

# **THE ALSPAC STUDY**

## **CIF FILE**

### **DATA COLLECTED AT CLINIC**

#### ***Child in Focus***

**At around 4, 8, 12, 18, 25, 31, 37, 43, 49 & 61 months**

**Prepared by**

**The ALSPAC Study Team**

**Documentation giving frequencies, background and instructions for use.**

**Last updated for version 8b of the RELEASED file.**

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# 1. Introduction

## 1.1 Aims

The aim of 'Children in Focus' was to examine the children in a way that cannot be done using questionnaires to their parents. The sample provides both a validation for certain aspects of the self-completion questionnaires and an answer to some important questions. These are related, for example, to the ways in which childhood diet, growth, anaemia, otitis media with effusion, visual defects, parenting skills and early cognition are related to the development of intellectual competence, speech and language as well as motor development of the child.

## 1.2 Selection of children

### 1.2.1 Children in Focus

The Children in Focus cohort was chosen at random from the last 6 months of ALSPAC births, occurring from June 6th - December 11th 1992. Excluded were those mothers who had moved away from Avon or were 'lost to follow up' when they moved without forwarding addresses, those who had refused to participate or fill in questionnaires, and those whose baby had died or who had two or more pregnancies in the study.

Also excluded were those babies in the Avon Premature Infant Project (APIP) for very premature babies (i.e.<33 weeks) and their full-term controls, (a total of 52 babies out of 4257 eligible cases; 35 of these were preterm babies and 17 were controls). There was no selection on place of residence as long as it was within the study area at the time of the first invitation to join Children in Focus. Children who moved away subsequently were still invited to participate, although travel costs were unable to be met in full.

All twins born in the eligible time period were invited to take part. This was done in particular because of an interest in the habituation test among twins.

### 1.2.2 Control sample

From the ALSPAC children born June 6th - December 11th 1992, a second set of children were selected, using the same criteria as for the Children in Focus group (see Appendix I). This 'control' sample were invited to the 37 month clinic and undertook the same tests as the Children in Focus group. Testers were blinded as to whether the child was CiF or control. The major purpose of this sample was for the vision study (see section 3.1).

## 1.3 Organisation of the clinic

### 1.3.1 Premises

At 4 months, clinics were held in rooms kindly made available to us at Bristol & Weston Health Authority's Tyndall's Park Children's Centre. We were indebted to Dr. Alan Emond, Consultant Community Paediatrician and his staff for this facility.

Availability of the premises restricted our clinics to Saturdays and two weekdays and therefore limited the number of children we could see.

From the 8 month clinic onwards we were able to use part of the Homeopathic Hospital's ground floor which was vacant and in a relatively poor state of decoration. We are very grateful to the South West Regional Health Authority, who then owned the building, for the use of it and to the University of Bristol who arranged some redecoration. The premises, though not ideal, did allow us to be in a non-clinical setting and to have exclusive use of the rooms, which was invaluable in enabling us to create a relaxed and welcoming atmosphere.

In September 1994, during the 2 year clinic, we finally moved into more permanent premises on the lower ground floor of the Homeopathic Hospital. The building had been purchased by the University of Bristol for student accommodation and the lower floor rooms were modified and decorated by the University to make a delightful clinic for us overlooking the gardens.

### **1.3.2 Creating the atmosphere**

A great deal of care had been taken to make coming to the clinic a positive experience for parents and children. Staff were selected who had a warm and understanding approach as well as the skills required for their role at the clinic. Initial and on-going training and supervision maintained the standards set. Plants, posters and mobiles decorated the rooms and were changed regularly, as were the toys which were available in the reception room. On arrival, the mother (father, grandparent or childminder) and child were offered refreshments. They were asked about their journey and the taxi or parking. Siblings who accompanied the study child were cared for by receptionists while the parent, or other carer, took the child around the clinic. At the end of the visit, the receptionist offered expenses or ordered a taxi and asked how they found the visit this time. Any comments were noted. Two receptionists were regularly on duty at each clinic and extra help was given by the other members of the team when needed. School holidays often meant that several siblings were left in the reception area and an extra receptionist was then required.

All letters, forms and questionnaires which were sent to mothers from the clinic were written in a friendly and sympathetic way and a similar approach was taken in telephone conversations. Every effort was made to accommodate the parents' wishes as to times and dates of appointments if those originally offered were inconvenient and understanding was shown when parents had difficulties. From 4 years onwards parents of children who had started school were sent a letter for the child's teacher asking for leave of absence for the visit.

### **1.3.3 Maintaining the cohort**

This cohort of children attending the Children in Focus clinic was meticulously documented throughout the first years of life and was seen as a rare and valuable resource. It was considered essential for the research that as many as possible were retained in the study. We aimed to make each visit so enjoyable that they wanted to come back again and again.

Mothers (fathers or carers) brought their children to Children in Focus clinics voluntarily. The children were not ill and they did not get treatment. The child was brought to help with research which aims to make children healthier in the future. The only regular benefits to the child were that his/her vision was screened and defects were followed up and that parents were told if the child's haemoglobin was below 8g/dl, assuming that a blood sample was taken. At the 31 months clinic they were also told if the blood lead level was above 25 µg/dl and at 43 months if the child's hearing was 'below normal' (ceased to hear accurately a voice at above 35dBA) on that day. In each case the parent received a letter to take to their GP or health visitor.

The team of staff built up valuable experience in the day to day running of the clinics and in encouraging the continuing co-operation of parents and their children.

These skills were vital to the success of Children in Focus and helped in planning the later Focus clinics.

### **1.3.4 Making the visit short**

Smooth passage through the clinic and making the length of the visit short were priorities. Up to and including the three year clinic each child's visit was kept to within an hour and ten minutes wherever possible. This was achieved by having only four procedures at each stage and keeping each one within 15 minutes.

The exceptions to that rule were at 18 and 31 months. Because the Griffiths developmental test at 18 months took an average of 51 minutes per child, 4 testers operated at each clinic and took children in rotation. The length of stay was about two hours. Parents were warned in advance, apologies were given and invitations to the next clinic emphasised that this next visit would take little more than an hour. At 31 months, and subsequently when venepuncture was used, 20 minutes were allowed for each procedure since the blood takers had to see the child twice, first to obtain permission and to put on the anaesthetic cream and later to take the blood. At 49 months the WPSSI (the developmental test) again took 50-60 minutes and the length of the stay was about 1 hour 40 minutes. After the break in clinics, the visit at 61 months was longer to accommodate 7 different observations. It took about 2 $\frac{3}{4}$  hours.

### **1.3.5 Expenses and taxis**

The invitation to the clinic explained that a taxi could be provided if parents did not have transport available and that expenses would be offered to cover fuel costs if they brought their own car, or fares if they came by bus or train. Those parents who agreed to come from out of the study area were offered £10 towards their travel costs. Parking was reserved for parents and other carers behind the Homeopathic Hospital and a temporary permit was sent in advance.

We were in close contact with the taxi company and training was given to the drivers on the standard of service required. Any problems were followed up immediately with the company, so that a high standard could be maintained. Baby seats were carried on journeys to and from the clinic from the time that the children were 8 months old. Since the beginning of the 2 year clinics, booster seats were carried for siblings and later the study children to use. We are grateful to the management of the company, Swiftline Taxis, for their cooperation and for the discount given to us on their normal fares.

### **1.3.6 Following up non-attenders**

If a mother did not arrive for an appointment she received a telephone call or letter expressing concern that there may have been a problem and offering another appointment. Approximately 1.6% of those booked did not arrive and a further 3.7% were unable to attend because of illness, a new baby or a holiday, which took them past the age up to which we could see the children. Although this increased the costs, double bookings were only made in exceptional circumstances so that parents did not normally have to wait to be seen.

### **1.3.7 Presents**

Each child was offered a small present at the end of every visit. We are very grateful to Oral B for the donation of 4000 children's toothbrushes. In the first two years we also managed to negotiate supplies of children's books and height charts for 30 pence each.

## 1.4 Children seen

### 1.4.1 Numbers

Parents were invited to bring their children to the clinic at 4,8,12,18,25, 31, 37, 43, 49 and 61 months of age.

Mothers of 1023 babies came to the 4 month clinic and were invited again at 8 months, together with 16 who had been willing but unable to come at 4 months. A further 550 cases were invited at 8 months to increase the size of the cohort and of these 389 came to the 8 month clinic. Children of parents who attended, or were willing to attend at 4 and/or 8 months formed the Children in Focus cohort who were invited to subsequent clinics. Only those who died or whose parents refused further participation in Children in Focus or in the main study were deleted. No new children were added.

In all mothers of 2066 children were invited to the clinic. Of these 1432 children (69%) including 18 sets of twins were actually brought to at least one clinic. Unfortunately one baby who had been to the 4 month clinic, and another who had been to both the 4 and 8 month clinics, subsequently died.

Clinic	Date	Children invited	Children seen	% of those invited
4 months	6.10.92 - 3.4.93	1509	1023	68%
8 months	5.2.93 - 4.8.93	1589	1314	83%
12 months	8.6.93 - 4.12.93	1398	1241	89%
18 months	7.12.93 - 10.6.94	1341	1183	88%
25 months	5.7.94 - 12.1.95	1322	1127	85%
31 months	14.1.95 - 6.7.95	1305	1135	87%
37 months	10.7.95 - 13.1.96	1226	1081	84%
43 months	16.1.96 - 6.7.96	1249	1065	85%
49 months	9.7.96 - 8.1.97	1268	1032	81%
61 months	NA	NA	994	NA

### 1.4.2 Response variables

Whether invited and whether attended:

		Not invited this time	Invited and attended	Invited / refused all clinics	Invited / did not attend	Invited / did not respond	Invited / unable this time	Not invited / out of area
cf000	4m	393	1023	0	8	1	7	0
cf001	8m	21	1314	12	23	33	29	0
cf002	12m	44	1241	14	19	67	47	0
cf003	18m	62	1183	21	19	54	61	32
cf004	25m	82	1127	21	21	73	77	31
cf005	31m	87	1135	13	10	76	71	40
cf006	37m	111	1081	13	15	92	75	45
cf007	43m	139	1065	9	13	94	68	44
cf008	49m	143	1032	78	22	75	61	21
cf009	61m	438	994	0	0	0	0	0

### 1.4.3 Ages at attendance

The target ages for the children were:

- 3 months 3 weeks
- 8 months
- 12 months and 1 week
- 18 months and 1 week
- 25 months and thereafter at 6 month intervals until 49 months, and then at 61 months.

We aimed to see children within a limited time of that ideal age and this 'window' of time varies with the needs of the tests at each clinic.

Because of illness or family commitments, some children could not be seen within these limits in spite of our best efforts. Rather than lose them for that visit, with the risk of losing them from the cohort altogether, some were seen outside the recommended 'window'.

Clinic	Age 'window' for that clinic		% seen outside age 'window'
4 months	3 months 2 weeks	→ 4 months 2 weeks	1.3
8 months	7 months 3 weeks	→ 8 months 3 weeks	5.0
12 months	12 months	→ 13 months	6.9
18 months	17 months 2 weeks	→ 19 months	3.0
108 weeks (25 months)	106 weeks	→ 110 weeks	1.7
134 weeks (31 months)	133 weeks	→ 137 weeks	1.7
160 weeks (37 months)	158 weeks	→ 163 weeks	2.0
186 weeks (43 months)	185 weeks	→ 190 weeks	3.6
212 weeks (49 months)	208 weeks	→ 216 weeks	3.3

Age of child at clinic:

cf010 Age (wks) at 4 mth

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
15	11	.8	1.1	1.1
16	518	36.2	50.6	51.7
17	393	27.4	38.4	90.1
18	70	4.9	6.8	97.0
19	25	1.7	2.4	99.4
20	3	.2	.3	99.7
21	3	.2	.3	100.0
Total	1023	71.4	100.0	
Missing	-2 Did not attend	409	28.6	
Total		1432	100.0	

**cf011 Age (wks) at 8 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	32	1	.1	.1	.1
	33	21	1.5	1.6	1.7
	34	159	11.1	12.1	13.8
	35	819	57.2	62.3	76.1
	36	196	13.7	14.9	91.0
	37	73	5.1	5.6	96.6
	38	21	1.5	1.6	98.2
	39	12	.8	.9	99.1
	40	8	.6	.6	99.7
	41	2	.1	.2	99.8
	42	2	.1	.2	100.0
	Total	1314	91.8	100.0	
Missing	-2 Did not attend	118	8.2		
Total		1432	100.0		

**cf012 Age (wks) at 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	51	17	1.2	1.4	1.4
	52	68	4.7	5.5	6.8
	53	540	37.7	43.5	50.4
	54	422	29.5	34.0	84.4
	55	121	8.4	9.8	94.1
	56	43	3.0	3.5	97.6
	57	16	1.1	1.3	98.9
	58	9	.6	.7	99.6
	59	3	.2	.2	99.8
	60	1	.1	.1	99.9
	62	1	.1	.1	100.0
	Total	1241	86.7	100.0	
Missing	-2 Did not attend	191	13.3		
Total		1432	100.0		

**cf013 Age (wks) at 18 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	76	3	.2	.3	.3
	77	36	2.5	3.0	3.3
	78	164	11.5	13.9	17.2
	79	262	18.3	22.1	39.3
	80	353	24.7	29.8	69.1
	81	219	15.3	18.5	87.7
	82	94	6.6	7.9	95.6
	83	35	2.4	3.0	98.6
	84	9	.6	.8	99.3
	85	7	.5	.6	99.9
	87	1	.1	.1	100.0
	Total	1183	82.6	100.0	
Missing	-2 Did not attend	249	17.4		
Total		1432	100.0		

**cf014 Age (wks) at 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	106	17	1.2	1.5	1.5
	107	211	14.7	18.7	20.2
	108	524	36.6	46.5	66.7
	109	266	18.6	23.6	90.3
	110	90	6.3	8.0	98.3
	111	13	.9	1.2	99.5
	112	5	.3	.4	99.9
	115	1	.1	.1	100.0
	Total	1127	78.7	100.0	
Missing	-2 Did not attend	305	21.3		
	Total	1432	100.0		

**cf015 Age (wks) at 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	132	4	.3	.4	.4
	133	41	2.9	3.6	4.0
	134	356	24.9	31.4	35.3
	135	504	35.2	44.4	79.7
	136	152	10.6	13.4	93.1
	137	63	4.4	5.6	98.7
	138	14	1.0	1.2	99.9
	140	1	.1	.1	100.0
	Total	1135	79.3	100.0	
Missing	-2 Did not attend	297	20.7		
	Total	1432	100.0		

**cf016 Age (wks) at 37 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	155	2	.1	.2	.2
	156	7	.5	.6	.8
	158	14	1.0	1.3	2.1
	159	86	6.0	8.0	10.1
	160	518	36.2	47.9	58.0
	161	320	22.3	29.6	87.6
	162	93	6.5	8.6	96.2
	163	28	2.0	2.6	98.8
	164	7	.5	.6	99.4
	165	4	.3	.4	99.8
	166	2	.1	.2	100.0
	Total	1081	75.5	100.0	
Missing	-2 Did not attend	351	24.5		
	Total	1432	100.0		

**cf017 Age (wks) at 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	184	9	.6	.8	.8
	185	26	1.8	2.4	3.3
	186	162	11.3	15.2	18.5
	187	370	25.8	34.7	53.2
	188	345	24.1	32.4	85.6
	189	88	6.1	8.3	93.9
	190	34	2.4	3.2	97.1
	191	19	1.3	1.8	98.9
	192	6	.4	.6	99.4
	193	3	.2	.3	99.7
	194	1	.1	.1	99.8
	195	1	.1	.1	99.9
	196	1	.1	.1	100.0
	Total	1065	74.4	100.0	
Missing	-2 Did not attend	367	25.6		
	Total	1432	100.0		

**cf018 Age (wks) at 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	207	1	.1	.1	.1
	208	3	.2	.3	.4
	209	5	.3	.5	.9
	210	48	3.4	4.7	5.5
	211	277	19.3	26.8	32.4
	212	262	18.3	25.4	57.8
	213	251	17.5	24.3	82.1
	214	95	6.6	9.2	91.3
	215	44	3.1	4.3	95.5
	216	20	1.4	1.9	97.5
	217	15	1.0	1.5	98.9
	218	4	.3	.4	99.3
	219	2	.1	.2	99.5
	220	4	.3	.4	99.9
	221	1	.1	.1	100.0
	Total	1032	72.1	100.0	
Missing	-2 Did not attend	400	27.9		
	Total	1432	100.0		

**cf019 Age (wks) at 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	260	1	.1	.1	.1
	263	5	.3	.5	.6
	264	23	1.6	2.3	2.9
	265	119	8.3	12.0	14.9
	266	140	9.8	14.1	29.0
	267	137	9.6	13.8	42.8
	268	125	8.7	12.6	55.4
	269	87	6.1	8.8	64.1
	270	82	5.7	8.3	72.4
	271	78	5.4	7.9	80.3
	272	71	5.0	7.2	87.4
	273	44	3.1	4.4	91.8
	274	26	1.8	2.6	94.5
	275	19	1.3	1.9	96.4
	276	12	.8	1.2	97.6
	277	10	.7	1.0	98.6
	278	5	.3	.5	99.1
	280	3	.2	.3	99.4
	281	2	.1	.2	99.6
	284	2	.1	.2	99.8
	291	1	.1	.1	99.9
	292	1	.1	.1	100.0
	Total	993	69.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	1	.1		
	Total	439	30.7		
	Total	1432	100.0		

#### 1.4.4 Month and year of attendance

##### Month of attendance

Variable		1	2	3	4	5	6	7	8	9	10	11	12
CF020A	4 mth	16	16	16	31	-	-	-	-	-	176	188	132
		6	5	5									
CF021A	8 mth	-	13	19	23	25	24	188	68	-	-	-	-
		0	8	3	3	4							
CF022A	12 mth	-	-	-	-	-	86	207	177	256	220	184	111
CF023A	18 mth	26	16	20	20	25	91	-	-	-	-	-	-
		7	2	8	4	1							
CF024A	25 mth	90	-	-	-	-	-	151	169	172	205	222	118
CF025A	31 mth	12	18	19	18	19	20	42	-	-	-	-	-
		1	4	5	9	5	9						
CF026A	37 mth	73	-	-	-	-	-	123	161	200	206	199	119
CF027A	43 mth	11	15	17	17	21	190	40	-	-	-	-	-
		4	0	9	6	6							
CF028A	49 mth	40	-	-	-	-	-	145	179	185	156	185	142
CF029A	61 mth	15	10	6	-	-	-	75	135	126	150	162	82
A	(1)	3	4										
CF029A	61 mth	37	30	3	23	-	-	1	1	7	6	4	3
B	(2)												

NB: Some children at 61 months returned for a second visit if a particular slot was unmanned. This particularly applied to allergy tests.

