This would have been very difficult to determine, so instead, as a proxy measure, we identified those children who had the opportunity to play outside every day, that is, those with a garden or yard attached to their accommodation Communal play areas attached to flats and for the use of residents were included, public recreation areas were excluded

Q5 A kitchen was defined as any room in which the household cooked, other than those which, in addition, were used as bedrooms Cooking facilities in halls or on landings were not included at code 1, a pantry or scullery used for cooking was included at code 1

Q5(b) This question identified any children living in households where there were no facilities in the household's accommodation for cooking a hot meal, such as 'bed and breakfast' accommodation If the informant said a hot drink could be made, but not a hot meal, code 3 applied

Q6 Included items that were either owned by the household or available for use in the informant's accommodation Broken items not intended for repair were excluded Items available for communal use were included only if they could be used in the informant's accommodation

A fridge with a freezing compartment was coded as a refrigerator

Q7 'Normally available'

includes
- vehicles used solely for driving to and from work
- vehicles on long-term hire

excludes
- vehicles used solely in the course of work
- vehicles hired from time to time

If a vehicle was currently not available for use because it had been dismantled or was in some other way unfit for use, it was only included in code 1 if it was repairable

Q14(b) Interviewers were asked to record descriptions of allergies that the mother thought the child might have, for example *"orange drinks might make him hyperactive"*

Q15 Interviewers were asked to fully probe reasons given for why some foods were not given 'Health reasons', for example, was an inadequate answer, was the child 'diabetic', 'coeliac' etc

Q18 This question was single coded.

Q19 If the child went to bed with a bottle containing juice, squash or water he or she was included as having a bottle (code 1).

Q20 The total number of bottles included those containing liquids other than milk, infant formula or follow-on milk, such as those containing orange squash or tea.

Q24 This only applied to artificial sweeteners used either at the table or in the cooking of the child's food.

Q25 This question applied if an artificial sweetener was used to sweeten the child's tea or coffee, or was used to sweeten any other item, either at the table or in cooking.

The full brand name and a description of its form were recorded with reference to the packaging. Artificial sweeteners come in three forms:

granular or powder;
liquid;
tablets or minicubes.

The total number of brands currently being used to sweeten the child's food/drink was recorded. Note that the same brands in different forms counted as different brands.

Q26 and 27 We wanted to know something about the use of salt at the table and in cooking as these amounts could not be weighed accurately and thus did not appear in the dietary record. However 'salt' in food and drink items recorded in the dietary record would be known from the nutrient information associated with each food code.

Note that what was of interested was usual behaviour in the use of salt by the child, not the parent(s).

Q28 Each food item was prompted separately and the mother asked to answer from the range of frequencies shown on card A (see *Appendix A*). Note that there was a code to be used if the child never ate a particular item. For some items the frequency with which they were consumed may change depending on the time of year, for example, ice cream and ice lollies. For such items and any others that the mother queried in this respect interviewers asked about frequency '....*at this time of year*'.

Chocolate: as confectionery

Yogurt: includes plain and flavoured varieties, thick, creamy and low fat; excludes fromage frais.

Cheese or cheese spread: excludes fromage frais.

Milk: dairy milk, that is milk from animal sources, including infant formula; excludes soya and other vegetable-based 'milks'. Includes milk taken as a drink, and in other ways, for example, on cereal, in puddings, sauces etc. If

the informant said the child did not have milk, the interviewer checked that this meant the child had no milk - even in cooking

Eggs in any form, from any animal, including those used in home cooking

Blackcurrant only drinks excludes mixed fruit drinks containing blackcurrant

Fizzy drinks carbonated drinks, excluding carbonated mineral water

Fish or shellfish any form, including sardines, pilchards, wet fish, fried fish, fish fingers etc

Sausages - British type made from animal product and need cooking, excludes frankfurters and other continental-type products which can be eaten without re-heating

Liver - not products from any animal, requires cooking, excludes liver pate, home made liver pate and liver sausage

Beef lamb, pork, chicken and poultry this was restricted to 'carcass meat' that is, meat that is served as a joint, chops, in stews, casseroles, as mince, curries, in pies etc It excludes meat and poultry in processed or purchased meat products, such as sausages, burgers, nuggets, purchased pies, and pates This was explained to the informant

Baked beans - canned canned beans described on the label as 'baked beans', not haricot beans

Peas, in any form includes mange-tout, sugar peas and canned peas, excludes split peas and lentils

Leafy green vegetables excludes cauliflower

Potatoes excludes sweet potatoes

Fresh fruit any

Q30 Note that 'baked potatoes' were defined as jacket potatoes baked without fat, NOT potatoes roasted in fat or oil

Q31 This is an opinion question, interviewers could only repeat the question as it was written if the informant did not understand

Q32 The informant's own definition of 'organic' applied here Note that if the answer to Q31 was "*Don't know*" then Q32 was still asked, even though the informant may have had no idea what 'organic' meant, organic foods may still have been purchased

Q33 'Homegrown' was defined as being grown in one's own garden or allotment. It excluded produce grown in the garden of a friend, neighbour or relative. Homegrown herbs were not included.

Q34 This question referred to behaviour 'these days'; soil eating excludes sand.

Q36 The informant was given card B (see *Appendix A*). The informant was asked how long, on average they would keep each item listed on the card in an opened can or tin before eating or drinking it. If the informant said spontaneously that they never kept food or drink in an opened in then code 6 was rung. If they never ate or drank a particular item listed, code 7 was rung.

Qs 37 - 39 Prescribed supplements were included here as well as being recorded at question F23.

Q39 A full description of every supplement, including fluoride supplements being taken was recorded, preferably from the label on the container. The description included:

- the full name, including brand name as described on the container;
- the dose, that is the number of tablets, drops, 5ml spoons taken each time by the child, **not** the recommended dose. A distinction was made between number of drops and 'a dropper full';
- the frequency, that is how many times a day or other period the supplement was taken by the child, **not** the recommended frequency;
- the form it was in, drops, pills or tablets, liquid or syrup, or powder;
- the product licence number. Most non-prescribed and prescribed supplements (including fluoride tablets) have a product licence number which uniquely identifies the manufacturer and the product. The number, which is usually printed on the container, often has 8-digits. The first 4-digits identify the manufacturer, the second 4-digits the product.

The 'Office Use Only' boxes were used by OPCS coders to code this information using the frame described in *Section 3.1.2*.

The questionnaire allowed for the recording of up to six supplements. If the child was taking more than six supplements, an additional sheet could be used.

Q40 Some of the questions in this section could only be asked if the informant was the child's natural (birth) mother.

Q41 Applied to all: if the informant was not sure whether the birth was premature, for example because the baby was born only a few days early, code 1 and part (a) applied. Note that Q41(a) was an opinion question.

Q43 Applied only if the informant was the child's natural mother

Q46 Note that the period following the child's birth was not counted as an overnight inpatient admission, unless the baby had to stay after the mother had left

Q49 Applied only if the informant was the child's natural (birth) mother

This question identified those children who were breast fed and the duration of breast feeding
Q49(a) Note that the duration of breast feeding included any period when breast and other feeds were being given (bottle with baby milk, infant formula, follow-on milk or cow's milk) If the mother expressed breast milk to give to her child (for example, when she returned to work) this time was included in the total duration

Q51 Identifies children who were still having infant formula or follow-on milk

Qs 53 and 54 Excludes the use of cow's milk in puddings, for cooking or on cereal

Q54 This question was single coded

Infant formula and follow-on milks were coded 04 if powdered, or specified (code 06) if purchased made-up
Goat's milk and soya milk were specified

Q55 This question was multi-coded

Qs 56 - 67 These questions are concerned with the 'mother's' employment the questions were only asked if a mother (figure) was present in the household

Q58 If 'Yes' probed for whether on maternity leave or away from work for some other reason, for example, unpaid sick leave

Q62 This question referred to the mother's main life job This was decided on the evidence of feasibility and pilot studies which found that mothers who had left the labour market to have children had often either taken a lower grade occupation on their return to work or had gone back to their old job but at a lower level Thus their current job may not adequately reflect their education, training or social status Therefore if the mother had only ever had one job, then details of this were recorded If she had never worked, but was waiting to take up a job, details of this job were recorded However if she had had more than one job, details of what she considered was her main life job were recorded

Qs 63 - 67 These related to the mother's current job (which may not be the job recorded at question 62)

Q63 Applied if the 'mother' was currently working or if she had a job which she was away from last week, unless she was on maternity leave Includes 'mothers' on unpaid sick leave, those on the books of an agency, but not working, those taking unpaid holiday leave, etc

Q66 If, for example, the child went to nursery school for the hours the mother worked then code 2 applied.

