Appendix K Adjustments to previous NDNS data

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K.1 Introduction

In the NDNS rolling programme (NDNS RP), the dietary data has been collected over a period of four days using an estimated food and drink diary. Previous NDNS dietary data was collected over seven days (young people aged 4 to 18 years[1] and adults aged 19 to 64 years[2]) or four days and corrected to seven days (children aged 1.5 to 4.5 years[3] and adults aged 65 years and over[4]) using a weighed food and drink diary. This is pertinent because day-to-day variability, while having little effect at the population level e.g. group means, does have an effect at the individual level and therefore may impact on some survey estimates, in particular: percentage consumers; upper and lower 2.5th percentiles; percentages falling above/below Lower Reference Nutrient Intakes (LRNI) and other guideline values. For example, while the percentage of consumers of commonly consumed foods such as bread will be similar over a four-day diary and a seven-day diary, for less frequently consumed foods such as oily fish, the percentage of consumers will be lower over a four-day diary than over a seven-day diary. Population means are only affected if there is a systematic bias related to diary duration (e.g. fall off in recording over time due to fatigue). Thus, adjustments have been made to the data from the previous surveys in order to make them as comparable as possible with the NDNS RP.

K.2 Conversion of previous NDNS of young people aged 4 to 18 years and of adults aged 19 to 64 years to four-day estimates

The existing seven-day data for the previous NDNS of young people aged 4 to 18 years[1] and NDNS of adults aged 19 to 64 years[2] was re-analysed on a four-day basis. The following considerations were applied when deciding which four days to sample from the seven-day record for each individual.

i) Each day of the week to appear equally in the new data
ii) Choose the first four days from the seven-day diary for each individual
iii) Choose consecutive days for each individual

However, it was not possible to satisfy all these criteria because the start days were not evenly distributed by day of the week. Table K1 shows the distribution of start days by day of the week in the NDNS survey of adults aged 19 to 64 years conducted in 2000/01.

Table K1

Distribution of start days by day of the week in the NDNS survey of adults aged 19 to 64 years (2000/01)[2]

Day of week	Number of diary start days
Sunday	56
Monday	121
Tuesday	379
Wednesday	366
Thursday	348
Friday	279
Saturday	175
Total	*1724*

Table K2 shows how the four diary days were selected for each individual to ensure that criteria i) and iii) above were always satisfied while criteria ii) was met as closely as possible.

Table K2

Allocation to start day for four-days analysis in NDNS survey of adults aged 19 to 64 years (2000/01)[2]

Original start day	Re-allocated start day							Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Sunday	56							56
Monday		121						121
Tuesday			246		66	67		379
Wednesday				246	23	26	71	366
Thursday	190				158			348
Friday		125				154		279
Saturday							175	175
Total	246	246	246	246	247	247	246	1724

For example, of the 379 individuals who started on a Tuesday, a random 246 were chosen to represent Tuesday starters and the remaining 133 were re-allocated to other start days of the week. This process was repeated for each day of the week so that an even spread of start days was achieved overall. The random element in the process would introduce variability, if only completed once. Hence, the bootstrap method[3] of resampling was used to obtain 100 independent randomisations. Parameter estimates were taken from each bootstrap sample and were averaged over all bootstrap samples.

This method was similarly applied to the NDNS survey of young people aged 4 to 18 years, conducted in 1997 (see Table K3).

Table K3

Allocation to start day for four-days analysis in NDNS survey of young people aged 4 to 18 years (1997)[1]

Original start day	Re-allocated start day							Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Sunday	54							54
Monday		46						46
Tuesday			243		53	137		433
Wednesday				243	16	41	125	425
Thursday	189				174			363
Friday		197				165		362
Saturday							118	118
Total	243	243	243	243	243	243	243	1701

These processes were carried out for the nutrient data in the two surveys, to generate new figures for percentage below LRNI for vitamins and minerals. Intakes of key macronutrients and micronutrients are reported for these older surveys alongside the new data from the NDNS RP in Tables 10.7-10.11 (Chapter 10).