##### Year of examination

CF020B	4 mth	1992 - 496; 1993 - 527
CF021B	8 mth	1993 - 1314
CF022B	12 mth	1993 - 1241
CF023B	18 mth	1994 - 1183
CF024B	25 mth	1994 - 1037; 1995 - 90
CF025B	31 mth	1995 - 1135
CF026B	37 mth	1995 - 1008; 1996 - 73
CF027B	43 mth	1996 - 1065
CF028B	49 mth	1996 - 992; 1997 - 40
CF029BA	61 mth (1)	1997 - 730; 1998 - 263
CF029BB	61 mth (2)	1997 - 22; 1998 - 93

#### 1.4.5 Twins

Twins are given an appointment each, and generally treated the same way as singletons since two carers usually accompany them. If only one carer comes, then a member of staff normally takes one twin to each test. One exception was the parenting measure at 12- months when both children went in with the parent. At 18- months the parent went in to the Griffiths tests with the children in turn, or very occasionally with both children and two testers. For dietary diary interviews the parent always accompanied the twin for whom the diary was completed. At 4 months this involved the parent in an interview about both of the twins. At 8 months one twin was randomly selected. At 18 months and 43 months the same twin was selected as at 8 months.

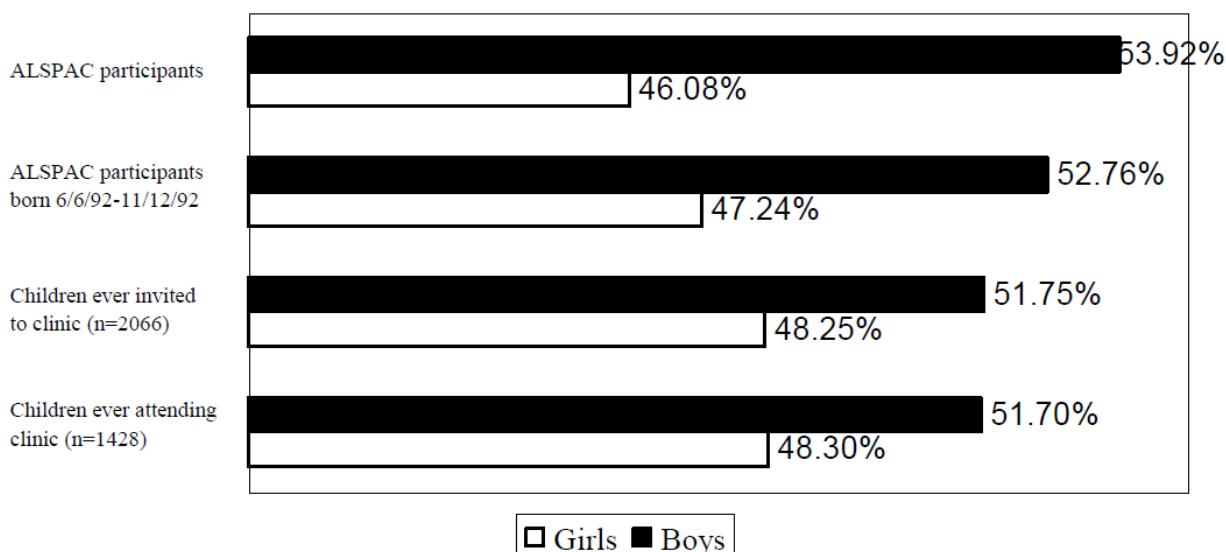
### Number of twins attending each clinic

4 mth	18 sets
8 mth	16 sets
12 mth	14 sets
18 mth	16 sets
25 mth	11 sets and second born from 12 <sup>th</sup> set
31 mth	15 sets
37 mth	13 sets
43 mth	11 sets
49 mth	11 sets
61 mth	11 sets

#### 1.4.6 Gender

The proportion of girls attending clinics were higher than that in the whole ALSPAC cohort (see Figure 1). This is thought to have arisen by chance and is not statistically significant.

**Figure 1: Gender of children in Focus cohort and ALSPAC**



For the individual clinics, the percentage of boys was:

- 53.7% at 4 months
- 54.6% at 8 months
- 54.0% at 12 months
- 54.3% at 18 months
- 54.0% at 25 months
- 54.6% at 31 months
- 57.4% at 37 months (49.5% Controls at 37 months)
- 55.5% at 43 months
- 55.0% at 49 months
- 54.6% at 61 months

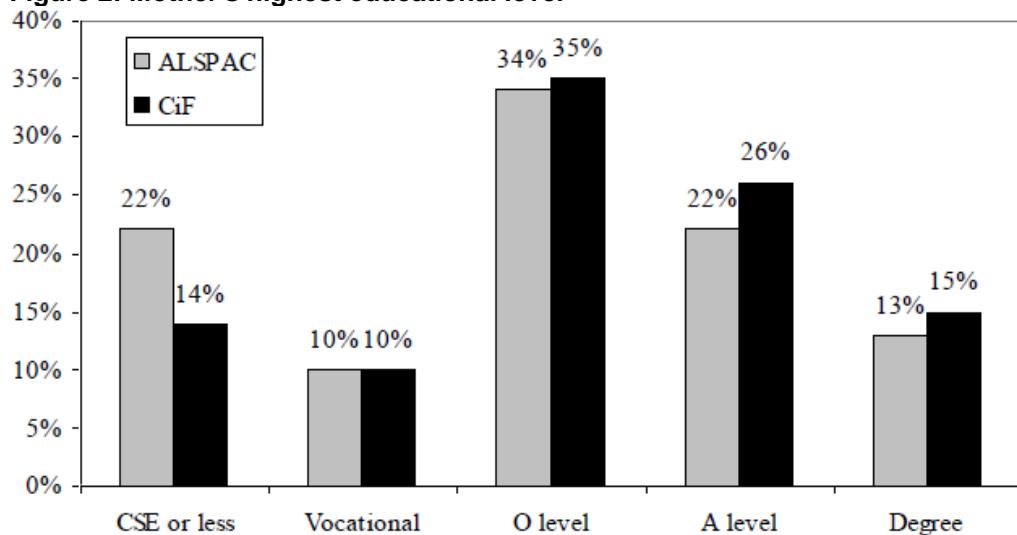
#### 1.4.7 Bias

The mothers of the Children in Focus cohort at 18 months (i.e. those who had brought their children to either the 4 or 8 month clinic or both, and had not subsequently refused to participate) were compared for certain social variables with the rest of the ALSPAC cohort.

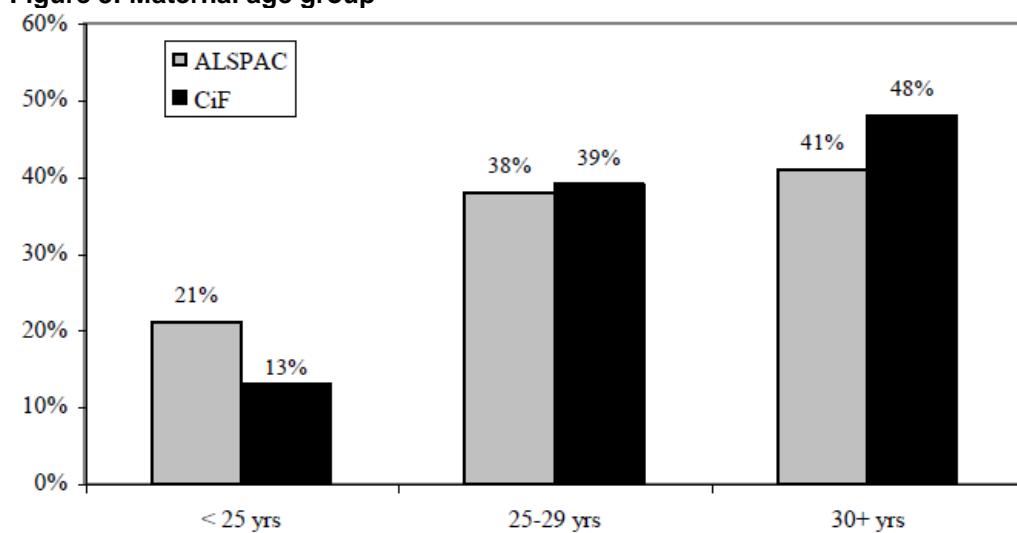
There were significant differences in the mother's educational level and her age when the study child was born, but not in the number of children in the family (see below).

This suggests, as might be expected, that the group which was invited but did not participate in the clinics is non-random. In order to take account of this in cross-sectional analyses, it is possible to use appropriate weighting factors. For longitudinal analyses it is unlikely to be important.

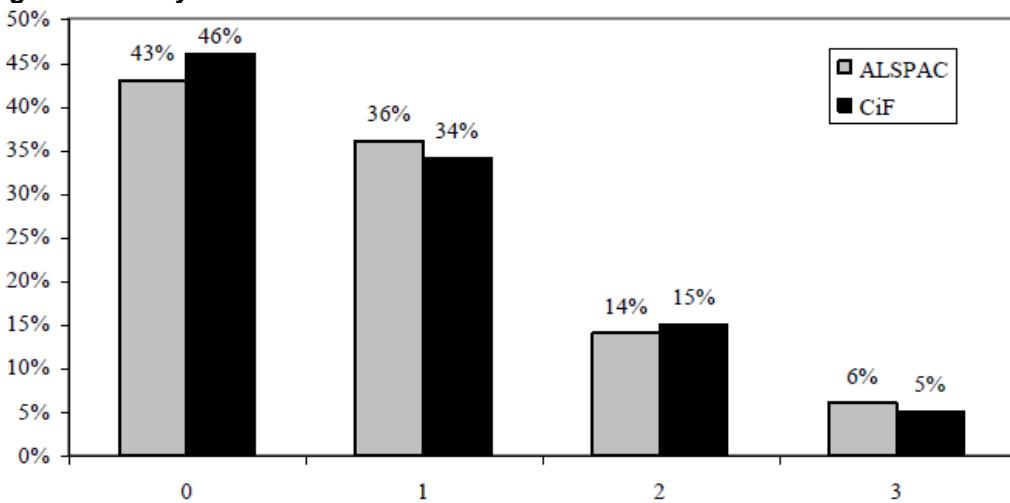
**Figure 2: Mother's highest educational level**



**Figure 3: Maternal age group**



**Figure 4: Family size**



## 1.5 Measures taken at each stage

### At 4 months:

Vision.  
Length, weight, head and arm circumferences.  
A 24 hour dietary diary.  
Cognition measured using an habituation test.

### At 8 months:

Vision.  
Length, weight, head and arm circumferences.  
Tympanometry – to identify otitis media with effusion, (OME). Parents were not told the result of this.  
A capillary blood sample taken to measure haemoglobin and ferritin levels.  
Parents were told if their child has very low haemoglobin.  
A 3 day dietary diary (including one weekend day) completed by parent with written instructions, followed by an interview with a trained assistant (under the guidance of the study nutritionist) to clarify questions.

### At 12 months:

Vision.  
Length, weight, head and arm circumferences.  
Tympanometry.  
A capillary blood sample taken.  
A measure of carbon monoxide in the mothers' lungs.  
A parenting observation undertaken to assess various interactions between the mother and child, as they look at a book together. This was video recorded.

### At 18 months:

Vision.  
Length, weight, head and arm circumferences.  
Tympanometry.  
Capillary blood sample.  
3-day dietary diary as at 8 months.  
An interview with the parent in regard to day-care arrangements or facilities used.  
A full developmental assessment using the Griffiths' scales.

### At 25 months:

Vision.  
Standing height, as well as length, weight, head and arm circumferences.  
Tympanometry.  
Day-care interview.  
Speech and language development.  
A questionnaire asking the parent(s) about their food shopping habits.  
A letter asking the mother's permission for access to her dental records.

### At 31 months:

Vision.  
Height, weight, head, arm and waist circumferences.  
Tympanometry as at 8 months.  
A venous blood sample to measure haemoglobin, ferritin, lead, IgE and lipid levels; mothers were told if their child had very high lead or low haemoglobin levels.  
Day-care interview.

Dental observations.  
McCormick automated hearing test.

**At 37 months:**

Visual examination as at 4 months.  
Height, weight, and head, arm and waist circumferences.  
Tympanometry.  
A questionnaire asking about visual problems in the child, parents' attitudes to food, and day care used between 2½ and 3 years.  
Laterality – tests of hand, foot and eye preference.  
Blood pressure.

**At 43 months:**

Vision.  
Height, weight, and head, waist and arm circumferences.  
Tympanometry.  
A venous blood sample.  
3 day dietary diary completed in advance of the visit, followed by an interview by one of the nutrition team.  
Dental observations.  
Day-care interview.  
McCormick automated hearing test.  
Fingerprints.

**At 49 months:**

Height, sitting height, weight and head, waist and arm circumferences.  
Tympanometry.  
Pre-school/school interviews.  
Blood pressure.  
Examination of skin, hair and eyes to identify colour.  
Wechsler Pre-school and Primary Scale of Intelligence – Revised (WPPSI –RUK).  
Skin examination to note presence of moles and skin lesions.  
A questionnaire asking the parents about their children's exposure to the sun, the skin's reaction and protective measures used.

**At 55 months (no clinic – postal and telephone contact only):**

A questionnaire asking the parents about their children's experience of venepuncture at the CIF clinic and elsewhere.  
Pre-school/school interviews.

**At 61 months:**

Height, head, waist, sitting height and arm circumference.  
Skinfold thickness.  
Tympanometry as at 8 months.  
McCormick automated hearing test.  
Pure-tone audiometry.  
Skin examination to note presence of moles, and skin lesions.  
Allergy testing using skin pricks with 14 common allergens and 2 controls.  
Parenting measure as at 12 months.  
Dental check to include presence of erosion. Speech and language assessment.  
Short-term memory – digit span, non-word repetition and initial consonant recognition.  
Lung function using peak flow meter.

Fitness using 3-minute task on aerobic step with continuous heart monitoring.  
Pulse rate before, during and after exercise.  
Blood pressure.  
A venous blood sample.  
3-day dietary diary completed in advance of the clinic, with clarification by staff at clinic.

## 1.6 Release file version history

### Released file version 8a – released September 2018

The previous version of the release file has the following data added to the file:

- 30 derived SD scores [*cf1101* to *cf1193*] for height, weight and BMI at each time point.
- 582 variables [*cf010* to *cf01204*] describing nutritional information gathered from diet diaries, including estimated nutrient intake, food group intakes and total energy intake for children at 4, 8, 18, 43 and 61 months.

In addition, there are the following changes to the data:

- *cf100* (Mean biceps skinfold (cm) 61 mth) has been recalculated
- Extension and correction of a number of variable and value labels (affecting (*cf000*-*cf009*, *cf100*, *cf421*, *cf484a*-*cf485e*, *cf711*, *cf946*, *cf947*, *cf950*, *cf951*, *cfv715*, *cf960*-*cf966*, *cf1046* and *cf1047*)

### Released file version 8b – released May 2019

There were some variables in the previous version of the release file where there were valid non-missing values which overlapped with missing value categories. That is, some variables had missing value categories of '-1', '-2' and '-3', in addition to some valid negative values (e.g., '-2.9'). In an attempt to avoid any potential confusion, where this has occurred the missing value categories have been altered so that they are not overlapping with the negative valid values (i.e., '-1' has been recoded as '-101', '-2' has been recoded as '-102', and so on). The only four variables changed are: *cf042a*, *cf048a*, *cf424* and *cf465*.

## 2. Details of physical measures

### 2.1 Anthropometry

Accurate weight, length, and head and mid-arm circumference measurements were taken at each clinic. From 31 months onwards waist circumference was measured and, from 49 months, sitting height and hence leg length were determined.

We are indebted to Prof. Michael Preece, Head of the Department of Growth and Development, Institute of Child Health, London and to Les Cox from the same department, for their advice and assistance.