Q67 If the child was cared for by more than one person while the mother was at work all those who looked after the child were recorded in the first column, and the main carer of the child was recorded in the second column.

Q68 Card C (see *Appendix A*) lists a number of different childcare arrangements. The mother (figure) was asked which, if any, of these the child currently attended. The mother (figure) was instructed to include any children's group or childcare arrangement that she had already mentioned at Q67.

Qs 69 - 74 These questions relate to the child's father, or male parent-figure. If there was no father or male parent-figure in the household, then these questions were asked in respect of the head of the household, who may be female, for example, the child's grandmother. The questions did not apply if the mother was a single parent, living with just her child(ren); the mother would be the head of household and details of her economic status would already have been collected.

Q74 Details about the father's/HOH's current job were collected; note the difference from information collected for mother. If the father/HOH was currently working, details of that job were recorded; if (s)he had more than one job at the time details of the most remunerative were recorded. If (s)he was not currently working, details were recorded about the last job; if (s)he was waiting to take up a job, details were recorded about the 'new' job.

Q75 The person numbers for the mother and father (figures) were copied from the household box.

Q76 Card D (see *Appendix A*) contains a list of qualifications from which the informant selected the appropriate category. The interviewer confirmed with the informant that they had not got any of the qualifications on the card which were listed above the one they mentioned.

Q78 The following answers were probed by the interviewer:

United Kingdom or Great Britain: code England, Scotland or Wales

Ireland: code Northern, or specify Southern.

Q79 This is an opinion question. The mother (figure) was given card E (see *Appendix A*) and asked which ethnic group she considered herself to belong to.

Q79(a) Applied if the main question was answered 'Black -Other'; 'None of these'; or 'Mixed origin', code 9 applied.

Q83 Card F (see *Appendix A*) was given to the informant who was asked to read out the letter which corresponded to the total gross household income.

3.1.2 Office coding of the main questionnaire

Additional coding of some of the questions asked in the main questionnaire took place back at the office The following are the coding frames used to code answers to questions which were not pre-coded

Household box

Relationship of child

Mother/stepmother/adoptive mother	01
Father/stepfather/adoptive father	02
Grandmother	03
Grandmother	04
Sister	05
Brother	06
Other relative	07
Other non-relative (excluding 9 & 10)	08
Foster mother	09
Foster father	10

Age

babies under 1 year = 00
adults over 99 years = 99

Q14(b) This question was multi-coded

hyperactivity/behavioural problems or changes	01
rash/blotches all over	02
eczema	03
asthma/wheeze	04
upset stomach/diarrhoea/vomiting	05
swelling to the neck/face/hands	06
itching (not due to eczema or itchy eyes)	07
weight loss/failure to thrive	08
runny nose/itchy or sore eyes/nasal symptoms	09
other	10

Q18 Includes in code 1 flask with straw, beaker with straw Where multi-coding occurred priority was given to code 1 or 4 over any other code, code 1 had priority over code 4 Code 2 had priority over code 3

Q22(b) Herbal teas and herbal infant drinks were coded using the food code list (see *Appendix E*)

Q25(b) See Figures 3 1 for coding frame for artificial sweeteners

Q26 New code 5 - varies/sometimes/occasionally

Q31 Single coded in priority order.

Code 1 took priority over codes 2 and 3. Codes 1-3 took priority over everything else. Code 99 had least priority.

Grown without pesticides and without artificial fertilizers	01
Grown without pesticides	02
Grown without artificial fertilizers	03
Free range	04
A health food	05
Something else	06
Don't know/don't understand/no answer	99

Q32 Organic fruit includes fruit juice.
Organic cereals includes bread.

New codes: code 6 = diary products, e.g. milk, yoghurt (excludes eggs)
code 7 = eggs (free range)

Q38 Includes prescribed and non-prescribed supplements.
Excludes food or drink fortified with vitamins or minerals.

Q39 Frequency with which the child is given the supplement:

More than three times a day	22
3 times a day	21
2 times a day	14
once a day	07
6 times a week	06
5 times a week	05
4 times a week	04
3 times a week	03
2 times a week	02
once a week	01
less than once a week	00
don't know/know answer	99

Q54 Code 04 includes: infant formula and follow on milks
Code 06 includes: infant formula and follow on milks purchased as made up
New code 07: Soya milk
New code 08: Cows milk - fat content unknown

Q58 Code 3 = away from job last week for reasons other than maternity leave, e.g. sick or on holiday.

Code 2 includes on a career break and non-paid work.

Q64 98 or more hours = 98

Don't know/no answer = 99

Q67 Code 09 includes au pairs

Q68 Excludes individuals e g relatives or friends
sports and recreational activities - unless organised as 'day care' groups
speech therapy
sunday school

Q68(a) If the child attended less than once a week this was coded as once a week

If the situation was different in term-time to holiday time, then the interviewer asked about the current situation

Q75 Code 7 includes 19 years or over

Q76 Non-UK qualifications were included where the equivalent UK qualification appeared on the list

Q77(a) No answer or don't know coded as 99

3.2 Anthropometric measurements coding instructions

Reasons for refusals

Child uncooperative/wouldn't keep still/niggly and irritable	2
Equipment faulty or unavailable	3

For weight measurement

Child in wet nappy, so weight not taken (includes both wet terry and disposable nappy)	4

Special circumstances

Interviewers were asked to record any special circumstance which they felt might have affected the accuracy of the measurement

M1(e)
New codes

Wearing wet nappy	4
Child wouldn't keep still/uncooperative	5
Wearing heavy clothes (includes jumpers, shoes etc)	6
Other people did the weighing	7

M2(d)

New codes:

Very thick hair	2
Child wouldn't keep still/uncooperative	5
Other people did the measuring	7

M3(d)

New codes:

Child wouldn't keep still/uncooperative	5
Other people did the measuring	7

M4(e) and M5(e)

New codes:

Child wouldn't keep still/uncooperative	5
Other people did the measuring	7

Depending on what was coded at these 'special circumstances' questions, a derived variable was created which indicated whether the measurement was 'acceptable' or not. This derived variable was named INVAL. There is one INVAL variable per measurement; INVAL1 applies to weight, INVAL2 applies to head circumferences etc. The grid used to calculate INVAL for each measurement is reproduced in *Section 4*.

3.3 Follow-up interview coding instructions

3.3.1 Instructions to interviewers

If a full or partial dietary record was kept:

> the follow-up questionnaire was asked at the end of the 4-day dietary recording period.

If the dietary record was refused:

> the follow up questionnaire was asked immediately following the end of the preliminary interview: question F23 about prescribed medicines applied to all.

If a full or partial dietary record was kept then the interview was conducted with the person who mainly kept the home record.

If the dietary record was refused, then the informant for the preliminary interview was asked the few questions that applied on this questionnaire.

F1 Applied to all.

If the dietary record was refused only question F23 applied.

F6 What was of concern was whether the recorder regularly forgot to weigh a particular food.

In the course of the interviewer coding the diary he/she may have already found items which had not been weighed These would have been entered in the dietary record If estimated weights were given, a tick would have been entered in the *estimated weight column*, otherwise a description of the quantity would have been included as part of the food description All such entries would have been flagged for the attention of the nutritionist at HQ Such items were recorded at this question

Any other items identified at F6(b) were **not** added to the dietary record with the exception of any medicines or food supplements

F9 If there were **never** any leftovers code 1 applied

F10 If food was **never** wasted and/ or **never** eaten by someone else, code 1 applied

F20(a) If the child was unwell on <u>any</u> day during the recording period then this question applied If the child was not unwell on a particular day code 9 applied, code 8 applied if the diary was not kept that day

If the child was not unwell on <u>any</u> of the 4 diary days then code 1 applied

F20(b) Code 1 or 2 was rung only in columns for days when the child was unwell

F23 <u>Applied to all, including those who refused to keep a dietary record</u>

Any prescribed medicine <u>taken by mouth</u>, including inhalers was recorded in the dietary record Fluoride, vitamin and mineral supplements were recorded here as well as at Q39 If these were taken by mouth they were also recorded in the dietary record

If a full or partial dietary record was kept

> interviewers asked about any prescribed medicines taken by the child <u>since the start of the dietary record</u> Interviewers were asked to check this information with the dietary record, to check that medicines had been recorded if taken by mouth

If the dietary record was refused

> interviewers asked about any prescribed medicines being taken by the child <u>at present</u>

Prescribed medicines included all prescribed drugs being used, not just those being taken by mouth, it included creams, lotions, drops and sprays (for example for eyes, ears or nose) inhalers and injections

F23(a) Details of each prescribed medicine were recorded from the container or packaging wherever possible, to reduce errors The product licence number was also recorded where available

F26 This question was completed after the dental recall questions had been asked at the final call. The interviewer copied the code rung at question 1 on the dental recall sheet. If the dental recall questions were not asked the interviewer was asked to specify the reasons at F26(a).