K.3 Previous NDNS of pre-school children aged 1.5 to 4.5 years

To ensure that comparisons between the previous NDNS of children aged 1.5 to 4.5 years[4] and the current survey were being made using a similar age group; children aged over 47 months were removed from the previous NDNS dataset. There were also some 16 and 17-month olds in the data and they were also removed. The previous NDNS of children aged 1.5 to 4.5 years was a four-day survey, which included two weekdays and two weekend days. In order to compensate for the over-representation of weekend days, a factor of 5/2 had been applied to the intake data from the two weekdays before adding it to the intake data from the two weekend days and subsequently calculating average daily intakes. This 5/2 weighting was also applied to the new dataset containing only those children aged 1.5 to 3 years.

Intakes of key macronutrients and micronutrients are reported for the older survey alongside the new data from the current RP in Tables 10.7-10.11 (Chapter 10).

K.4 Previous NDNS of adults aged 65 years and over

The original four-day dietary data for free-living adults from the previous NDNS of adults aged 65 years and over[5] is used in this report without re-analysis, as the days of the week in that survey were considered sufficiently balanced to be comparable to the NDNS RP. However, it should be noted that the spread of days in the previous NDNS of adults aged 65 years and over was not completely even. Intakes of key macronutrients and micronutrients are reported for the older survey alongside the new data from the NDNS RP in Tables 10.7-10.11 (Chapter 10).

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[1] Gregory JR, Lowe S, Bates CJ, Prentice A, Jackson LV, Smithers G, Wenlock R, Farron H. National Diet and Nutrition Survey: young people aged four to 18 years. Volume 1: Report of the diet and nutrition survey. London: TSO, 2000.
Walker A, Gregory J, Bradnock G, Nunn J, & White D. National Diet and Nutrition Survey: young people aged four to 18 years. Volume 2: Report of the oral health survey. London: TSO, 2000.

[2] Henderson L, Gregory J, Swan G. National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 1: Types and quantities of food consumed. London: TSO, 2002.
Henderson L, Gregory J, Irving K, Swan G. National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 2: Energy, protein, carbohydrate, fat and alcohol intake. London: TSO, 2002.
Henderson L, Irving K, Gregory J, Bates CJ, Prentice A, Perks J, Swan G, Farron M. National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 3: Vitamin and mineral intake and urinary analytes.
London: TSO, 2003.
Rustin D, Hoare J, Henderson L, Gregory J, Bates CJ, Prentice A, Birch M. National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 4: Nutritional status (anthropometry and blood analytes), blood pressure and physical activity. London: TSO, 2004
Hoare J, Henderson L, Bates CJ, Prentice A, Birch M, Swan G, Farron M. National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 5: Summary report. London: TSO, 2004

[3] Bootstrapping is a method of measuring the estimating proprieties of an estimate using samples from an approximating distribution. This was carried out here to allow the 7-day diaries of the previous NDNS to be compared with the 4-day diaries of the current rolling programme NDNS. This is carried out by random sampling with replacement of the original 7-day dataset.

[4] Gregory JR, Collins DL, Davies PSW, Hughes JM, Clarke PC. National Diet and Nutrition Survey: children aged 1 ½ to 4 ½ years. Volume 1: Report of the diet and nutrition survey London: HMSO, 1995.
Hinds K, Gregory JR. National Diet and Nutrition Survey: children aged 1½ to 4½ years. Volume 2: Report of dental survey. London: HMSO, 1995.

[5] Finch S, Doyle W, Lowe C, Bates CJ, Prentice A, Smithers G, Clarke PC. National Diet and Nutrition Survey: people aged 65 years and over. Volume 1: Report of the diet and nutrition survey. London: TSO, 1998.
Steele JG, Sheiham A, Marcenes W, Walls AWG. National Diet and Nutrition Survey: people aged 65 years and over. Volume 2: Report of the oral health survey. London: TSO, 1998.