Clinic	Variable	Tester number *										Missing
		1	2	3	4	5	6	7	8	9		
4m	CF030	143	419	221	15	111	98	-				16
8m	CF031	117	25	436	334	290	85	27				
12m	CF032	240	420	97	334	14	8	114	14	-	-	
18m	CF033	143	437	161	101	219	43	70	-	-		9
25m	CF034	33	599	36	315	52	91	-	-	-		1
31m	CF035	97	430	316	197	68	27	-	-	-		
37m	CF036	616	80	319	260	57	128	551	-	-		5
43m	CF037	16	433	66	33	11	181	180	34	110		1
49m	CF038	195	203	253	112	95	56	118	-	-		
61m	CF039	236	318	271	7	156	-	-	-	-		

\*Tester number is not the same person at each clinic

#### Validation and reliability

Before the 4 month clinic, staff repeatedly measured a metal rod of known length using the Harpenden Neonatometer. This was supervised and analyses by Dr. Maria Bredow. There were no statistically significant differences between observers.

At 12 months all measurements were done on the same 10 children by each of the 5 measurers in turn, confirming their reliability.

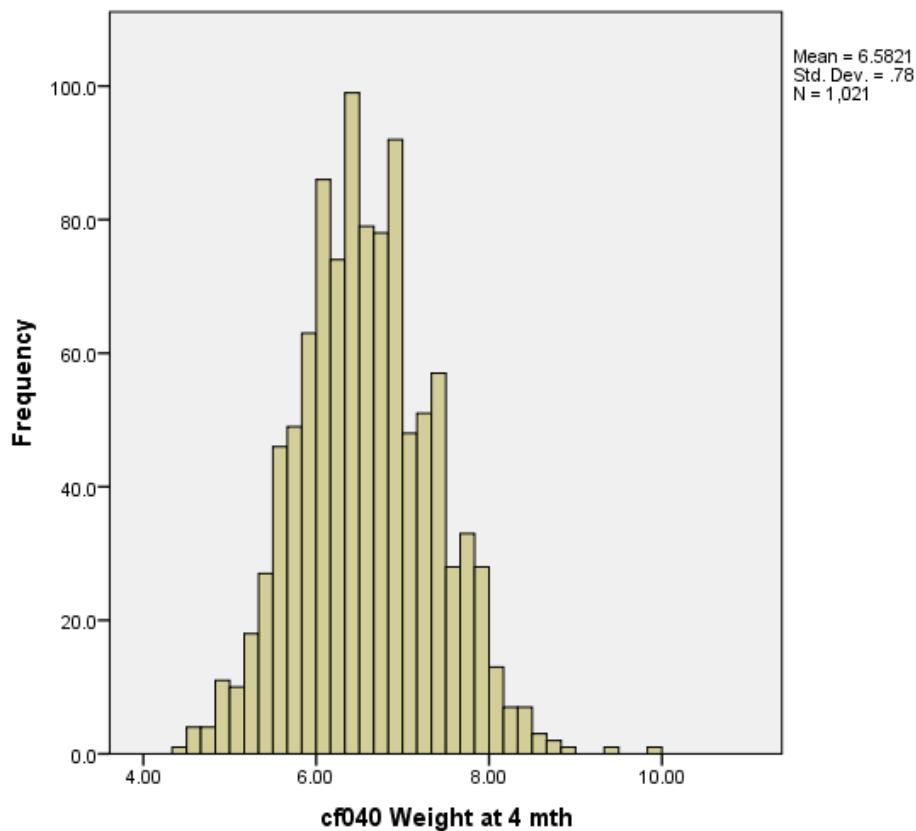
At 25 months the measurers were asked to measure 10 children with each of the other 4 measurers separately, so that no child was measured more than twice. In practice 5 pairs measured either 9 or 10 children and the 6th pair measured 7. So, pairs 1 to 5 used 9 or 10 children, pair 6 used 7 children.

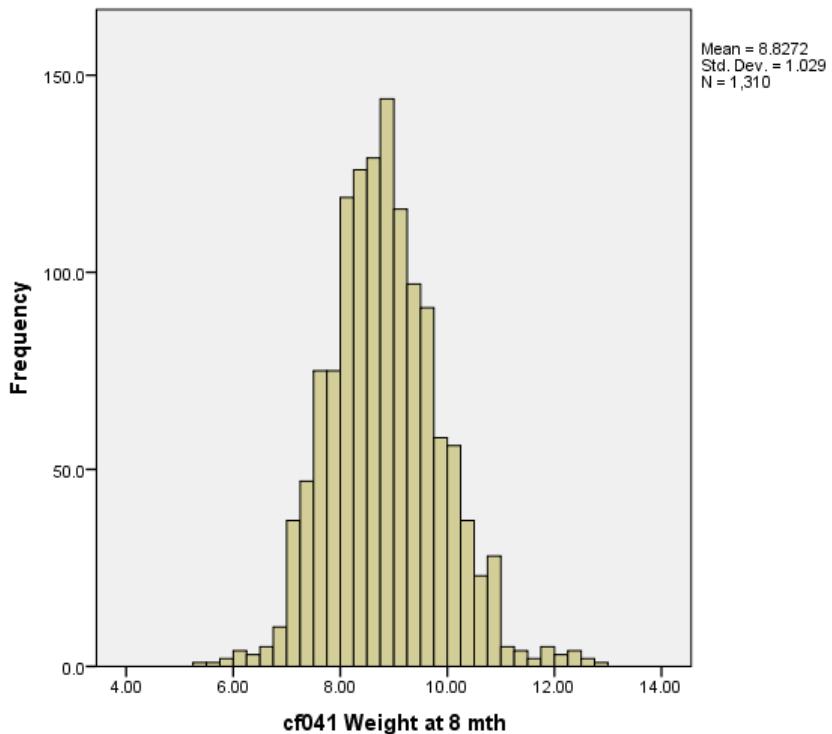
At 49 months, one experienced measurer, Hazel Blake, measured children after each of the other measurers. Twenty children were used for height, sitting height and waist circumference and 10 children for circumference of arm and head, the variance from the mean being less than the other measures.

### 2.1.1 Weight Equipment used

- 4 months: Fereday 100kg combined scale.
- 8 months: Soenkle scale or Seca scale, model 724.
- 12 months: Seca 724 or Seca 835 (for children who could only be weighed with parent).
- 18 months onward: Seca 835.

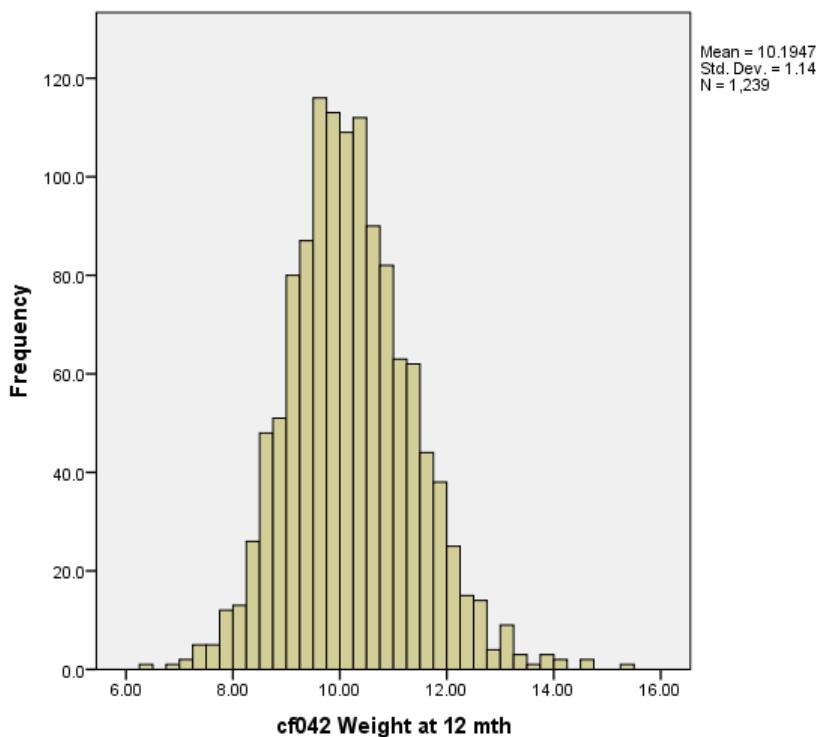
We are grateful to the Child Growth Foundation for the loan or donation of all the above equipment, excepting only the Fereday scales, and to Tyndall's Park Children's Centre for the use of these scales.





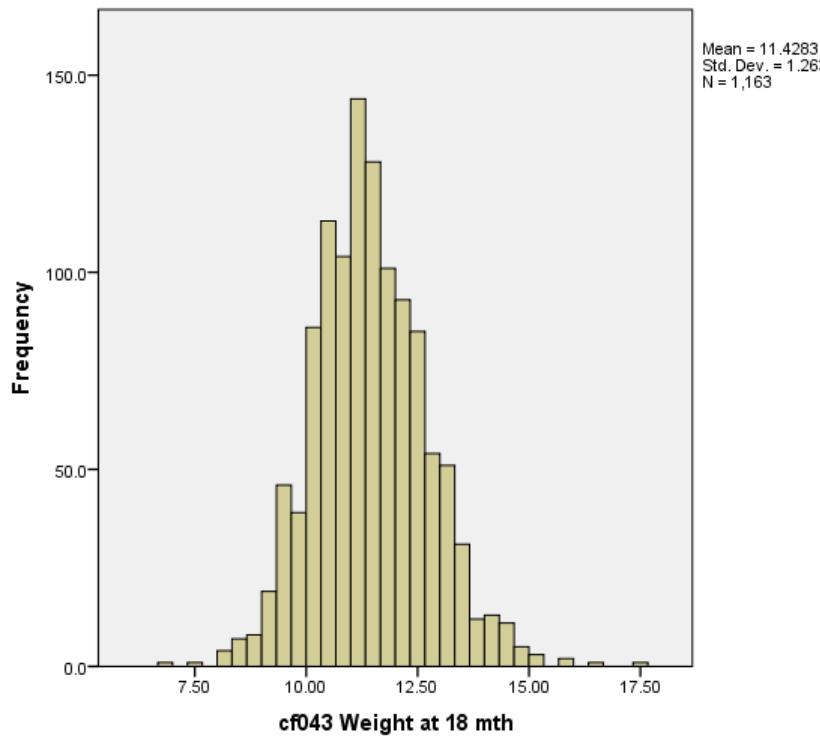
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf041a % increase in weight per week since last visit 8 mth	907	-.74	5.65	1.3596	.30051



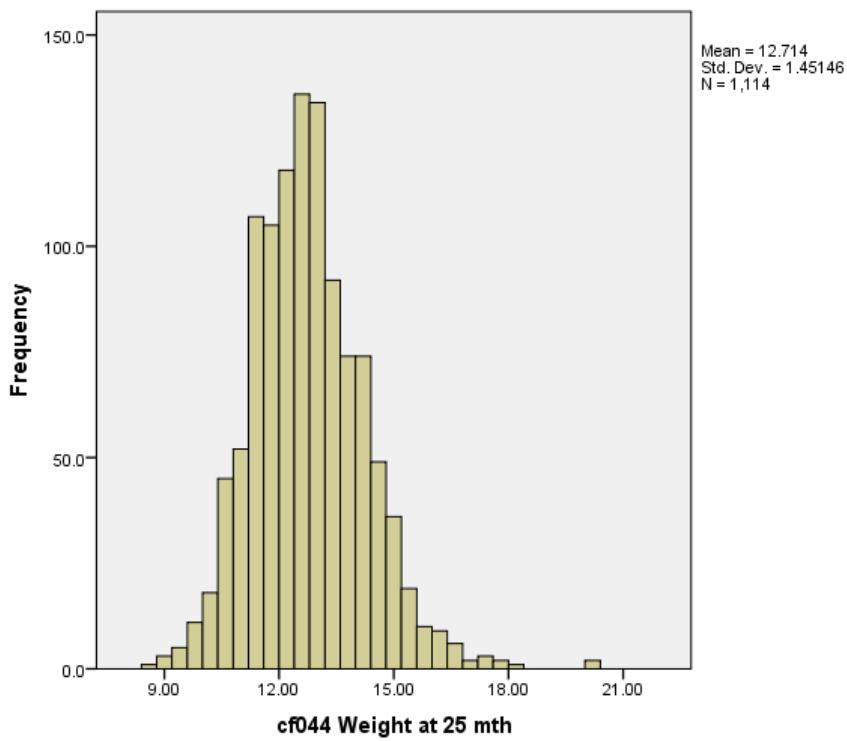
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf042a % increase in weight per week since last visit 12 mth	1193	-1.01	1.88	.7274	.22374



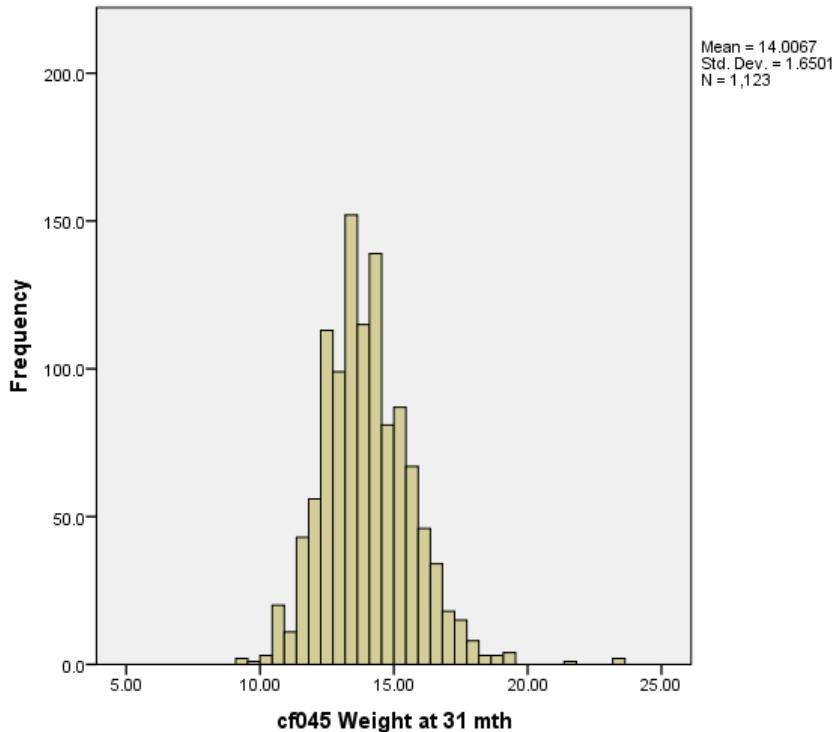
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf043a % increase in weight per week since last visit 18 mth	1099	-.35	.89	.4097	.14369



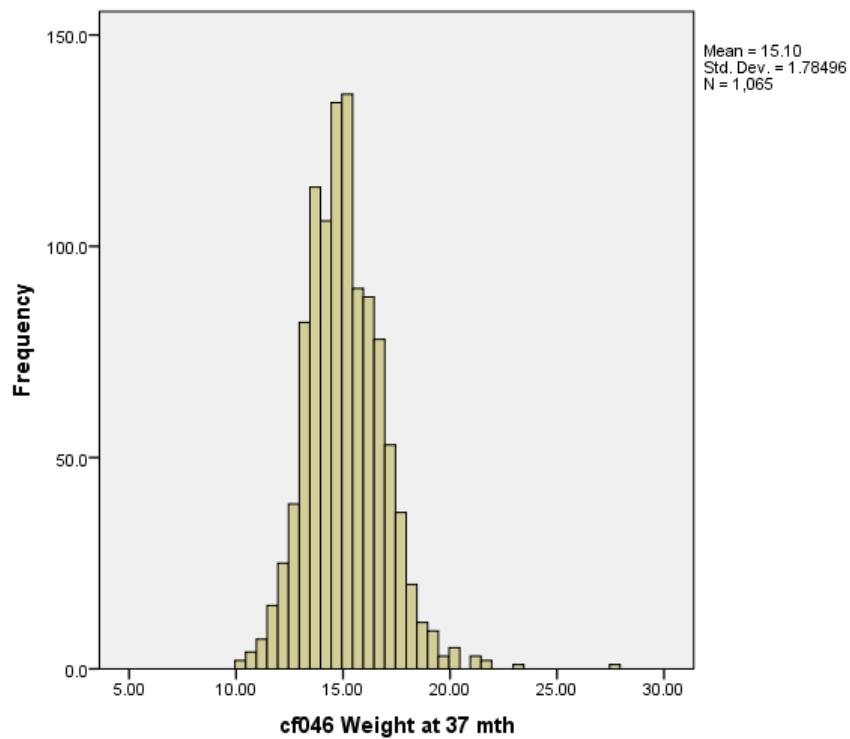
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf044a % increase in weight per week since last visit 25 mth	1043	-.31	1.05	.3544	.13304