3.3.2 Office coding of the follow-up interview

F1 New code:

Diary rejected by nutritionists	9

F3 New codes:

Friend	7
Nursery/playgroup helper	8

F6(a) Include in code 2: twice a day

F9 & F10 If never any leftover, or never happened code 1 applied.

F20/20(a) New codes:	F20	F20(a)
Colds/flu/sore throat/runny nose	line 5	code 5
Ear infections	line 6	code 6

Code 4 includes: asthma, fevers, headaches, and descriptions describing the child as being out of sorts.

F23 The coding of medicines was based on the British National Formulary[2] (BNF). Each medicine was looked up in the BNF to find out which classification group or subgroup it was listed under. The group or subgroup was then converted to a code.

Main group description	Group/subgroups (as BNF class)	Code
Gastro-intestinal	1.1 - 1.9	01-09
Cardiovascular	2.1 - 2.9	21-29
	2.10 - 2.13	20
Respiratory system	3.1 - 3.9	31-39
	3.10	30
CNS	4.1 - 4.9	41-49
	4.10	40
Infections	5.1 - 5.5	51-55
Endocrine system	6.1 - 6.7	61-67
Obst. gynae & urinary tract	7.1 - 7.5	71-75
Malignant disorders & immuno -suppression	8.1 - 8.3	81-83
Nutrition & blood	9.1 - 9.8	91-98
Musculoskeletal & gout	10.1 - 10.3	11-13
Eye	11.1 - 11.9	50
Ear, nose & oropharynx	12.1 - 12.3	58-60

Skin	13 1 - 13 14	70
Vaccines	14 1 - 14 6	80
Anaesthesia	15 1 - 15 6	90
Not known/inadequately		99

3.4 Dietary record coding instructions

3.4.1 Interviewer coding of the dietary record

Interviewers were trained in recognising the detail required for coding foods of different types at the briefing and by exercises they had completed before the briefing

A food code list giving code numbers for about 3000 items and a full description of each item was prepared by nutritionists at MAFF for use by the interviewers The list was organised into sections by food type, for example milk and cream, soft drinks, breakfast cereals, fruit, vegetables and different types of meat Interviewers were also provided with an alphabetical index to help them find particular foods in the code list Additional check lists were provided to assist the interviewers when coding fats and soft drinks and these are reproduced in *Appendix A*

As fieldwork progressed, further codes were added to the food code list for recipes and new products found in the dietary records, by the end of fieldwork there were approximately 3600 separate food codes The food code list is reproduced in *Appendix E*

Brand information was collected for all food items bought pre-wrapped, as some items, such as biscuits and breakfast cereals could not be easily food coded unless the brand was known However brand information was only coded for artificial sweeteners, mineral waters, herbal teas and herbal infant drinks and soft drinks, to ensure adequate differentiation of these items

After the interviewers had coded the entries in the dietary records, the documents were checked by OPCS headquarters coding staff OPCS and MAFF nutritionists dealt with specific queries from interviewers and coding staff, and advised on and checked the quality of coding, further details of which are described in *Section 4* They were also responsible for converting descriptions of portion sizes to weights, and checking that the appropriate codes for recipes and new products had been used

Use of flags

The following is a list of situation in which interviewers were to flag items for the attention of the nutritionists, these were subsequently resolved by the nutritionists, with advice from MAFF where necessary

- any item not weighed weight estimated from standard portions or description
- any item where the quantity was not in grams - for example drops/teaspoons/fl ozs

quantity converted to grams or standard units

- recipe items: compared with standard recipe; existing code used or new code generated. (For further details refer to *Section 3.4.3*)

- composite items: split into constituent parts

- cumulative weights: split between items

- artificial sweeteners: quantities converted to standard units. (For further details refer to *Section 3.4.2*)

- foods not found in the food code list: new code generated, or coded to existing code if composition sufficiently similar

- interviewer queries on weights or food or brand codes: checked

- any item where an estimated weight (or amount) was recorded: checked against a standard portion or description

- any brands not listed in the brand code list: new code generated, or coded to existing code if composition sufficiently similar

- any medicines: checked it was taken by mouth; standard weight of 1 gram entered in column G

- any vitamin, mineral or fluoride supplements: standard weight entered. (For further details refer to *Section 3.4.2*)

- items which could not be weighed, for example because they were too light to register on the scales: standard weight of 1 gram entered

- all cases where some of the item had been lost or spilt and could not be re-weighed (such losses would have been recorded in column J of the home record): weights of food items which were spilt etc were amended according to the description in column J. For example, if half the toast served was eaten by the dog the weight in column G of the home record diary for toast was halved.

3.4.2 Office coding of the home record diary

Coding of day order and day of week

Day order starts with day one and, if the informant kept a complete diary, ends on day 4.

Day of the week was coded according to the following coding frame:

Sunday	01
Monday	02

Tuesday	03	
Wednesday	04	
Thursday	05	
Friday		06
Saturday	07	

Whether child was unwell indicator

The code applied to a day and thus where a child started off being ill and got better as the day continued or visa-versa, illness (code 2) took priority

If neither code had been rung reference was made to question F26b in the follow up questionnaire to input a value for WELL

Food eaten at home/ away from home

Food could either be eaten at home (code 1) or eaten outside the home (code 2)

It should be noted that the code applies to where the food was eaten, for example a takeaway brought home and weighed would be recorded as eaten at home whereas a packed lunch made at home and eaten away from the home would be coded as being eaten outside the home

Food weighed by the mother/other

Code 1 applied not only to the mother but to the father or other parent figure

Code 3 applied when food or drink was recorded in the eating out diary, and therefore had not been weighed

Artificial sweeteners

These were converted to a standard quantity depending upon the form the sweetener took Figure 3 2 shows the conversions factors used depending upon whether the sweetener was a granular, tablet or minicube, or liquid

Vitamin, mineral and fluoride supplements

As with artificial sweeteners, supplements were converted to a standard quantity depending on the form the supplement took Figure 3 3 shows the conversion factors used depending on whether the supplements was a tablet, liquid or powder

3 4.3 Recipe items

The letter 'R' next to some food codes in the food code list indicates that the code could be used if the informant had made the dish themselves All recipe items were flagged for the attention of the nutritionists Informants were asked to record details of the type and quantity of ingredients used on the back of the preceding diary page Interviewers were asked to

check this information had been recorded.

The informant's recipe was then compared by the nutritionist with the standard recipe provided by MAFF. The code for a standard recipe was only used if:

- the recipe was of a similar composition; it contained the same ingredients in similar proportions; or

- the recipe was different to the standard recipe but only a small quantity was consumed; or

- any difference in ingredients made no significant nutritional difference.

If the informant's recipe could not be coded to a standard recipe then a new recipe code was assigned.

3.5 Bowel movements card coding instructions

If the card was not kept, or the diary was rejected by the nutritionists, code 1 in the 'Office Use Only' box was rung.

The bowel movements card was kept over the same 4 days that the dietary record was kept.

The days were coded as follows:

Sunday	1
Monday	2
Tuesday	3
Wednesday	4
Thursday	5
Friday	6
Saturday	7

3.6 Blood questionnaire coding instructions

Interviewers and blood takers attended a half day personal briefing and were given written instructions on the procedures to be followed when obtaining parental consent and attempting to take a venous blood sample. These are described in *Section 2*. It was stressed to both interviewers and blood takers the importance accurate labelling of the sample tubes.

B1 New code:
Blood not mentioned because no blood taker available/
ethical approval not obtained 05

B7 If attempts to take blood were made on separate days, the most recent date was taken. Note: only two attempts at taking blood could be taken by the blood taker.