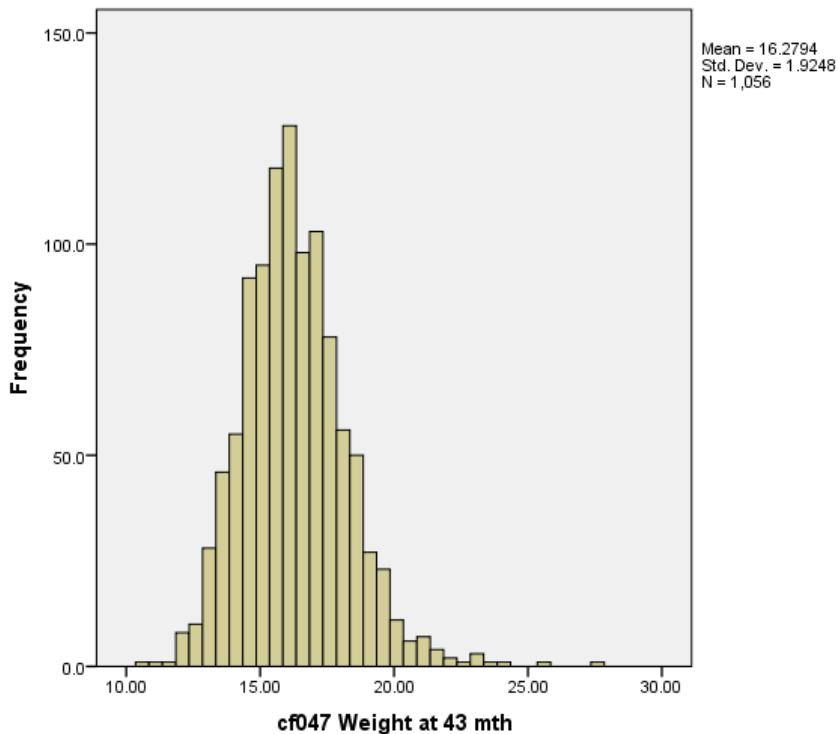
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf045a % increase in weight per week since last visit 31 mth	1027	-.62	.83	.3449	.12763



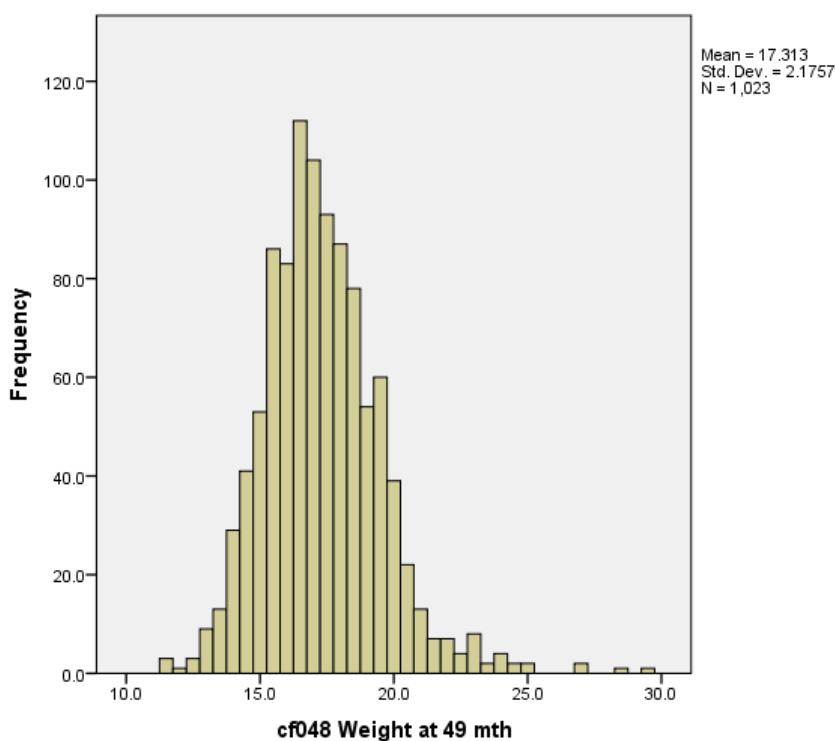
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf046a % increase in weight per week since last visit 37 mth	1005	-.33	.91	.2800	.12756



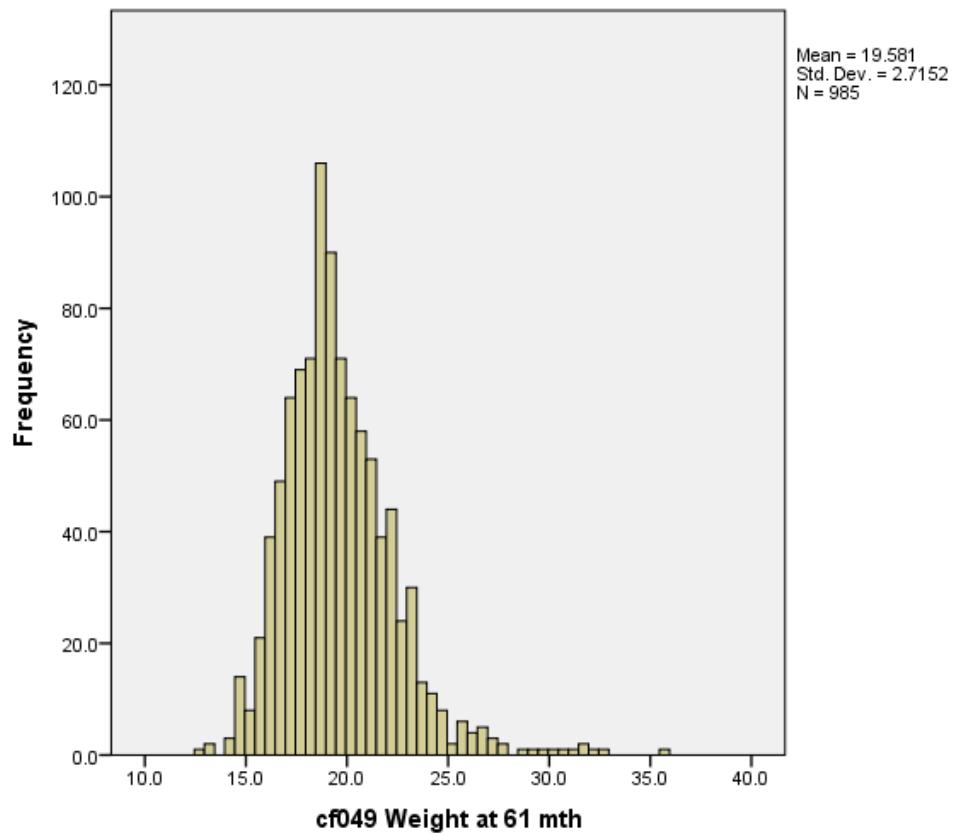
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf047a % increase in weight per week since last visit 43 mth	969	-.20	1.06	.2695	.11984



Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf048a % increase in weight per week since last visit 49 mth	967	-1.19	.81	.2277	.13542



Descriptive Statistics

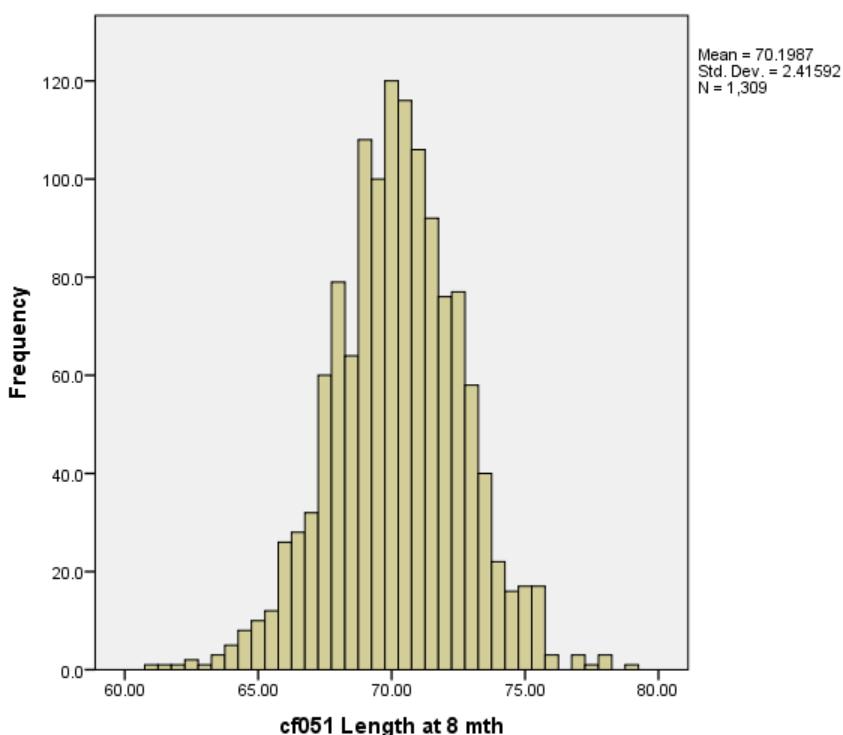
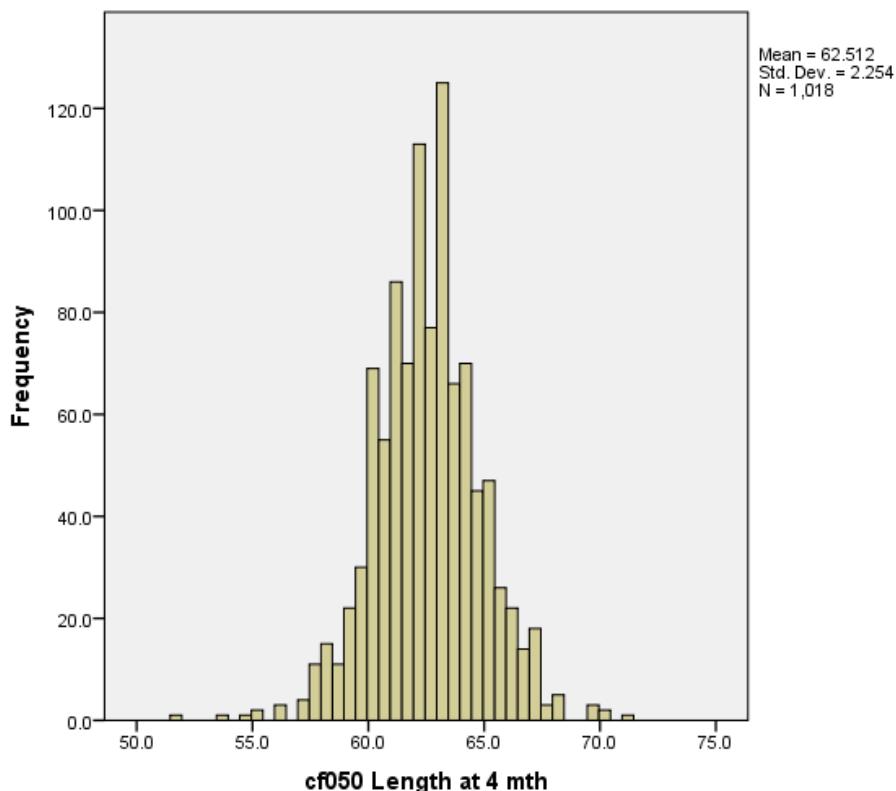
	N	Minimum	Maximum	Mean	Std. Deviation
cf049a % increase in weight per week since last visit 61 mth	916	.03	.61	.2085	.06605

## 2.1.2 Length/height

### Equipment used:

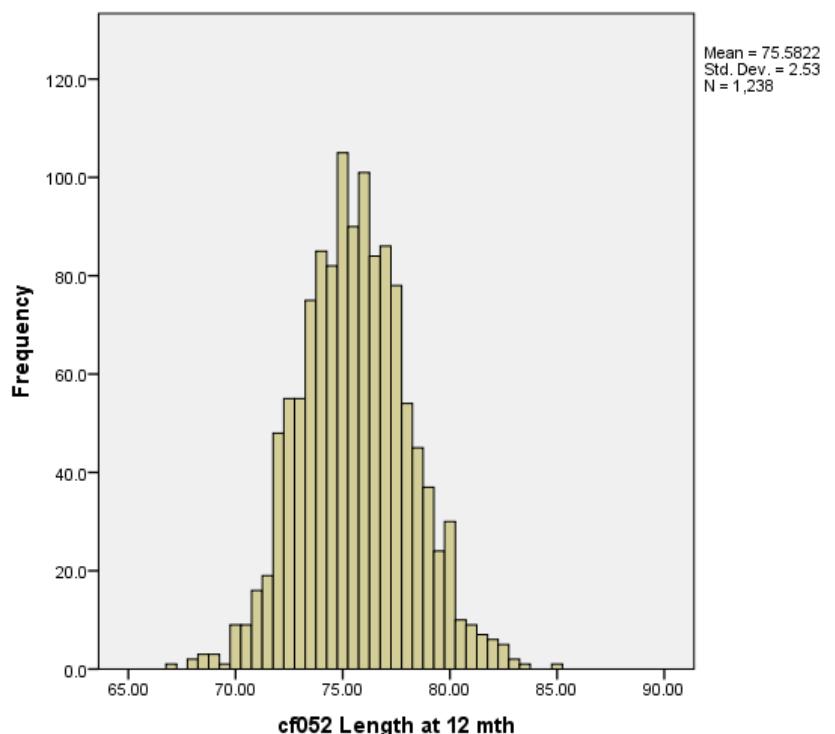
Length (crown-heel): 4 months: Harpenden Neonatometer (Holtain Ltd)  
8 – 25 months inclusive: Kiddimetre (Raven Equipment Ltd).  
Height: from 25 months onwards: Leicester height measure.

### Crown heel length



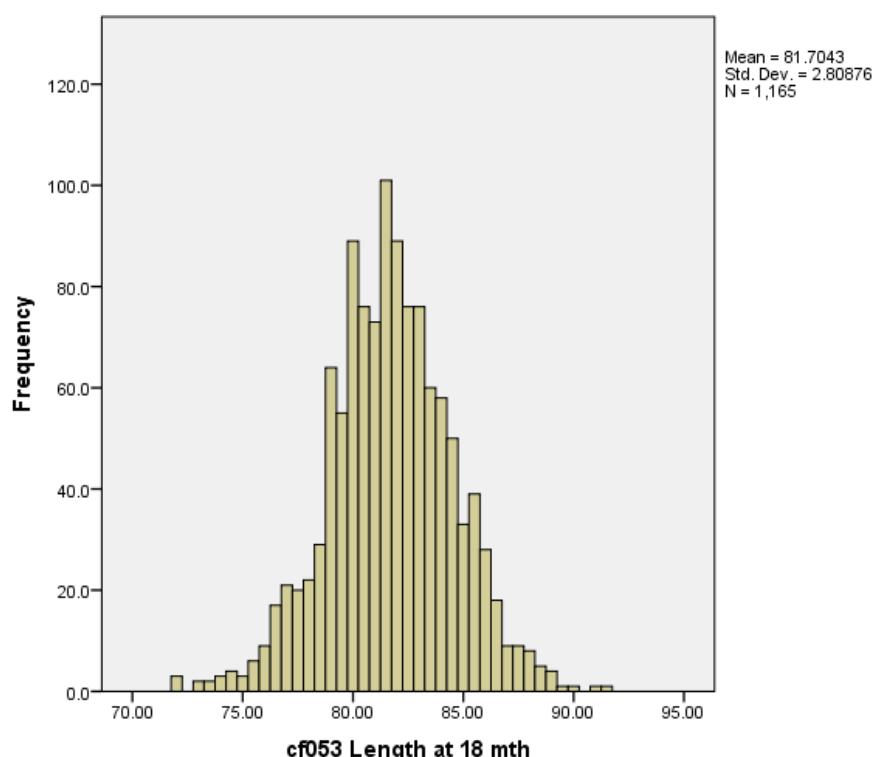
### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf051a % increase in length per week since last visit 8 mth	903	.28	1.83	.6718	.12243



### Descriptive Statistics

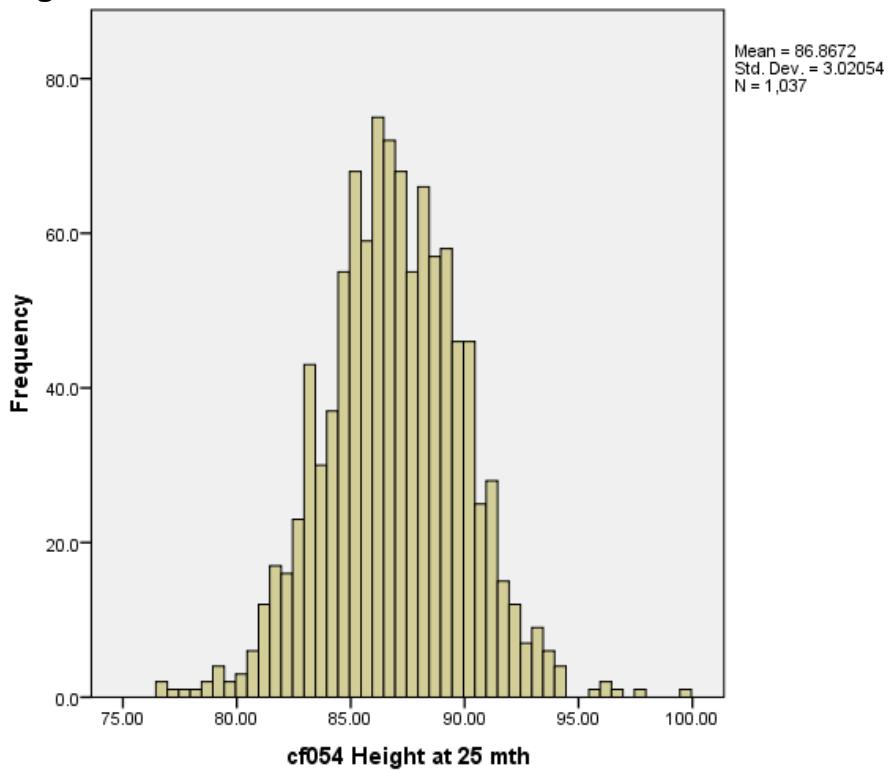
	N	Minimum	Maximum	Mean	SD
cf052a % increase in length per week since last visit 12 mth	1191	.14	.80	.4170	.09406



### Descriptive Statistics

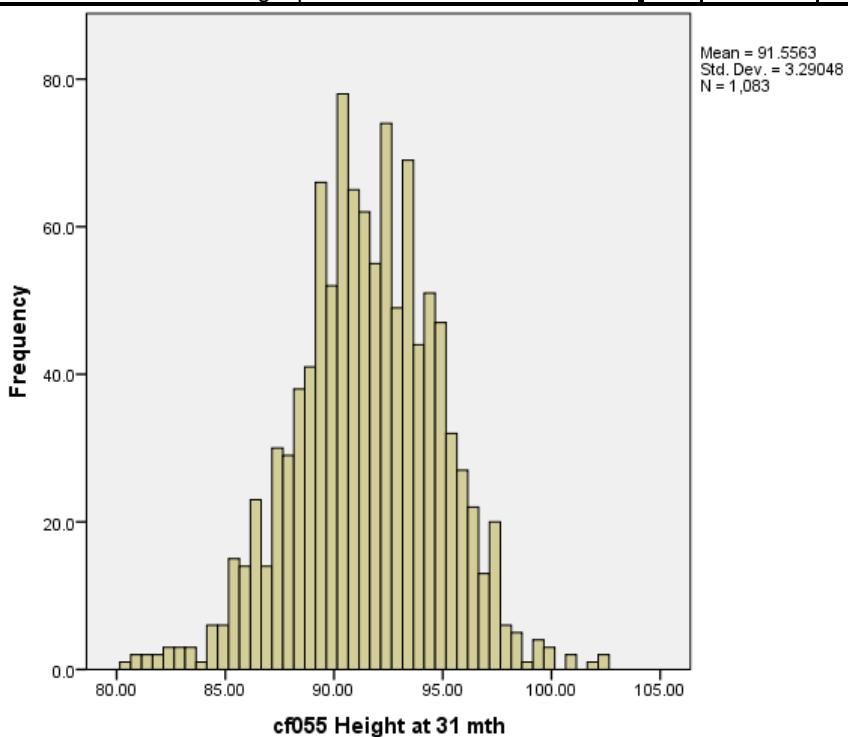
	N	Minimum	Maximum	Mean	SD
cf053a % increase in length per week since last visit 18 mth	1099	-.09	.67	.3099	.06877

## Height



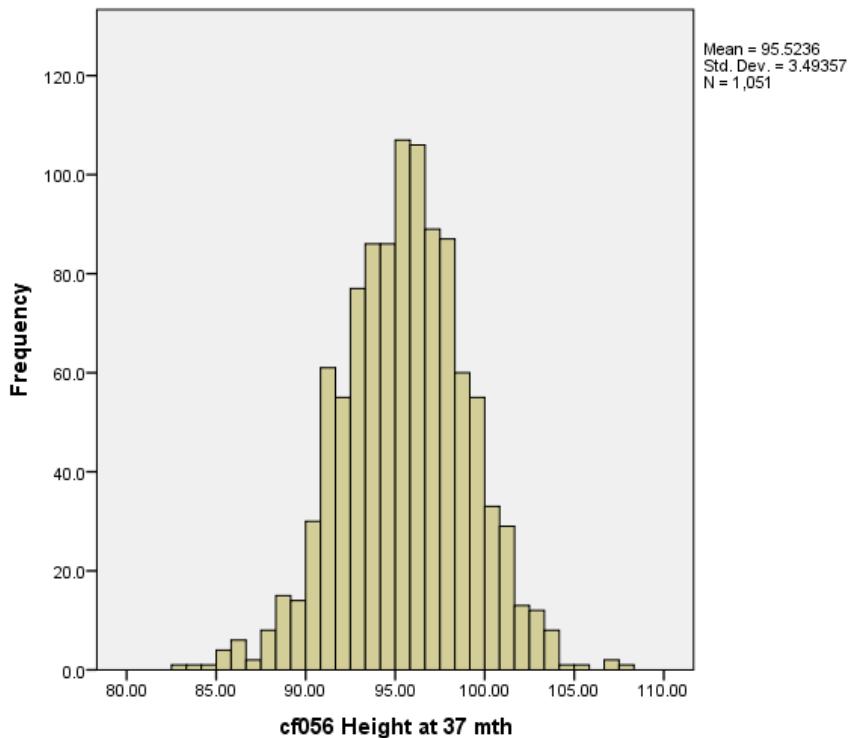
### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf054a % increase in height per week since last visit 25 mth	972	.02	.68	.2218	.05936



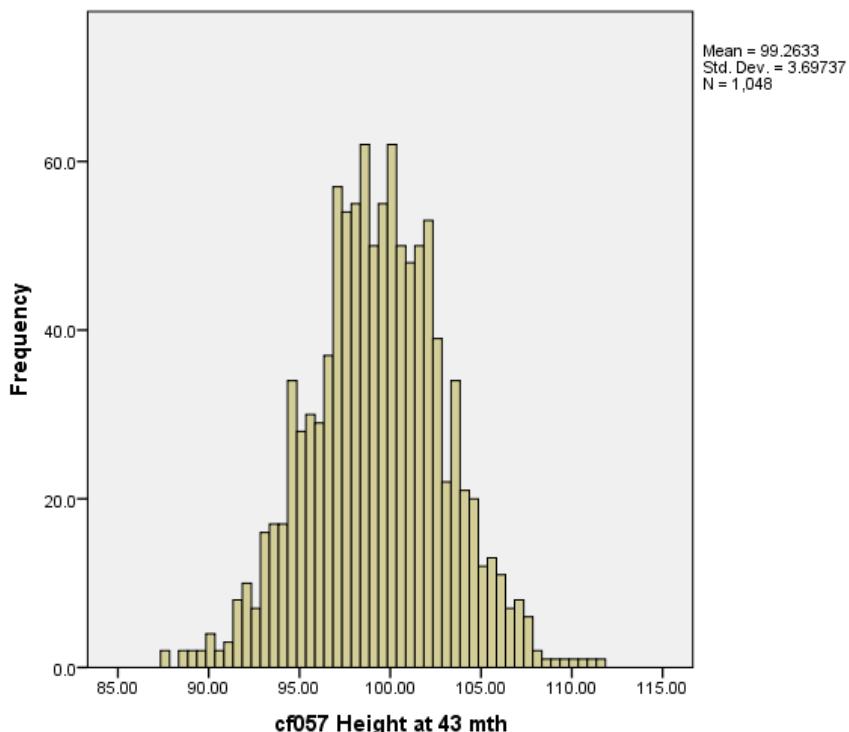
### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf055a % increase in height per week since last visit 31 mth	939	-.23	.37	.2056	.04793



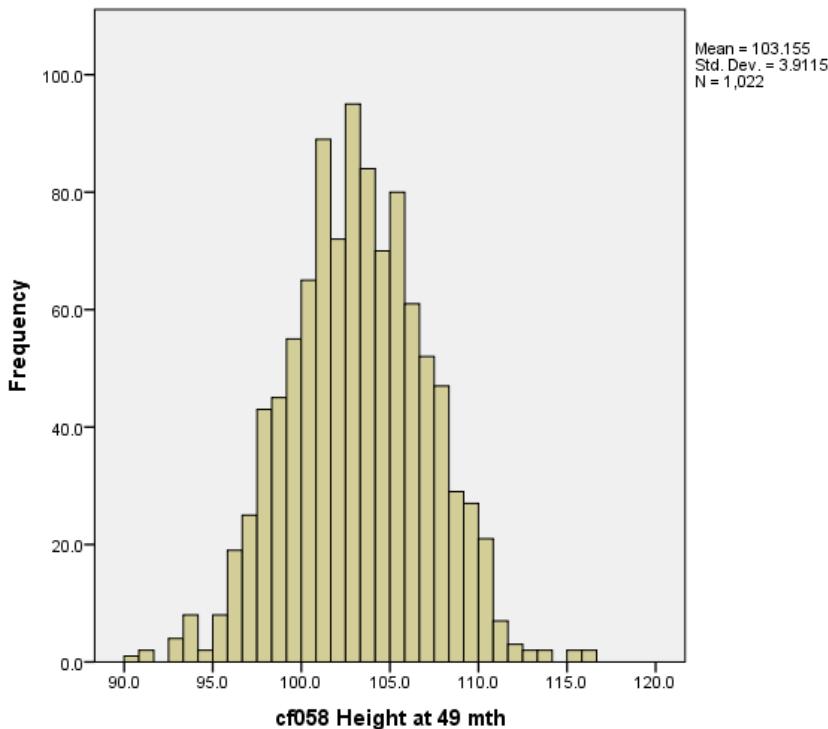
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf056a % increase in height per week since last visit 37 mth	959	-.27	.33	.1677	.04927



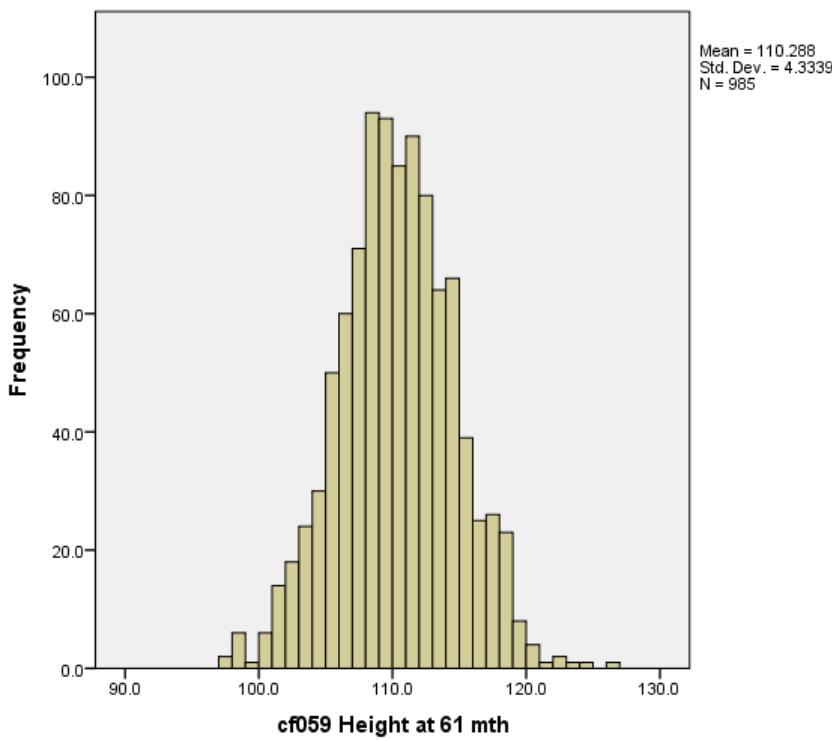
**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf057a % increase in height per week since last visit 43 mth	953	-.01	.61	.1443	.04783



Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cf058a % increase in height per week since last visit 49 mth	959	-.08	.40	.1536	.04274



Descriptive Statistics

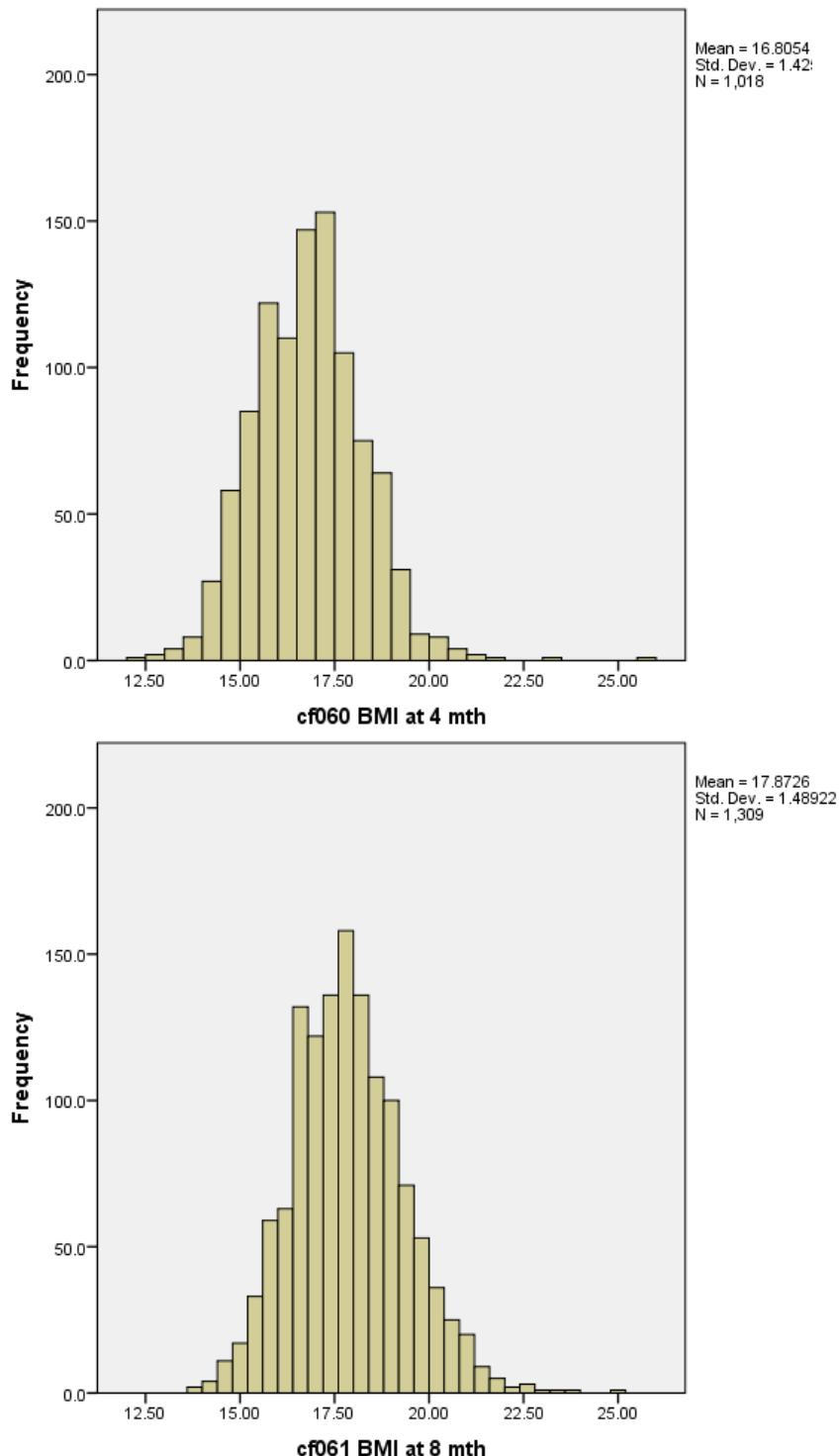
	N	Minimum	Maximum	Mean	Std. Deviation
cf059a % increase in height per week since last visit 61 mth	913	.02	.26	.1264	.01904