B11 If the amount of blood taken was recorded to a part of a ml it was coded as follows

1ml < 2ml = 1
2ml < 3ml = 2
3ml < 4ml = 3
4ml < 5ml = 4
< 1ml = 8
none = 9
Note a maximum of 4ml of blood could be taken

References and notes

1 Head of household is defined in the Glossary

2 BNF ref to include

Figure 3.1 Brand codes used to code artificial sweeteners recorded at question 25

Tablets or minicubes

Code	Description
51	Canderel (tablets or minicubes)
52	Flix (tablets or minicubes)
53	Hermesetas Blue
54	Hermesetas Gold
55	Hermesetas Light (tablets or minicubes)
56	Medicare (tablets or minicubes)
57	Natrena
58	Natriblend
59	Saxin
60	Shapers (tablets or minicubes)
61	Shapers with Nutrasweet (tablets or minicubes)
63	Sweetex (tablets or minicubes)
64	Sweet 'n' Low (tablets or minicubes)
65	Ti 'Light (tablets or minicubes)

Granulated

Code	Description
66	Canderel Spoonful
67	Flix granulated
68	Hermesetas Light (granulated)
82	Hermesetas Original (granulated)
69	Hermesetas Sprinkle-Sweet
79	Medicare (granulated)
70	Shapers Sugar Lite (granulated)
71	Sionin
72	Sucron
80	Sweetex (granulated)
73	Sweetex with Natriblend (granulated)
81	Sweet 'n' Low (granulated)
74	Sweet 'n' Slim
75	Ti' Light (granulated)
76	Trimspoon

Liquids

Code	Description
77	Hermesetas Liquid
78	Sweetex Liquid Sweetener

Own Brands

Code	Description
01	Asda
02	Bejam
03	Best Buy
04	Boots (NOT Shapers)
05	Budgen
06	Co-op
07	Family Choice
08	Fine Fare
09	Gateway

10	Hillards
11	Iceland
12	Londis
13	Mace
14	Morrisons
15	My Mums
16	Peacocks
17	Presto
18	Safeway
19	Sainsbury
21	Spar
20	St Michael (Marks and Spencer)
25	Superdrug
22	Tesco
23	VG
24	Waitrose
00	Other brand
99	DK/NA

Figure 3.2 **Conversion factors used for artificial sweeteners**

Type of artificial sweetener and units recorded in the home record diary	Quantity to be recorded as:
Granulated sweetener	
1 teaspoon (5ml)	1
0.5 grams	1
½ sachet of Sweet 'n' low	1
2 teaspoons	2
1 gram	2
1 sachet of sweet 'n' low	2
3 teaspoons	3
1.5 grams	3
1 tablespoon	3
Tablet or minicube sweetener	
Each tablet or minicube	1
Liquid sweeteners	
Each drop	1
1 teaspoon (80 drops)	80

Figure 3.3 Conversion factors used for dietary supplements

Type of supplement and units recorded in the home record diary	Quantity recorded in weight column as:
1 tablet	1
1 teaspoon	1
1 drop 10 drops = 1 dropperful	1 10

Section 4 Database structure, derived variables and contents of SPSS files

4.1 The SIR database structure

There are 8 SIR database files, two for each of the four waves of fieldwork Both of the files for a particular wave contain core data (questionnaire and blood data) File WnMAINEXP also contains some diary data, WnDIAREXP contains all diary data

The database is organised into hierarchies reflecting the different levels of data collected in this survey Each level of the hierarchy is a separate file on the database, known as a record type and contains a number of key variables which link the data on one file with another The key variable used on this survey was CASEID which is a unique case identifier DAYNO, which identifies which of the four diary days the data refers to, was used as a link variable for many of the record types containing dietary data Figure 4 1 lists the record types, giving a description of the data held on each, and how many cases each wave's database contains for the main record types

The 'master schedule' showing the variable names, range of values, and position of the variable on the database is reproduced in *Appendix H* Some information was not keyed into the database This is indicated on the master schedule

NA refers to 'no answers' These were assigned a -8 code DNA refers to 'does not apply' Where a question did not apply to a certain group of people, a -9 code was assigned For example, C11 is a filter question, those answering yes are asked a subsequent question at C11a Those who answer no go on to C12 Therefore C11a does not apply to those answering no at C11 The number of cases coded -9 (DNA) at C11a should therefore equal the number of cases coded 2 (no) at C11

4.2 Quality checks

A number of quality checks were carried out on the data, throughout the data collection process, at the coding stage, data entry stage and thereafter

Interviewers were trained in the data collection methods required, and in the coding of the dietary record and the taking of anthropometric measurements

Once they had coded their first diary this was sent back to the nutritionists at OPCS who did a 100% coding check Any problems were fed back to the interviewer

At the office a number of other quality checks were made at the coding stage to check the consistency of answers For example, if at F23 the child had been ill over the recording period, and this illness had affect the child's appetite, coders were advised to check that in the dietary record the WELL variable had been coded correctly

Nutritionists did 100% coding checks on all dietary records for a number of different food groups These were

milk
soft drinks
fat spreads
breakfast cereals
yoghurts
liver
dietary supplements

Nutritionists also checked any queries that had been flagged by the interviewers regarding the correct coding of a food item, or the weight of a food item.

The data were then keyed into the database using double key verification to reduce keying errors.

A number of computer edit were then run. These fell into two categories;

- continuity checks which check the routing shown in the questionnaire has been followed correctly; and
- consistency checks which check the 'logic' of answers; for example that the mother of the child is female; that data are within expected ranges.

A number of nutrition edits, in particular on food and nutrient intake ranges were run to check the calculation of the amount of food consumed by the child and the child's nutrient intake. Errors identified were corrected.

During the editing process some diary derived variables were created which were required in the calculation of weights of food consumed and nutrient intakes at food and day level. For example, the weight of leftovers was calculated and then used to calculate the weight of food consumed by the child. If a tick appeared in the diary in the leftover column next to a particular food and this was the only food item to have been left then the weight of food consumed would equal the weight of food served minus the weight of food left. If more than one item of food was left by the child then the total weight of leftovers was distributed between the food items in the same proportions as the food items were served. Weight consumed has to be calculated so that, for example, the amount of calcium obtained from cheese consumed by the child on a particular diary day can be calculated. These derived variables were checked and cases which were out of range investigated.

Once the data had been 'cleaned' derived variables were created and added to the database. The specifications for these are reproduced in *Appendix I*. The programmes for creating these were fully tested, and frequencies were checked to make sure all cases were accounted for, and had been assigned the correct code or value.

4.3 Blood data

As mentioned in *Section 2* a blood sample was taken from children whose parents gave written consent. A maximum of 4ml of blood could be taken. Depending on the amount of blood obtained a number of analytes were measured. The analytes were ordered to take account of technical constraints and nutritional interest. Figure 4.2 shows the analytes in order of analytic priority.

The first priority for blood analyses was providing 1ml of whole blood for haematology assays It was hoped that once these were completed residual plasma could be used to assay a number of minerals of nutritional and toxicological interest In practice the level of incidental trace element contamination of the plasma sample during processing was too great to give reliable results from the residuum of the sample Remaining blood, after the removal of the first 1ml, was used for nutrient assays shown in Figure 4 2

If less than 4ml was obtained, the sample of blood was exhausted during the assays accorded a high priority and thus less than the full total of analyses was done For this reason, the number of cases with a value for each analyte varies

The lowest priority was given to the determination of immunoglobulin levels The small number of children for whom these levels were measured (just over 100) reflects the limited volume of blood taken from some children and mean levels are shown only for the total group of children Residual bloods after all assays had been completed were stored

A small number of samples were not analysed for reasons such as clotting, incorrect storage or undue delay in reaching the laboratory Additionally there were 29 cases where although some analyses were carried out on the sample provided, on the advice of the laboratory, for quality control reason, there is reason to doubt the validity of the value obtained A quality control indicator is contained on the database for each analyte quality control variables are prefixed by the letter Q If the indicator is equal to 1 then the value is suspect

Information was recorded at the time of the survey interview on any prescribed medicine being taken by the child For each drug identified, checks were subsequently made, in all cases with the pharmaceutical manufacture, to establish whether the drug was likely to have any interaction that would affect the results of any of the full range of blood analytes being carried out None of the medicines was identified as having any interaction with the blood analytes being measured Hence it is not necessary to exclude any results

For further information on the procedures for obtaining blood samples refer to Appendix L of the *National Diet and Nutrition Survey: children aged 1½ to 4½ years Report, Volume 1* [1] Appendix N of the aforementioned report contains details of the assay techniques used and the quality assurance procedures

4 4 Nutrient databank

Intakes of nutrients were calculated from the records of food consumption using the MAFF nutrient databank, developed for the *Dietary and Nutritional Survey of British Adults*[2] This was revised for this survey of children aged 1½ to 4½ years Some nutrients were added, some nutrient values were updated and many more new codes were added to accommodate foods and drinks consumed by this age group The databank now contains information on nearly 3600 foods and drinks, including manufactured products and recipe dishes, many soft drinks and children's vitamin and mineral supplements

Each food on the databank has values assigned for 54 nutrients and energy The nutrient values assigned to the foods on the databank are based on *McCance and Widdowson's The Composition of Foods*[3] and its supplements MAFF has an ongoing programme of nutritional

analysis of foods and a project was commissioned to analyse foods consumed by children of this age as identified in the feasibility study for the survey[4]. Data obtained from food manufacturers were also used, as was nutritional information given on labels. All data were carefully evaluated before being incorporated onto the databank.