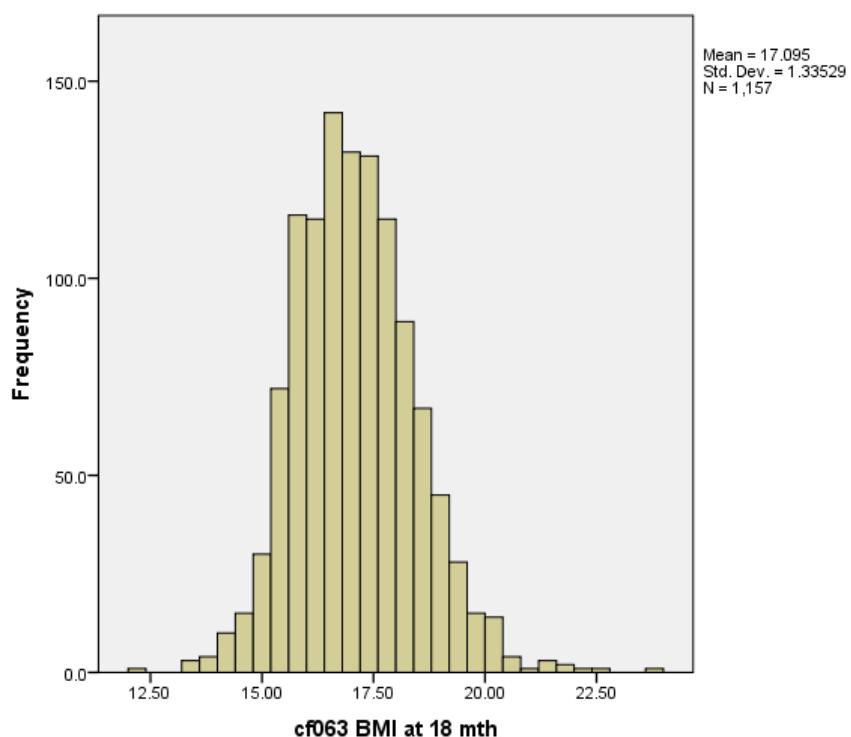
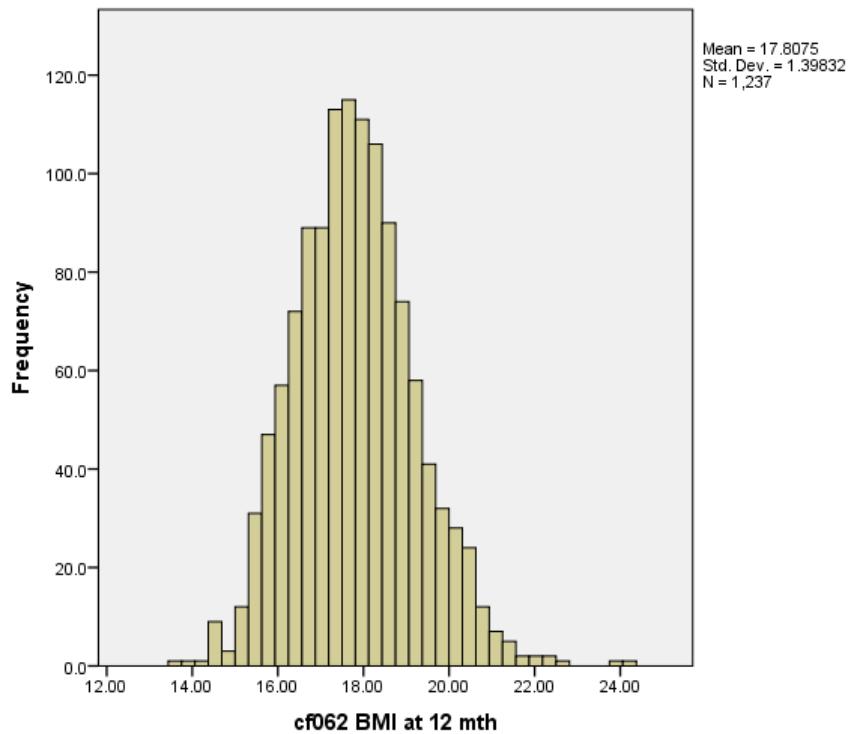
### 2.1.3 Body mass index (BMI)

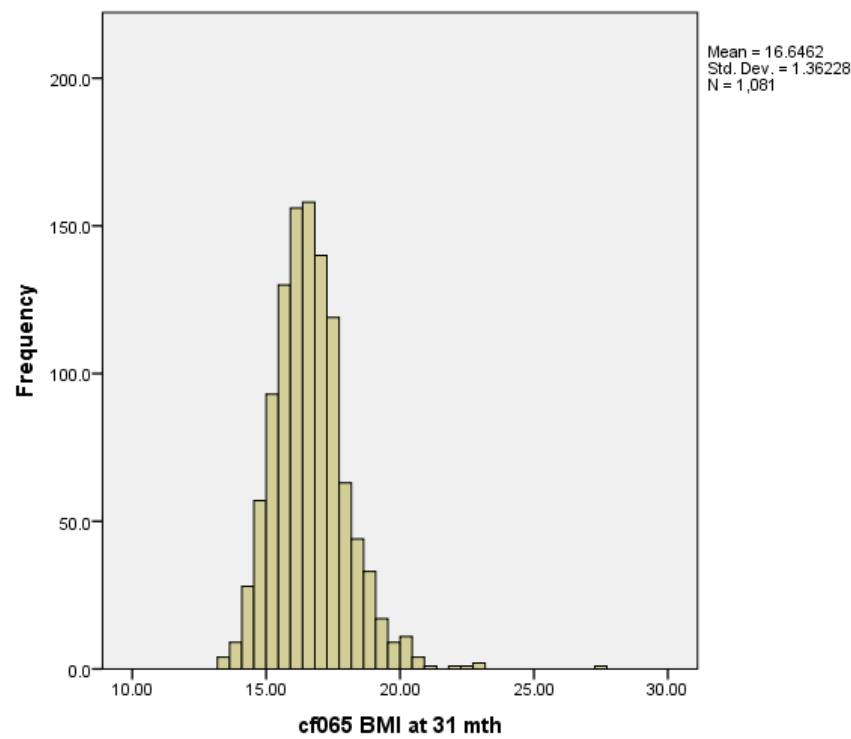
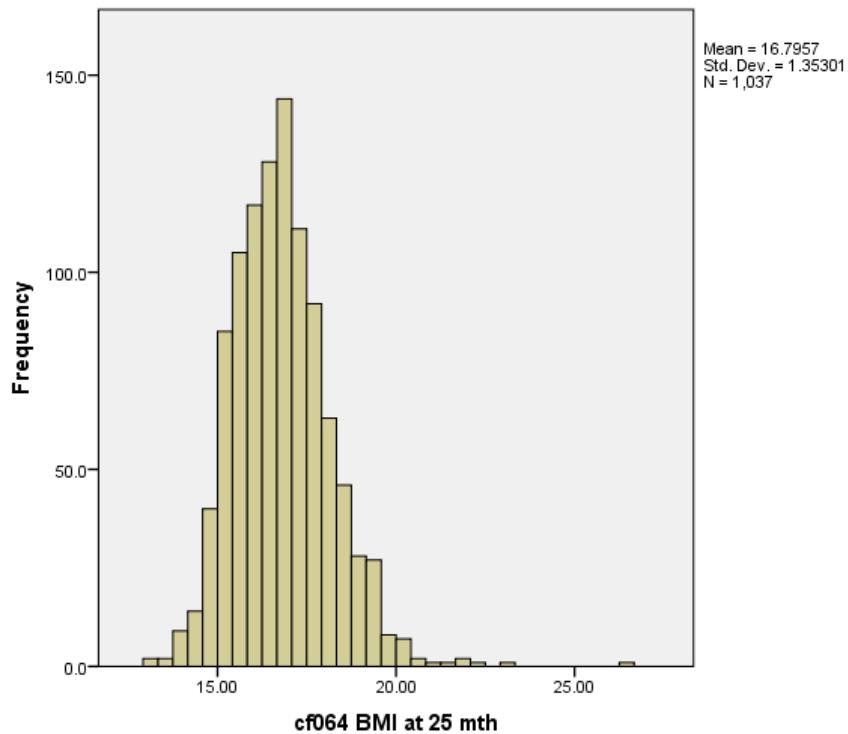
Derived from the weight and height/length, using the formula:

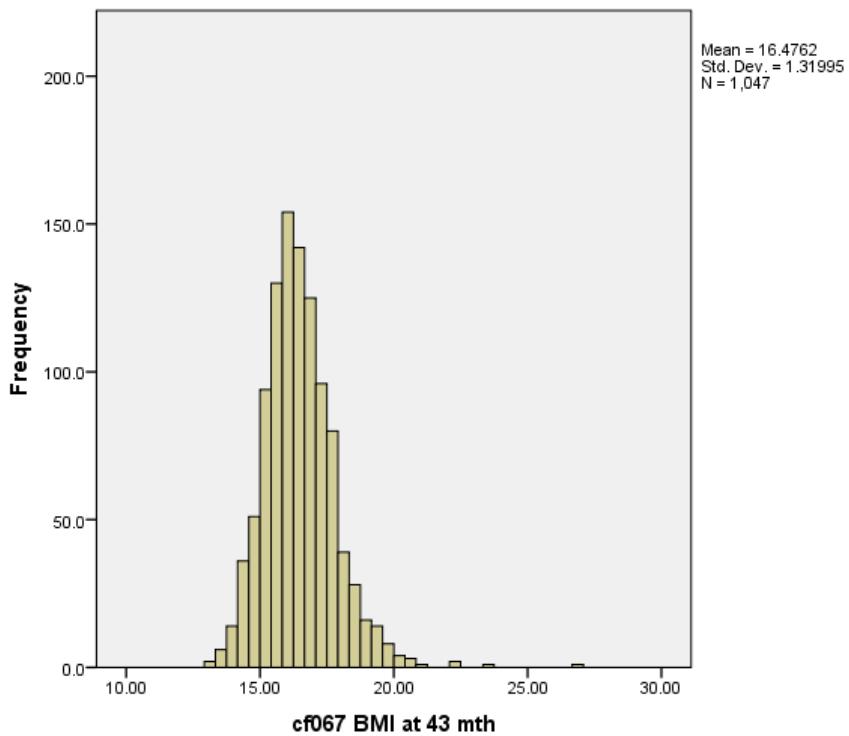
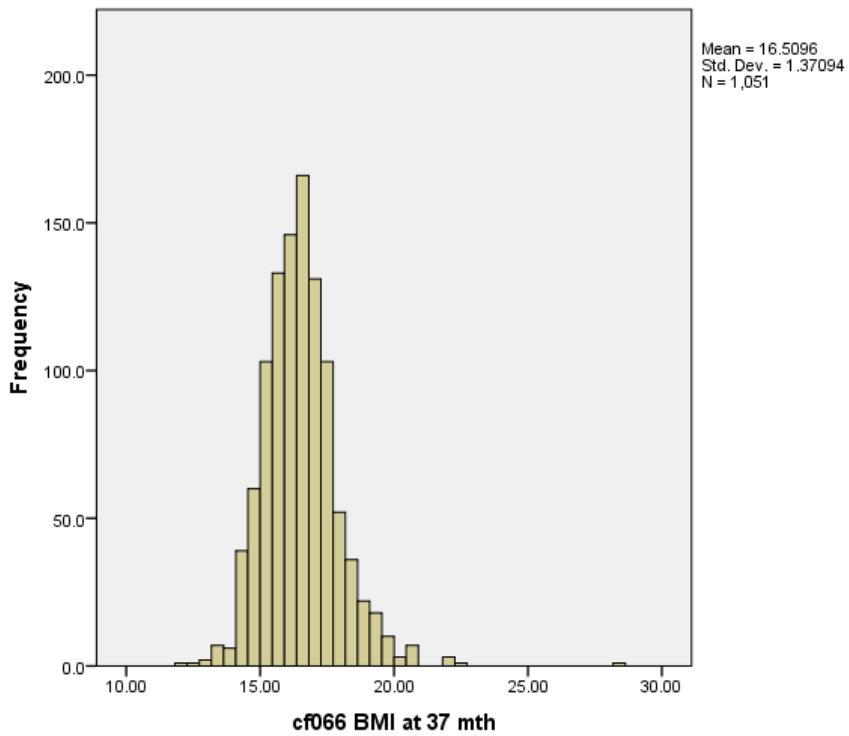
$$BMI = \text{weight (Kg)} / (\text{height (m)}^2).$$

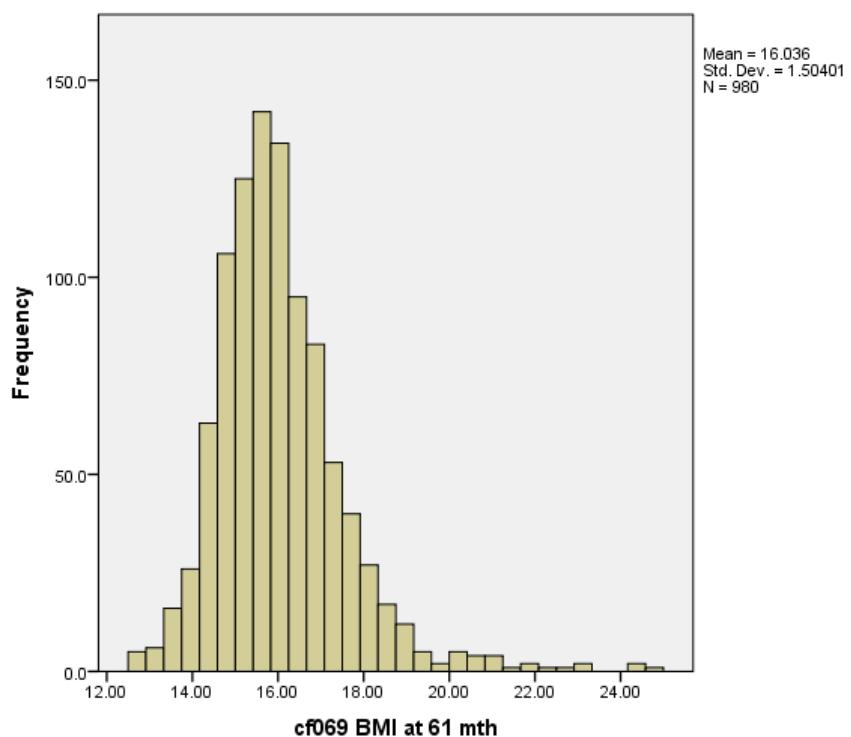
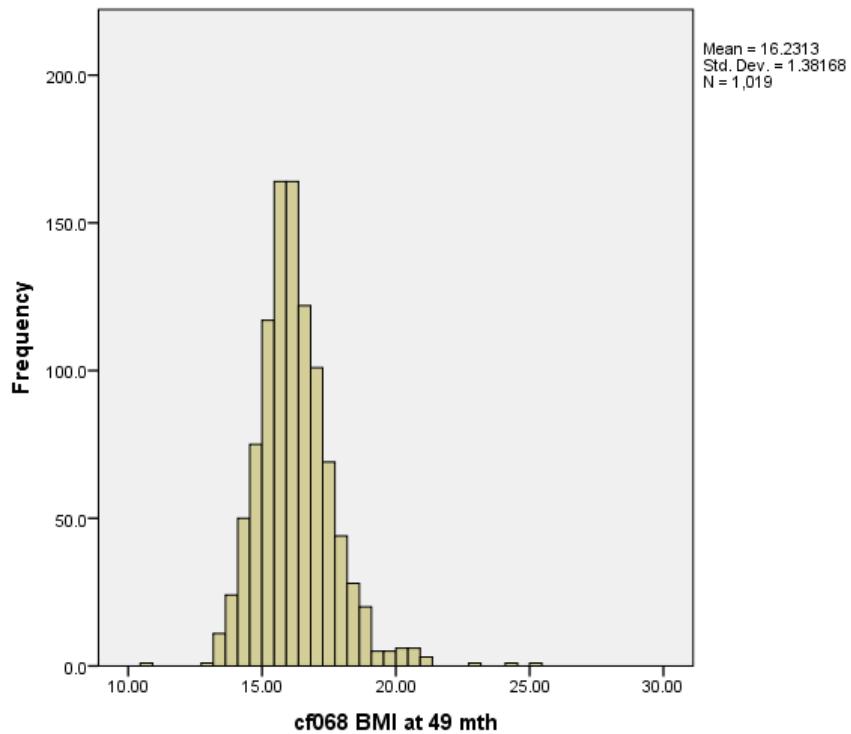
(NB: For 25 months, height is used rather than length).





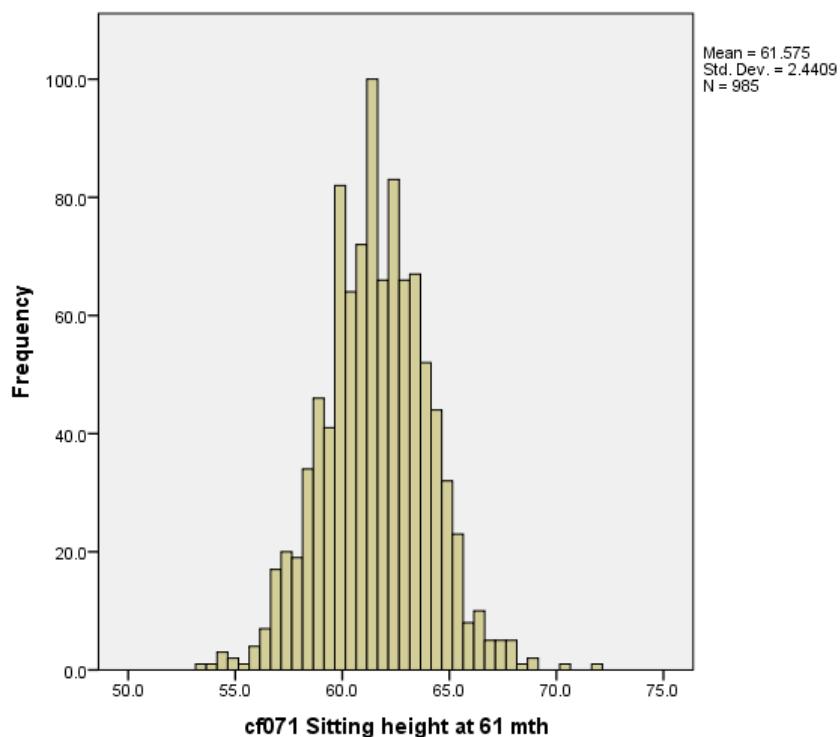
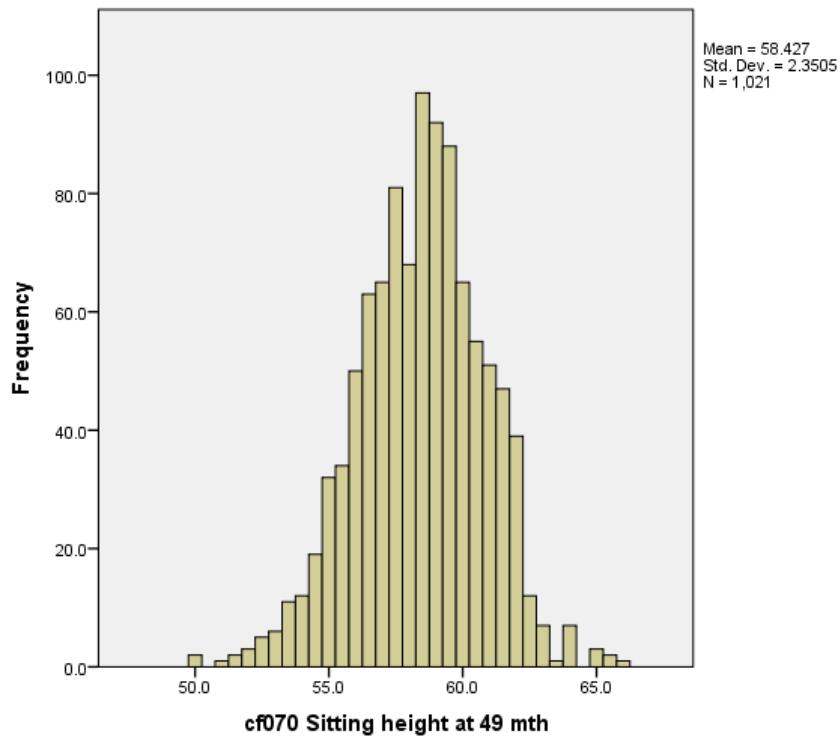






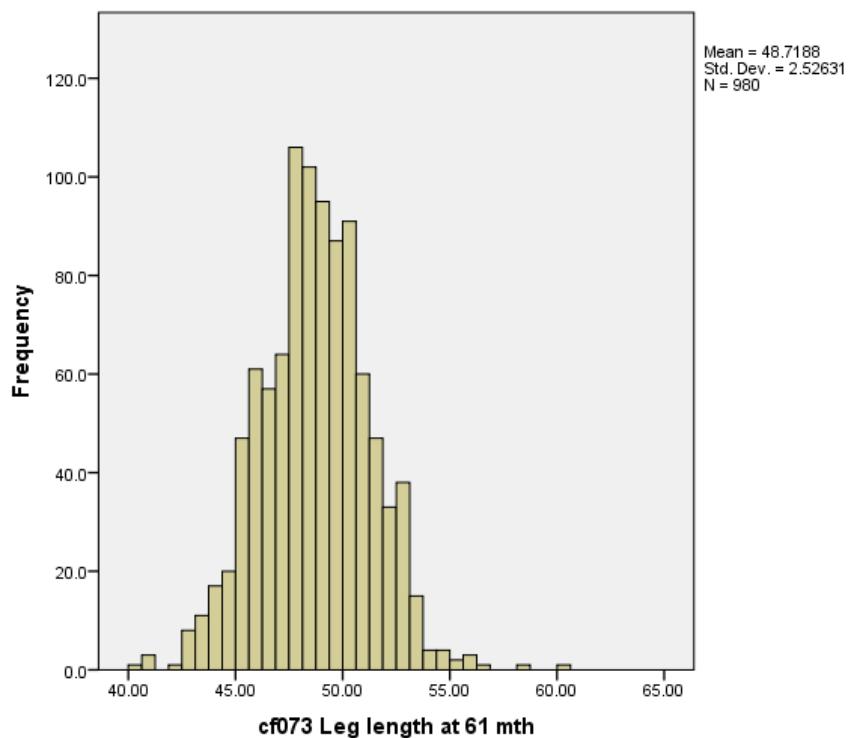
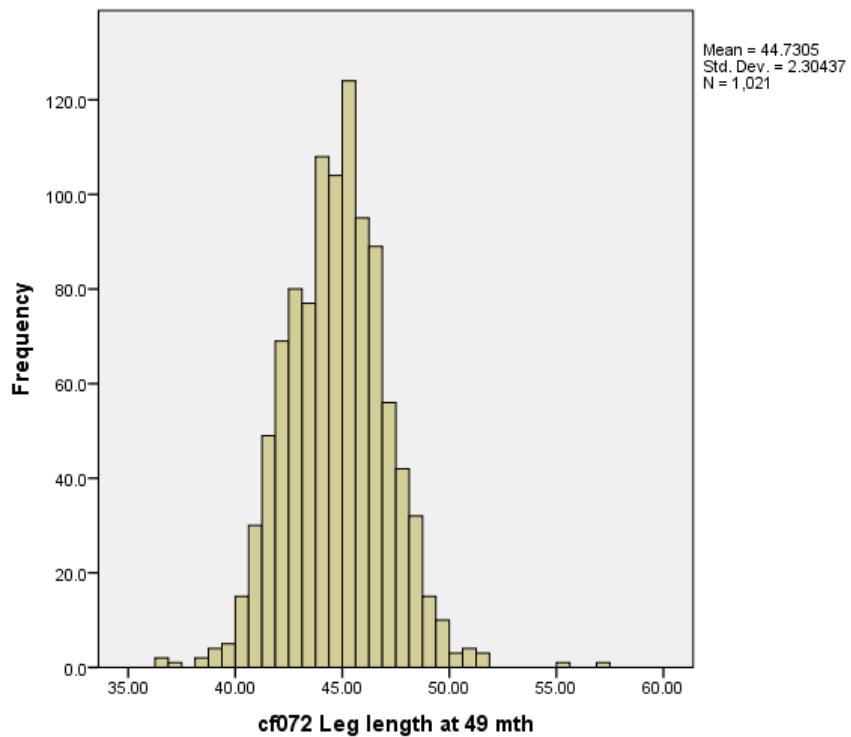
## 2.1.4 Sitting height

At 49 and 61 months, sitting height was added. The child sat with feet unsupported, bottom against the backstage, spine against upright at shoulder level, shoulders relaxed and head looking slightly down. The Leicester height measure was adapted for us to make this measurement by Mr Ray Cattle of Physics Department, University of Bristol.



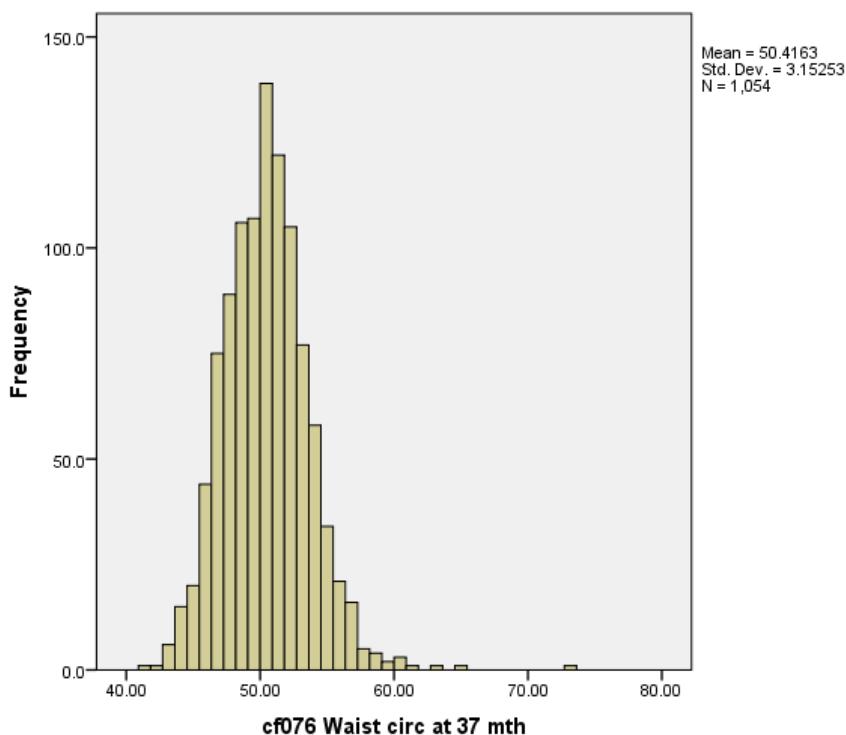
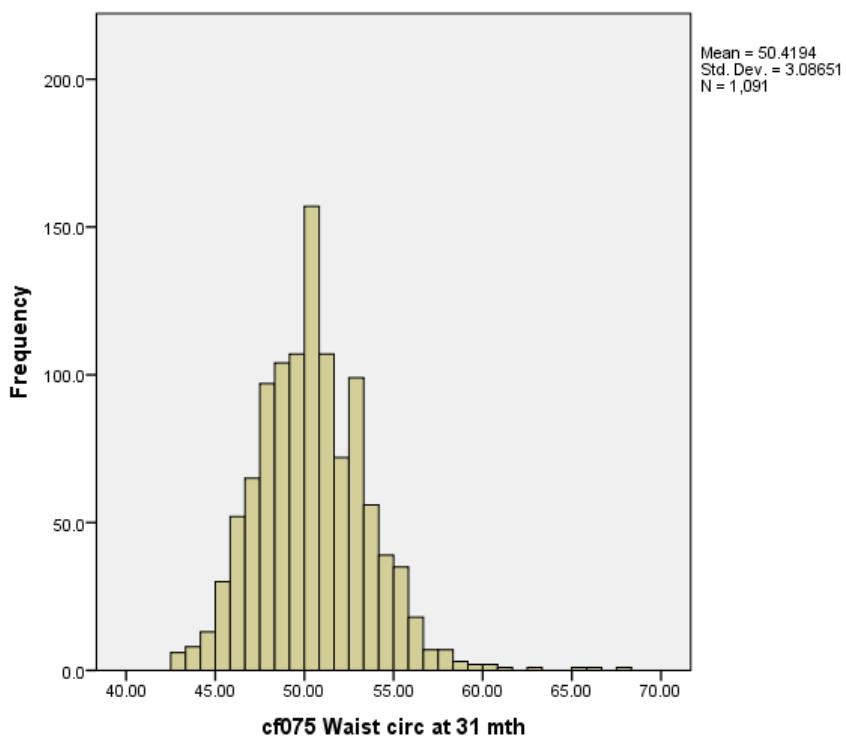
## 2.1.5 Leg length

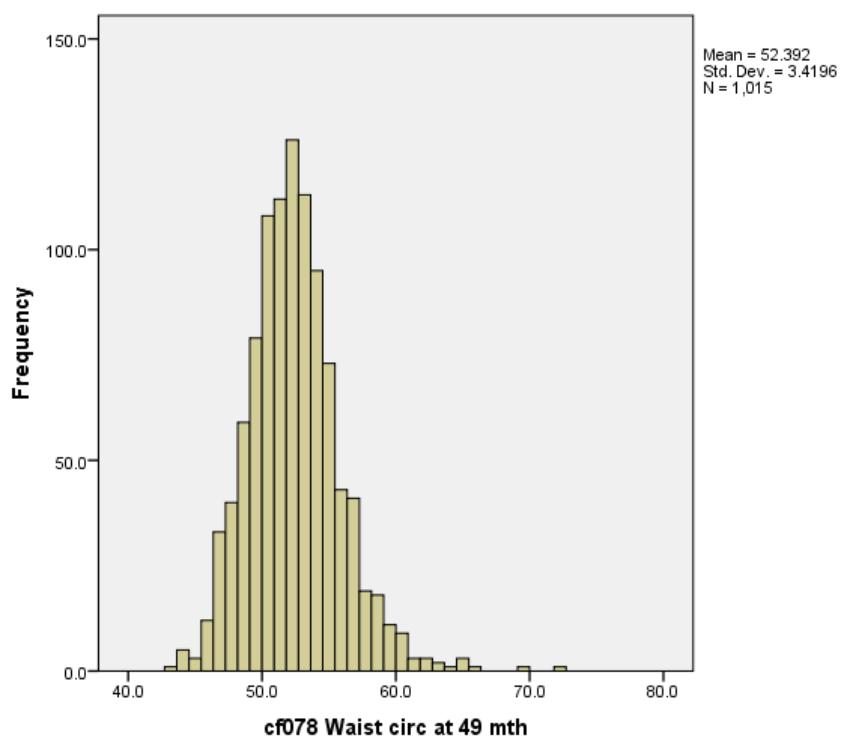
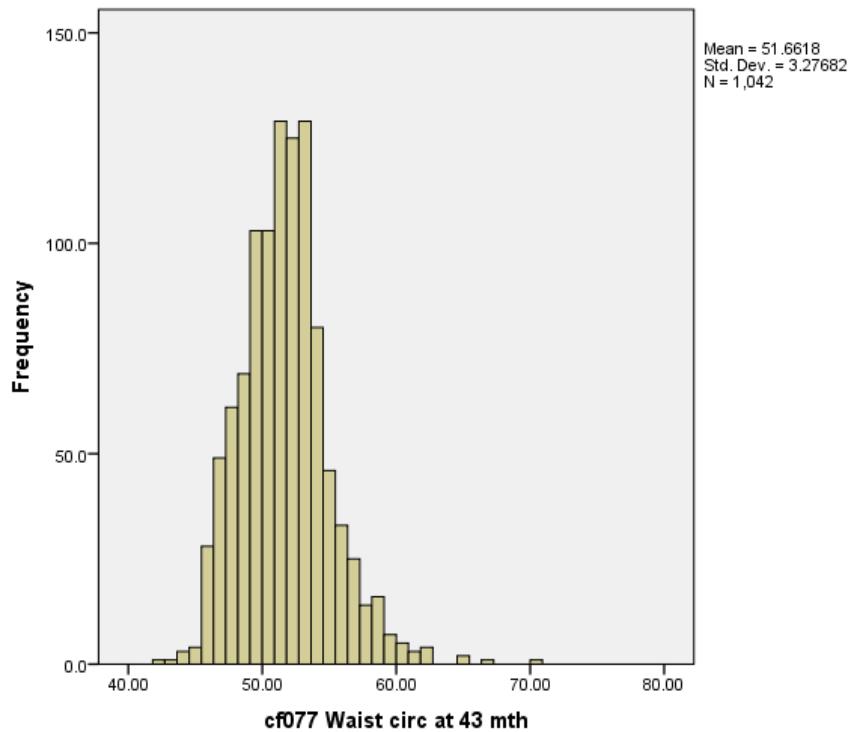
The leg leg length was calculated as the standing height minus the sitting height

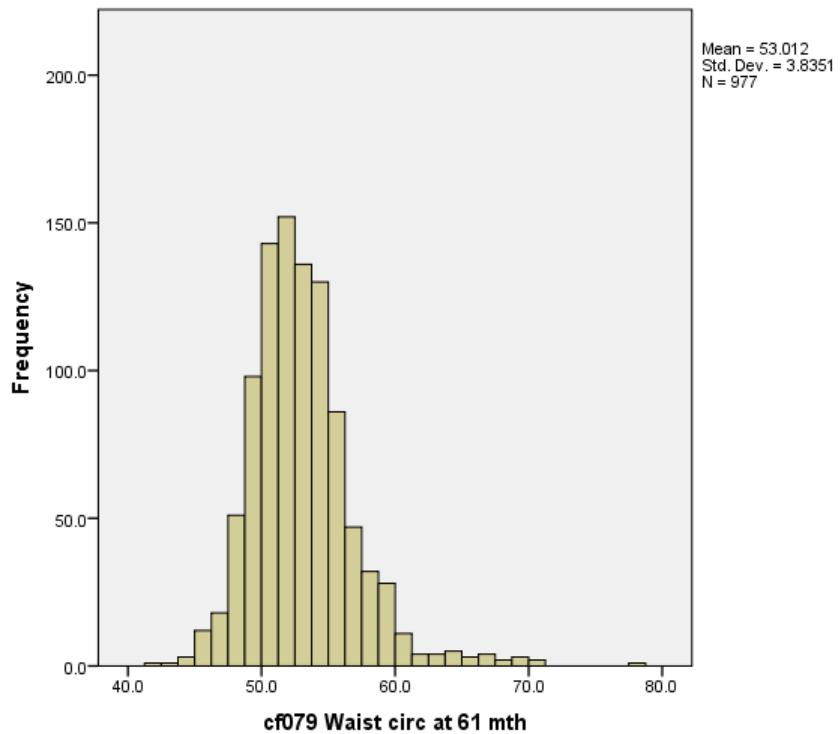


## 2.1.6 Waist circumference

From 31 months to the third week of the 37 month clinic (28<sup>th</sup> Jul 1995) the Babytape was used. From then onwards a Holtain anthropometric tape was used.