During the survey fieldwork period the range of foods included in the databank were extended as new products with different nutrient contents were consumed by children, for example, fortified soft drinks.

For dietary supplements information was collected on the brand name, type (tablets, drops or syrup), strength, and quantity of each supplement taken over the four-day dietary recording period. Each supplement was coded. Manufacturers' data were applied to each individual supplement taken by the child in the survey and the total nutrients provided by the supplements was calculated.

Figure 4.3 gives details of the nutrients measured and units of measurement.

The nutrient databank also contained a variable, DILUTE, which was usually 1. However for items such as beverages and fruit squash, which were recorded in the diary as either 'dry weight', for example instant coffee, or as the weight of a concentrate, for example orange squash, DILUTE will be greater than 1. The weight of food consumed was multiplied by DILUTE, and thus in cases where dilute was greater than 1, it converted items to a 'made-up weight'. This has resulted in fluid consumption being overestimated, as the water used to dilute the concentrate or dry weight was also recorded in the diary.

4.5 SIR derived variables

There were two main types of derived variable produced; questionnaire derived variables and dairy derived variables.

Questionnaire derived variables

Appendix I lists all questionnaire derived variables and provides details on their specification. This section gives further information on the derivation of particular variables.

The quality assurance indicators for the anthropometric measurements taken are M1INVAL to M5INVAL. Figure 4.4 shows which circumstances recorded at the appropriate question on the questionnaire meant that the measurement was not thought to be reliable and therefore should not be used in analysis for the *NDNS: children 1½ to 4½ years Report, Volume 1.*

AGEGROUP - children aged under 1½ years of age are included in the category 1½ to 2½ years, and children aged over 4½ years of age are included in the category 3½ to 4½ years. (For an explanation of why this survey contains children aged under 1½ years and over 4½ years please see *Appendix C*).

REGION uses the first part of CASEID; a look-up table is provided (see Figure 4.5).

AGECLT2 to AGECLT11 - these variables should not be used.

AGECLT16 indicates the age of the oldest child in the household

Diary derived variables

Diary derived variables build upon each other into higher levels of aggregation At the diary editing stage a number of derived variables were produced which calculated nutrient intakes at the food and day level, and quantities of each food consumed These forming the building blocks for other derived variables which express nutrient intakes at the weekly level and quantities of food consumed at the daily and weekly level

As discussed in *Section 2*, it was decided that the dietary recording period should be four days, covering both Saturday and Sunday However nutrient intakes and quantities of foods consumed are normally expressed as weekly amounts Therefore nutrient intakes and quantities of foods consumed per day were weighted to represent seven days An indicator on the database, WEEKEND, was used to identify diary records containing both weekend days (Saturday and Sunday), one weekend day (either Saturday or Sunday), or no weekend days The calculations were only done on three and four day diaries containing at least one weekend day The calculations are shown in *Appendix I* The weighting pattern assumes that the consumption pattern on the three (non-recording) weekdays will be the same as on the two (recording) weekdays, information on the two weekend days is not subject to any weighting The secondary analyst should bare in mind this assumption when interpreting food consumption data which has been weighted to seven days (for further details refer to *Chapter 4 of the NDNS children 1½ to 4½ years Report, Volume 1*)[1]

Each food code was allocated by MAFF to one of 99 food subgroups, these food subgroups can be collapsed into 54 food groups, which in turn can be grouped into 12 food types The complete list of food types, groups and subgroups, with examples of the types of foods included in the food groups, is given in *Appendices F(i) and F(ii)* For 34 of the nutrients measured in this survey, average daily nutrient data is provide by food subgroup

All data on the SIR database, except the blood data, are held as integers Thus to obtain the correct level of measurement of a particular nutrient or quantity the user must divide the value by the appropriate factor Figure 4 6 shows what division factors should be used for particular derived variables

NOTE Total daily nutrient intake (TDNUT(s)) and average daily intake (ADNUT(s)) data was calculated to an accuracy of 5 decimal places However the data was stored to 4 decimal places

4.6 SPSS file structure

The content of the SPSS save files was determined by the analysis required for the *National Diet and Nutrition Survey children aged 1½ to 4½ years Report, Volume 1*[4] Only average daily nutrient intakes and food consumption data weighted to seven days were included on the save files There are 41 SPSS files

SCHEDS1 - contains questionnaire data (excluding the household grid, information on dietary supplements and prescribed medicines), anthropometry and blood questionnaire information

SCHEDS3 - contains all blood analyte data

PERSON - contains household grid information

SUPPMENT - contains questionnaire data on dietary supplements (C40)

MEDICINE - contains questionnaire data on prescribed medicines (F23)

DIARY - contains average daily nutrient and energy intake data, frequency of consumption of sugary foods and % energy from particular nutrients

QUANT - contains food consumption data weighted to seven days

GROUPnn - contains average daily nutrient intake data for particular nutrients by food subgroup

Each file has a number of 'header' variables, which are common to all files. These are:

CASEID
AGE2
CSEX
M1WT1
MIWT2
M4HT1
M4HT2
M5LN1
M5LN2
REGION
FTYPE1
M1INVAL
M4INVAL
M5INVAL
C38
DAYSAFTR
BLOODIND
DIARYIND
WELL1 TO WELL4

DIARYIND AND BLOODIND were created when the SPSS save files were produced. These variables identify which cases on a particular save file have diary data or blood data.

NOTE: diary data contained on SPSS savefiles only contains cases where a four-day dietary record containing both weekends (WEEKEND = 1) was obtained.

4.7 SPSS derived variables

A number of derived variables were created in SPSS for use in the *National Diet and Nutrition Survey: children aged 1½ to 4½ years Report, Volume 1*. The specification for

these variables is reproduced in *Appendix I* The variables have been saved on to SCHEDS1

AGEGROUP
NREGION
WAVES
HOHSOCL
HOHSOCL1
EMPST
EMPST1
BENEFIT
MUMHIQAL
MUMQAL1
MSMOKING
DSMOKING
AVBOWEL
INCOME
KIDCARE
SNACKOUT
EATOUT

References and notes

1 Gregory JR Collins DL Davies PSW, Hughes JM Clarke PC *National Diet and Nutrition Survey children aged 1½ to 4½ years Volume 1 Report of the diet and nutrition survey* HMSO (London, 1995)

2 Gregory J Foster K Tyler H Wiseman M *The Dietary and Nutritional Survey of British Adults* HMSO (London 1991)

3 Holland B Welsh AA Unwin ID Buss DH Paul AA Southgate DAT *5McCance and Widdowson's The Composition of Foods* 5th edition HMSO (London 1991)

4 White AJ Davies PSW Feasibility Study for the National Diet and Nutrition Survey of children aged 1½ to 4½ years OPCS (London 1994) (NM122)

Figure 4.1 SIR database structure

Record No.	Record description	Wave 1		Wave 2		Wave 3		Wave 4	
		No. cases	File location	No. cases	File location	No. cases	File location	No. cases	File location
1	Toddler (case, C & Z schedules)	428	W1MAINDB/ W1DIARDB	472	W2MAINDB/ W2DIARDB	503	W3MAINDB/ W3DIARDB	458	W1MAINDB/ W1DIARDB
2	Day (diary)	1535	W1MAINDB/ W1DIARDB	1758	W2MAINDB/ W2DIARDB	1867	W3MAINDB/ W3DIARDB	1688	W4MAINDB/ W4DIARDB
3	Plate (diary)	18233	W1DIARDB	20132	W2DIARDB	22202	W3DIARDB	20046	W4DIARDB
4	Food item (diary)	32426	W1DIARDB	36028	W2DIARDB	40254	W3DIARDB	36298	W4DIARDB
5	Mother (C schedule)	424	W1MAINDB	472	W2MAINDB	503	W3MAINDB	458	W4MAINDB
6	Father (C schedule)	338	W1MAINDB	402	W2MAINDB	416	W3MAINDB	401	W4MAINDB
7	Blood analytes data	215	W1MAINDB/ W1DIARDB	273	W2MAINDB/ W2DIARDB	255	W3MAINDB/ W3DIARDB	241	W4MAINDB/ W4DIARDB
8	Dental questionnaire	379	W1MAINDB	416	W2MAINDB	455	W3MAINDB	408	W4MAINDB
11	Food frequency data (C schedule)	426	W1MAINDB	472	W2MAINDB	503	W3MAINDB	458	W4MAINDB
12	Supplements data (C schedule)	118	W1MAINDB	144	W2MAINDB	148	W3MAINDB	117	W4MAINDB
13	Childcare (C schedule)	231	W1MAINDB	337	W2MAINDB	352	W3MAINDB	325	W4MAINDB
14	Medicine (C schedule)	60	W1MAINDB	62	W2MAINDB	85	W3MAINDB	68	W4MAINDB
15	Bottle (dental q'nnaire)	326	W1MAINDB	379	W2MAINDB	379	W3MAINDB	362	W4MAINDB

Record No.	Record description	Wave 1		Wave 2		Wave 3		Wave 4	
		No. cases	File location	No. cases	File location	No. cases	File location	No. cases	File location
16	Dinky (dental q'nnaire)	79	W1MAINDB	95	W2MAINDB	58	W3MAINDB	65	W4MAINDB
17	Dummy (dental q'nnaire)	186	W1MAINDB	238	W2MAINDB	238	W3MAINDB	220	W4MAINDB
20	Person (C schedule household box)	1270	WIMAINDB	1460	W2MAINDB	1520	W3MAINDB	1352	W4MAINDB
21	Toddler level DVs	426	W1MAINDB/ W1DIARDB	472	W2MAINDB/ W2DIARDB	503	W3MAINDB/ W3DIARDB	458	W4MAINDB/ W4DIARDB
22	Toddler level DVs	426	W1DIARDB	472	W2DIARDB	503	W3DIARDB	458	W4DIARDB
23	Toddler level DVs	426	W1DIARDB	472	W2DIARDB	503	W3DIARDB	458	W4DIARDB
24	Toddler level DVs	426	W1DIARDB	472	W2DIARDB	503	W3DIARDB	458	W4DIARDB
25	Toddler level DVs	426	W1DIARDB	472	W2DIARDB	503	W3DIARDB	458	W4DIARDB
26	Toddler level DVs	426	W1DIARDB	472	W2DIARDB	503	W3DIARDB	458	W4DIARDB
30	Nutrient lookup table (supplied by MAFF)	3435	W1DIARDB	3521	W2DIARDB	3589	W3DIARDB	3633	W4DIARDB

Figure 4.2 Blood analytes in order of priority for analysis

Analyte variable name	Description	Unit of measurement	Conversion from SI units (factor)	Resulting metric units
	Haematology			
HAEMOGLO	Haemoglobin	g/dl	*	*
MCV	Mean corpuscular volume	fl	*	*
HCT	Haematocrit	l/l	*	*
MCH	Mean cell haemoglobin	pg	*	*
MCHC	Mean cell haemoglobin concentration	g/dl	*	*
FERRITIN	Ferritin	µg/l	*	*
ZPP	Zinc protoporphyrin	µmol/mol/haem	**	**
	Water soluble vitamins and plasma zinc			
PLASMAFO	Plasma folate	nmol/l	x0 441	µg/l
VITAMB12	Vitamin B_{12}	pmol/l	x1 357	ng/l
EGRAC	EGRAC(the erythrocyte glutathione reductase activation coefficient)	ratio	***	***
PLSMAZN	Plasma zinc	µmol/l	x0.065	mg/l
	Fat soluble vitamins and caroteniods			
RETINOL	Plasma retinol	µmol/l	x0 286	mg/l
ALPHACAR	α-carotene	µmol/l	x0 537	mg/l
BETACARO	ß-carotene	µmol/l	x0 537	mg/l
ALPHACRY	α-cryptoxanthin	µmol/l	x0 552	mg/l
BETACRYP	ß-cryptoxanthin	µmol/l	x0.552	mg/l
LYCOPENE	Lypocene	µmol/l	x0 537	mg/l
LUTEIN	Lutein	µmol/l	x0 569	mg/l
PLSMA25H	Plasma 25-hydroxy vitamin	nmol/l	x0 400	mg/l
ALPHATOC	D	µmol/l	x0 552	
GAMMATOC	α-tocopherol	µmol/l	x0 417	mg/l
	τ-tocopherol			mg/l
	Blood lipids			
TRIGLYCE	Plasma triglycerides	mmol/l	****	****
CHOLESTE	Plasma total cholesterol	mmol/l	x0 387	g/l
HDL	High density lipoprotein cholesterol	mmol/l	x0 387	g/l
LDL	Low density lipoprotein cholesterol	mmol/l	*****	*****
	Acute phase proteins			
CAERULOP	Caeruloplasmim	g/l	*	*
ALPHANTI	α_1-antichymotrypsin	g/l	*	*
ALBUMIN	Albumin	g/l	*	*
REDCELFO	**Red cell folate**	nmol/l	x0 441	µg/l

Analyte variable name	Description	Unit of measurement	Conversion from SI units (factor)	Resulting metric units
VITAMINC	Plasma ascorbate	µmol/l	x 0.176	mg/l
	Immunoglobulins			
IGA	IgA	g/l	*	*
IGG	IgG	g/l	*	*
IGM	IgM	g/l	*	*

* Analyte measured in metric units.

** The metabolite ratio µmol/mol haem is the expression of choice. Porphyrin concentration units found in the literature include:

µg ZPP/dl whole blood
µg ZPP/dl RBC
µg ZPP/g haemoglobin

Direct, retrospective conversion to the ratio is not possible without haemoglobin concentration having been obtained at the time of the ZPP assay. Where this is available, the conversion becomes for example,

(µg ZPP x 64,500)÷(g Hb x 562.27 x 4)
=(µg ZPP/g haemoglobin) x 28.68
=µmol ZPP/mol haem

*** Analyte measured as a ratio.

**** Triglycerides are measured as glycerol; the molecular weight of a triglyceride molecule varies with different fatty acid constituents; conversion from SI to metric units is not appropriate.

***** Values of LDL cholesterol were not measured directly, but were estimated from the measured values for total cholesterol, HDL cholesterol and triglycerides using standard formulas.

Figure 4.3 **Details of nutrients measured and units**

Variable Number	Nutrient	Units	Notes
01	Water	(g)	
02	Sugars	(g)	total sugars, expressed as monosaccharide
03	Starch	(g)	expressed as monosaccharide
04	Dietary fibre	(g)	expressed as modified Southgate method[1]
46	Non-starch polysaccharides	(g)	expressed as Englyst method[2]
05	Energy	(kJ)	(17 x protein) + (37 x fat) + (16 x carbohydrate) + (29 x alcohol)
06	Energy	(kcal)	(4 x protein) + (9 x fat) + (3.75 x carbohydrate) + (7 x alcohol)
07	Protein	(g)	
08	Fat	(g)	
09	Carbohydrate	(g)	sum of sugars plus starch, expressed as monosaccharide equivalent
10	Alcohol	(g)	
11	Sodium	(mg)	
12	Potassium	(mg)	
13	Calcium	(mg)	
14	Magnesium	(mg)	
15	Phosphorus	(mg)	
16	Iron	(mg)	
51	Haem iron	(mg)	
52	Non-haem iron	(mg)	
17	Copper	(mg)	
18	Zinc	(mg)	
19	Chloride	(mg)	
20	Iodine	(µg)	
47	Manganese	(mg)	
21	Retinol	(µg)	sum of trans retinol + (0 75 x cis retinol) + (0 9 x retinaldehyde) + (0 4 x dehydroretinol)
22	Carotene	(µg)	largely as ß-carotene
49	α-carotene	(µg)	
48	ß-carotene	(µg)	
50	ß-cryptoxanthin	(µg)	
24	Thiamin	(mg)	
25	Riboflavin	(mg)	
26	Niacin equivalent	(mg)	niacin + (tryptophan ÷ 60)
29	Vitamin B_6	(mg)	
30	Vitamin B_{12}	(µg)	
31	Folate	(µg)	
32	Pantothenic acid	(mg)	
33	Biotin	(µg)	
27	Vitamin C	(mg)	
23	Vitamin D	(µg)	
28	Vitamin E	(mg)	
Fatty acids			
34	Saturated	(g)	
35	Cis monounsaturated	(g)	
36	Cis n-3 polyunsaturated	(g)	
37	cis n-6 polyunsaturated	(g)	
38	Trans	(g)	
39	Cholesterol	(mg)	

Sugars			
40	Glucose	(g)	
41	Sucrose	(g)	
42	Fructose	(g)	
43	Lactose	(g)	
44	Maltose	(g)	
45	Other sugars	(g)	
53	Non-milk extrinsic sugars	(g)	includes all the sugars in fruit juices + table sugar + honey + sucrose, glucose and glucose syrups added to food + 50% of the sugars in canned, stewed, dried or preserved fruits[3].
54	Intrinsic & milk sugars	(g)	includes all sugars in fresh fruit and vegetables + 50% of the sugars in canned, stewed, dried or preserved fruits + lactose in milk

1. Southgate DAT. Dietary fibre analysis and foods sources. *Am J Clin Nutr* 1978; 31: Suppl S107-S110.

2. Englyst HN and Cummings JH. An improved method for the measurement of dietary fibre as the non-starch polysaccharides in plant foods. *J Assoc Off Anal Chem.* 1988; 71: 808-814

3. Buss DH, Lewis J and Smithers G. Non-milk extrinsic sugars. *J Hum Nut & Dietetics.* 1994; 7: 87

Figure 4.4 Derivation of INVAL

M1INVAL = 1 if M1EM1-3 = 1, 3*, 4, 5* or 6

M2INVAL = 1 if M2EM1-3 = 1*, 2, 5*, or 7

M3INVAL = 1 if M3EM1-3 = 1*, 5* or 7

M4INVAL = 1 if EM4EM1-3 = 1*, 2, 3*, 4*, 5*, 6* or 7

M5INVAL = 1 if EM5EM1-3 = 1*, 2, 3, 4, 5*, 6* or 7

* In cases where one of these codes applied the case was referred to the research officer who decided whether the measurement was reliable, based on any comments the interviewer may have made on the questionnaire If the researcher decided that the measurement was unaffected the question was recoded to 9, no special circumstance, otherwise INVAL was set to 1

Figure 4.5 Look-up table for linking CASEID to Region

First 3 digits of CASEID	Region number	Region description
001	1	North - metropolitan
076	1	
051	2	North - non-metropolitan
026	2	
052	2	
002	2	
077	3	Yorkshire and Humberside - metropolitan
053	3	
003	3	
078	3	
054	3	
027	3	
028	4	Yorkshire and Humberside - non-metropolitan
004	4	
029	4	
030	5	North West - metropolitan
055	5	
079	5	
005	5	
056	5	
031	5	
006	5	
080	6	North West - non-metropolitan
057	6	
007	6	
081	6	
032	7	East Midlands
082	7	
083	7	
033	7	
008	7	
058	7	
009	7	

034	8	West Midlands - metropolitan
059	8	
010	8	
060	8	
035	8	
011	9	West Midlands - non-metropolitan
084	9	
085	9	
061	9	
012	10	East Anglia
086	10	
036	10	
062	10	
037	11	London - inner
013	11	
063	11	
014	11	
087	11	
064	12	Outer London and the South East
088	12	
065	12	
039	12	
089	12	
015	12	
038	12	
090	12	
016	12	
017	12	
066	12	
067	12	
018	12	
091	12	
041	12	
092	12	
068	12	
093	12	

019	12	
095	12	
042	12	
020	12	
043	12	
094	12	
040	12	
044	13	South West
069	13	
045	13	
070	13	
021	13	
046	13	
022	13	
096	13	
071	13	
072	14	Wales
097	14	
047	14	
073	14	
023	14	
048	18	Scotland - Highland, Grampian, Tayside
024	18	
074	19	Scotland - Fife, Central, Lothian
025	19	
098	19	
075	20	Scotland - metropolitan
099	21	Scotland - non-metropolitan
049	21	
050	21	
100	22	Scotland -Borders, Dumfries, Galloway

Regions were aggregated into four broader regions for analysis purposes as follows

18 - 22	= Scotland
1 - 6	= Northern
7 - 10, 13 - 14	= Central, South West and Wales
11 - 12	= London and South East

The constitution of the Standard Regions of England is as follows:

NORTH
Tyne & Wear Metropolitan County
Cleveland
Cumbria
Durham
Northumberland
YORKSHIRE AND HUMBERSIDE
South Yorkshire Metropolitan County
West Yorkshire Metropolitan County
Humberside
North Yorkshire
EAST MIDLANDS
Derbyshire
Leicestershire
Lincolnshire
Northamptonshire
Nottinghamshire
EAST ANGLIA
Cambridgeshire
(olk
Suffolk
SOUTH EAST
Greater London
Outer Metropolitan area:
BEDFORDSHIRE (PART)
Luton
South Bedfordshire
BERKSHIRE (PART)
Bracknell
Reading
Slough
Windsor and Maidenhead
Wokingham
BUCKINGHAMSHIRE (PART)
Chiltern
South Bucks
Wycombe
(: (PART)
Basildon
Brentwood
Castle Point
Chelmsford
Epping Forest
Harlow
Rochford
Southend-on-Sea
Thurrock
HAMPSHIRE (PART)
Hart
Rushmoor
HERTFORDSHIRE (ENTIRE)
KENT (PART)
Dartford
Gillingham
Gravesend
Maidstone
Rochester-upon-Medway
Sevenoaks
Tonbridge and Malling
Tunbridge Wells
SURREY (ENTIRE)
WEST SUSSEX (PART)
Crawley
Horsham
Mid Sussex
Outer South East Area:
BEDFORDSHIRE (PART)
Mid Bedfordshire
North Bedfordshire
BERKSHIRE (PART)
Newbury
BUCKINGHAMSHIRE (PART)
Aylesbury Vale
Milton Keynes
EAST SUSSEX (ENTIRE)
ESSEX (PART)
Braintree
Colchester
Maldon
Tendring
Uttlesford
HAMPSHIRE (PART)
Basingstoke and Deane
East Hampshire
Eastleigh
Fareham
Gosport
Havant
New Forest
Portsmouth
Southampton
Test Valley
Winchester
ISLE OF WIGHT (ENTIRE)
KENT (PART)
Ashford
Canterbury
Dover
Shepway
Swale
Thanet
OXFORDSHIRE (ENTIRE)
WEST SUSSEX (PART)
Adur
Arun
Chichester
Worthing
SOUTH WEST
Avon
Cornwall and Isles of Scilly
Devon
Dorset
Gloucestershire
Somerset
Wiltshire
WEST MIDLANDS
W Midlands Metropolitan County
Hereford and Worcester
Shropshire
Staffordshire
Warwickshire
NORTH WEST
Gtr Manchester Metropolitan Cty
Merseyside Metropolitan County
Cheshire
Lancashire

Figure 4.6 SIR dietary derived variables conversion from integers to decimal places

DV description	DV name	No. of decimal places
Total daily nutrient intake (with and without supplements)	TDNUT(S)nn	4 (divide by 10000)
Total amount of food consumed un 7 days by subgroup	WKFDnnn	1 (divide by 10)
Average daily frequency of consumption of sugary foods	ADFSGnn	1 (divide by 10)
Average daily intake of sugary foods	ADSUGnn	1 (divide by 10
Average daily nutrient intake (with and without supplements)	ADNUT(S)nn	4 (divide by 10000)
% energy from fat, carbohydrate etc	EFAT ECARBOHY etc	2 (divide by 100)
Retinol equivalents (with and without supplements)	REQUIV(S)	4 (divide by 10000)
Haem/non-haem iron ratio (with and without supplements)	IRONRAT(S)	4 (divide by 10000)
P/S ratio	PSRAT	
Nutrients from subgroups	ANnnSnnn	4 (divide by 10000)

Appendix A

Fieldwork documents

OPCS

Social Survey Division

St Catherine's House
10 Kingsway
London WC2B 6JP

Direct Dial 071 396
Switchboard 071 396 2200
or 071 242 0262
GTN 3042

Fax 071 405 3020

12 November 1992

our ref N1340/W4/0

Dear Sir or Madam

The Social Survey Division of the Office of Population Censuses and Surveys gathers information on different subjects in order to provide government departments with up-to-date information about people's views and living conditions. We have now been asked by the Department of Health and the Ministry of Agriculture, Fisheries and Food to find out about people's eating habits. To do this work properly we shall need to talk to representative samples of different kinds of people. Since we do not have information about the ages of individuals, we are asking for your help.

Your address is one of 28 000 chosen at random from a list of addresses in Great Britain. We would like you to help by filling in the form on the back of this letter, listing the sex and date of birth of everyone, including yourself, who usually lives in your household at the address shown on the label at the top of this letter. When you have completed the form I should like you to return it to us, as soon as possible, in the envelope provided (no stamp is needed).

As in all our surveys we rely on people's voluntary co-operation. Any information you give will be treated in strict confidence. The results will not be used in any way in which they can be associated with your name and address. No identifiable information will be passed to other government departments, local authorities, members of the public or the press.

Thank you for sparing the time to help us with this survey.

Yours faithfully

Janet Gregory
Principal Social Survey Officer

If no-one lives permanently at the address on the label at the top of the letter please tick one of the boxes below and return this form in the envelope provided

Address is vacant	☐	1
Address is used for business purposes only	☐	2
Other address with no permanent residents (eg holiday home)	☐	3
Address is an institution (eg hotel, nursing home)	☐	4

Please complete 1 and 2 below for everyone, including yourself, who usually lives in your household at the address shown on the label at the top of the letter.

Please include anyone who usually lives in your household but is temporarily away, for example because they are in hospital, at school or on holiday. Exclude anyone who lives somewhere else permanently.

1 How many people are there in your household living at this address?

Number

Total number of people in the household → [ ]

2 For each person in the household, including yourself, please give their sex and date of birth

	Sex (please tick)		Date of birth (enter day, month and year)		
	Male	Female	Day	Month	Year
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

3 Is any part of the address shown on the label overleaf, *separately* occupied by persons not listed above?

Yes No

Tick one box → [ ] [ ]

Please return this form as soon as possible in the envelope provided. Thank you for your help.

for office use only

Interviewer name .....

N1340/W4 **YOUNG CHILDREN'S DIETARY SURVEY**

SERIAL NO LABEL

MULTI-HOUSEHOLD (A)
SELECTION SHEET

List of Households

TO BE RETURNED TO FIELD WITH POSTAL SIFT FOLLOW-UP FORM

H/hold No. (1)	DESCRIPTION OF HOUSEHOLDS eg location and surnames (2)	No. of h/holds found at address (3)	Interview at household (4)	Outcome code (5)
1		1	1	
2		2	1	
3		3	1	
4		4	4	
5		5	1	
6		6	6	
7		7	4	
8		8	7	
9		9	8	
10		10	3	
11		11	8	
12		12	3	
13		13	5	
14		14	11	
15		15	3	

IF MORE THAN 15 HOUSEHOLDS PLEASE TURN OVER

Procedure

1. Note down the households on the table above. This must be done systematically. If numbered then list in numerical order, ie. flat 1,2,3, etc. or flat A,B,C, etc. Otherwise start at the lowest floor and work in a clockwise direction.

2. Ring the number of households found at column 3. Read column (4) to identify which household is selected for interview. Ring the selected household number in column (1).

3. Attach this form to the corresponding postal sift follow up form.

FOR USE ON THE YOUNG CHILDREN'S DIETARY SURVEY ONLY
NOTE: YOU ONLY SELECT ONE HOUSEHOLD

H/hold No. (1)	DESCRIPTION OF HOUSEHOLDS eg location and surnames (2)	No. of h/holds found at address (3)	Interview at household (4)	Outcome code (5)
16		16	1	
17		17	12	
18		18	14	
19		19	1	
20		20	2	
21		21	19	
22		22	11	
23		23	17	
24		24	12	
25		25	18	
26		26	18	
27		27	8	
28		28	12	
29		29	15	
30		30	7	

ENGLAND, WALES AND SCOTLAND

If more than 30 Households
Ring Sampling
extensions:- 2352
2276
Answer Phone 071 831 7738

SCOTLAND ONLY

Where a multi-occupancy indicator count is shown on the address list and the number of households found at the address is 5 more or less than the indicator
Ring Sampling
Extensions:- 2352
2276
Answer Phone 071 831 7738

A/W4

Interviewer recall sift form

N1340/W4

INTERVIEWER POSTAL RECALL SIFT FORM

Serial no label

PLEASE COMPLETE THIS FORM FOR EACH ADDRESS ON YOUR LIST

RECORD

1) Is this address a

non responder?	1
responding multi household?	2

RECORD

2) Did you find the address?

Yes	1	
No	2	END

3) Was the whole address

RECORD

vacant/demolished?	1	END
business?	2	
no permanent residents?	3	
institution?	4	
eligible address?	5	

4) Is this address occupied by more than one household?

Yes	1	
No	2	Q4

IF YES
PLEASE COMPLETE A MULTI HOUSEHOLD SELECTION SHEET AND SELECT HOUSEHOLD

WRITE IN HOUSEHOLD NUMBER SELECTED →

ADDRESS OF SELECTED HOUSEHOLD
(please describe as fully as possible including flat numbers etc)

POSTCODE

ASK

5) How many people are there in your household living at this address?

WRITE IN NUMBER →

6) RECORD DETAILS OF THOSE IN THE HOUSEHOLD

	SEX		DATE OF BIRTH		
	MALE	FEMALE	DAY	MONTH	YEAR
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

7) PLEASE RECORD FINAL OUTCOME

Full interview	1
Partial interview	2
Refusal	3
Non contact	4

8) PLEASE RECORD THE NUMBER OF CALLS MADE AT THIS ADDRESS IN THE BOX →

END

S

4. Is the survey compulsory?

In all our surveys we rely on voluntary co-operation, which is essential if our work is to be successful.

In appreciation of the help given a postal order payment of £10 is made to the child's parent, provided the food diary has been kept for the full four days.

* * * * * * *

We hope this leaflet answers some of the questions you might have, and shows the importance of the survey. The interviewer will leave another leaflet with you which tells you more about the measurements we are making and the blood sample.

Your co-operation is very much appreciated.

Social Survey Division
Office of Population Censuses and Surveys
St Catherine's House
10 Kingsway
London WC2B 6JP

telephone 071 - 242 0262 ext 2079

N1340 Young children's dietary survey. HA2/5 4/92

B

1. What is it about?

Over the past twenty years or so there has been a considerable increase in the range of foods available in the shops, and for many people, ...ding children, this has meant changes in the kinds of foods they eat. We have been asked to carry out a large national survey to find out, in detail, about the eating habits of young children in Great Britain. The survey also collects information about the children themselves, not only their age and sex, but also some physical measurements, such as their height and weight. They are also asked to give a small sample of blood. This information, together with information about the foods they eat, will provide a better understanding about the relationship between diet and health, particularly at an early age. All the physical measurements are taken by our interviewers who have been carefully trained, and we employ qualified people who are particularly skilled in taking blood from small children to take this sample for us.

* * * * * * *

2. Why have we come to your household?

To visit every household in the country would take too long and cost far too much money.

Therefore we selected a sample of addresses from the Postcode Address File. The Postcode Address File is compiled by the Post Office and lists all the addresses to which mail is sent. We sent a letter to each selected address asking for details of the age and sex of everybody living there. We chose those addresses in a way that gave everyone the same chance of being selected. From the replies we were able to tell which households contained a child under 5, and from those we selected a sample to be interviewed. Your household is one of those chosen to be interviewed.

Some people think either that they and their family are not typical enough to be of any help in the survey or that they are very different from other people and they would distort the findings. The important thing to remember is that the community consists of a great many different types of people and families and we need to represent them all in our sample survey. It will therefore be appreciated if everyone we approach agrees to take part.

* * * * * * *

OPCS
OFFICE OF POPULATION CENSUSES & SURVEYS

The Young Children's Dietary Survey

This survey is being carried out by the Social Survey Division of the Office of Population Censuses and Surveys, for the Ministry of Agriculture, Fisheries and Food and the Departments of Health (in England, Wales and Scotland). This leaflet tells you more about why the survey is being done.

3. Is the survey confidential?

Yes. We take very great care to protect the confidentiality of the information we are given. Access to the completed questionnaires and diaries is restricted to the Social Survey Division of OPCS and the Ministry of Agriculture, Fisheries and Foods (MAFF). However, the names and addresses of co-operating households will not be released to MAFF, to any other government department, to local authorities, members of the public or the press. The survey results will not be presented in a form which can be associated with names and addresses.

* * * * * * *