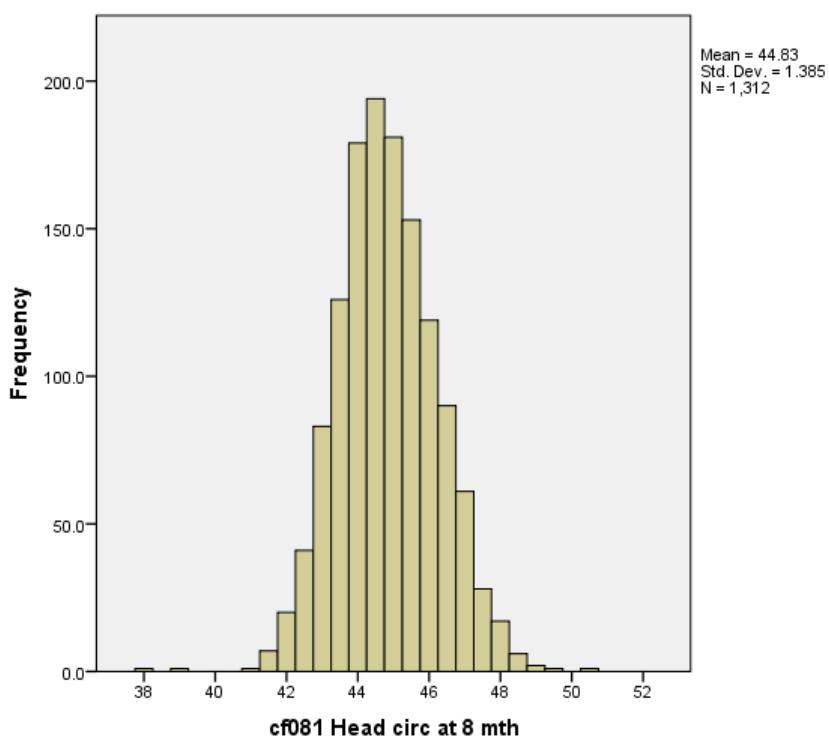
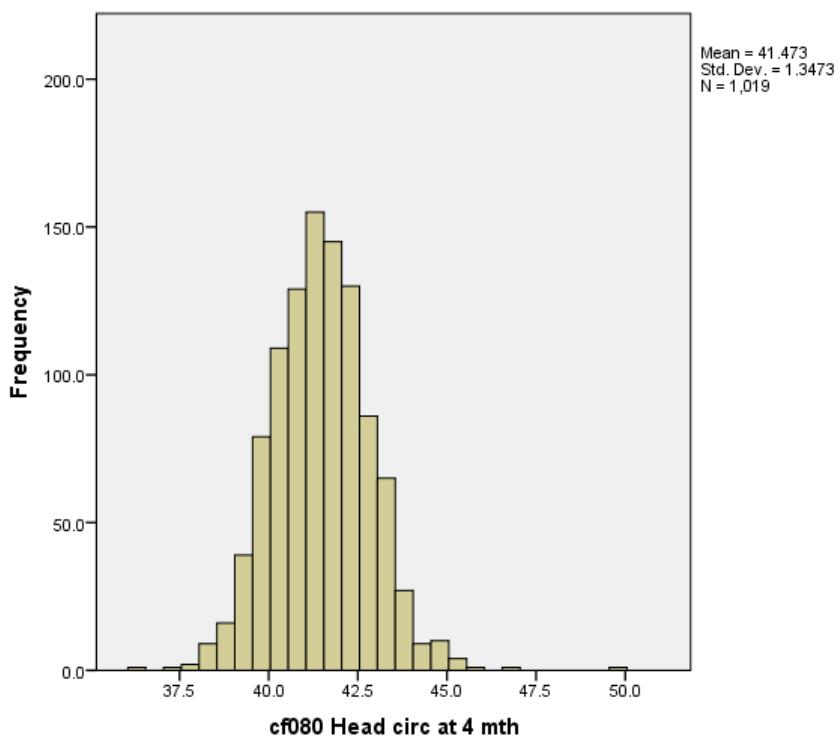


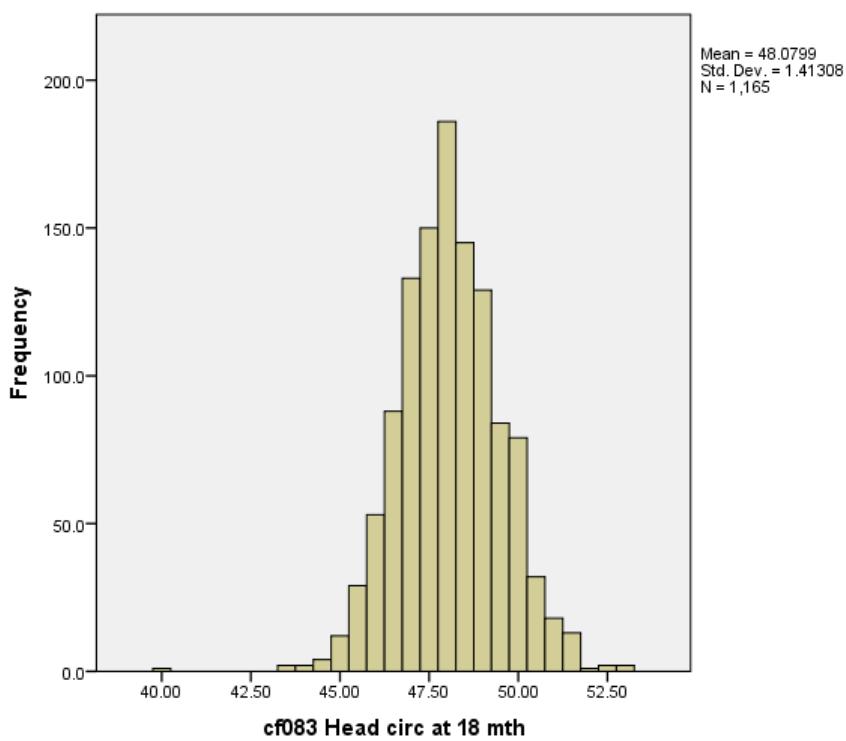
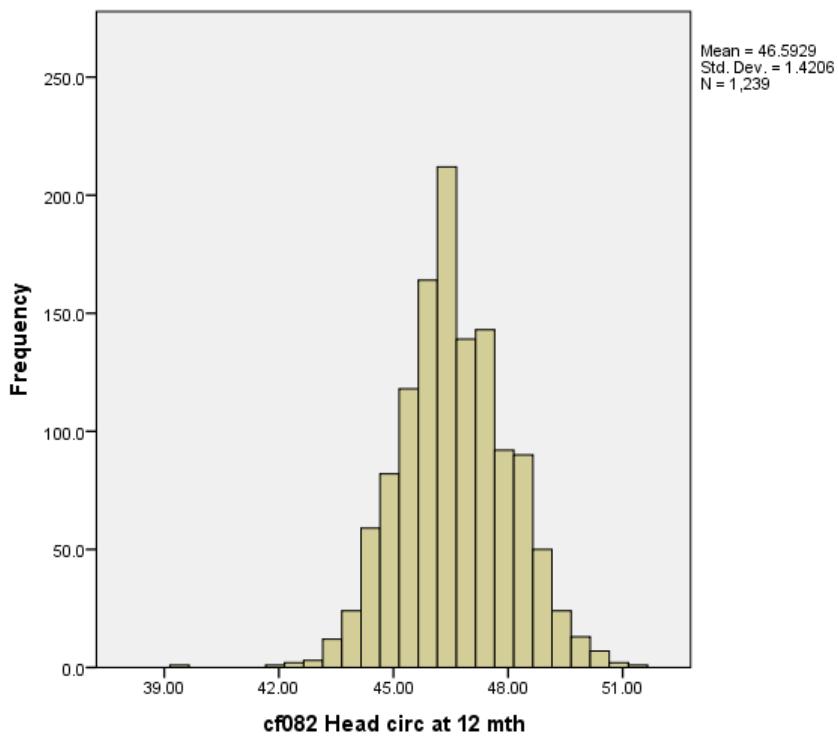


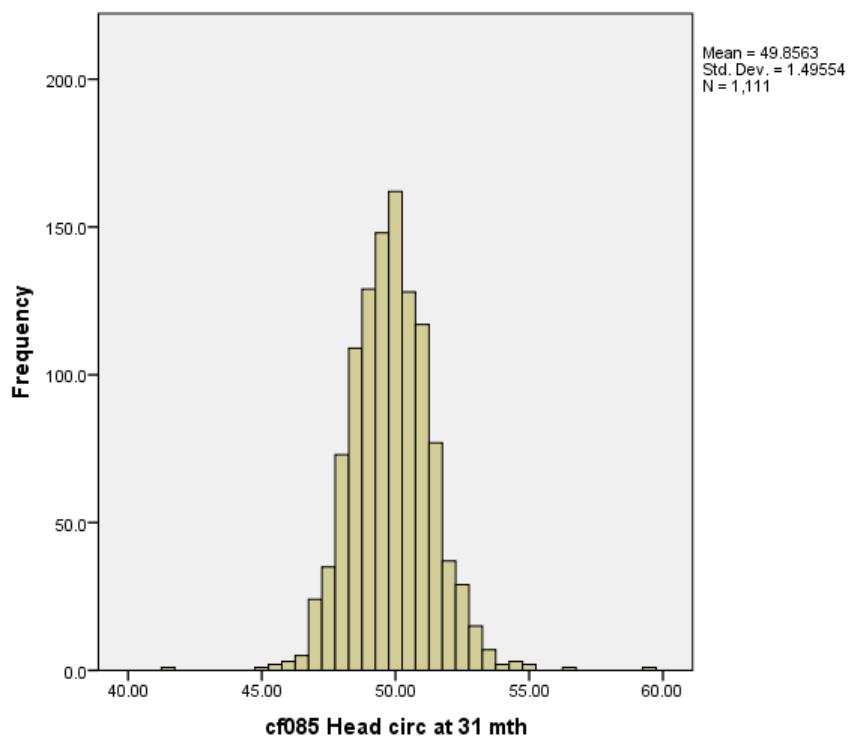
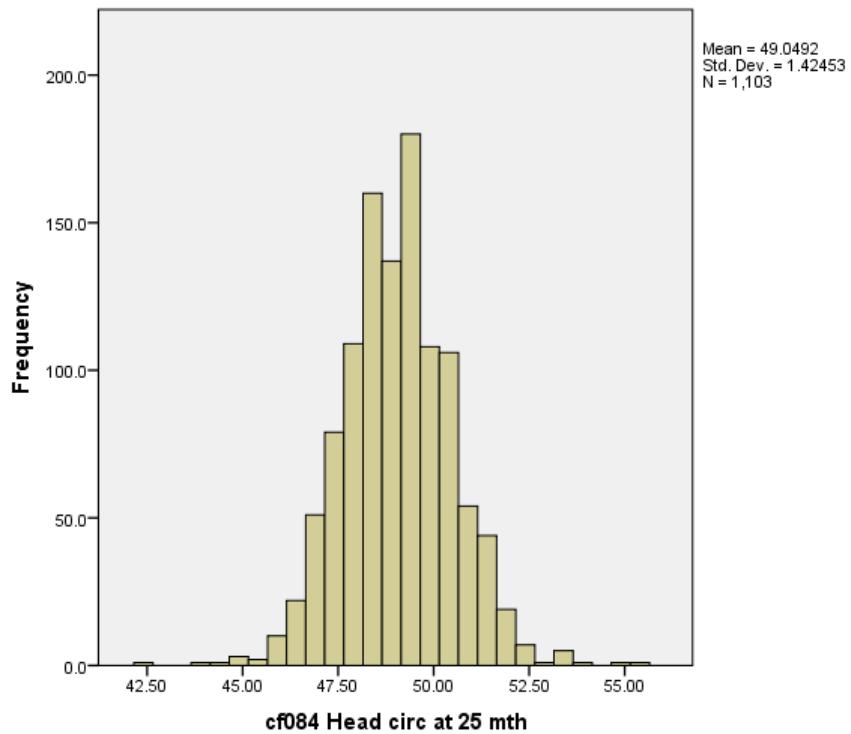


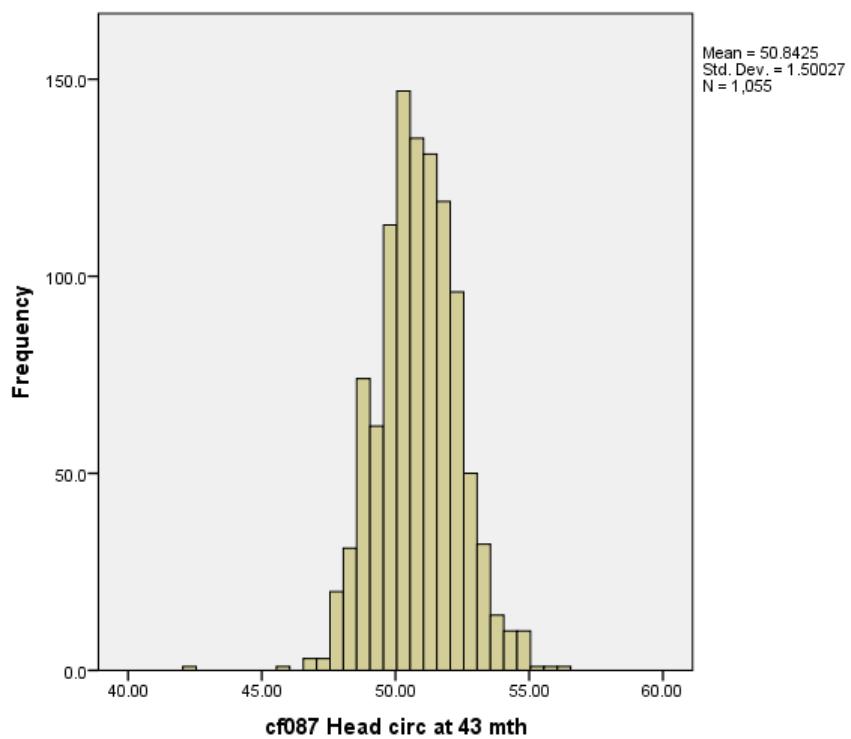
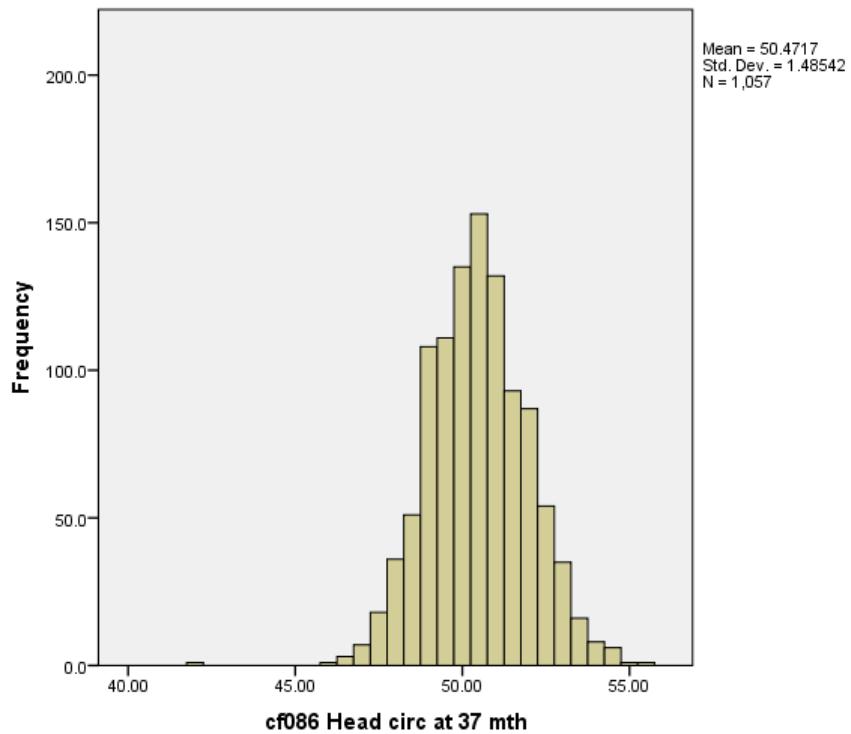
## 2.1.7 Head circumference

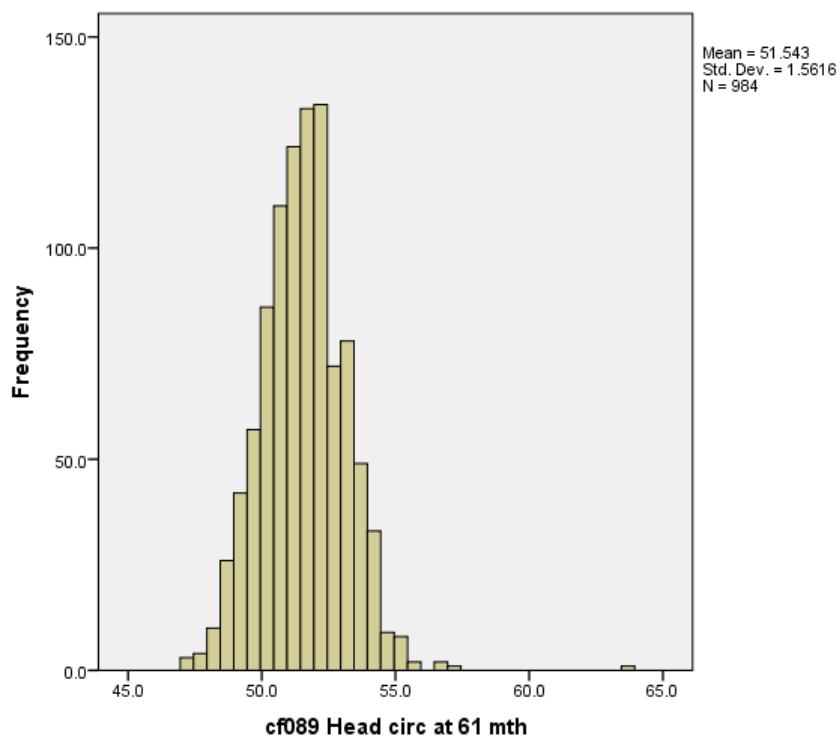
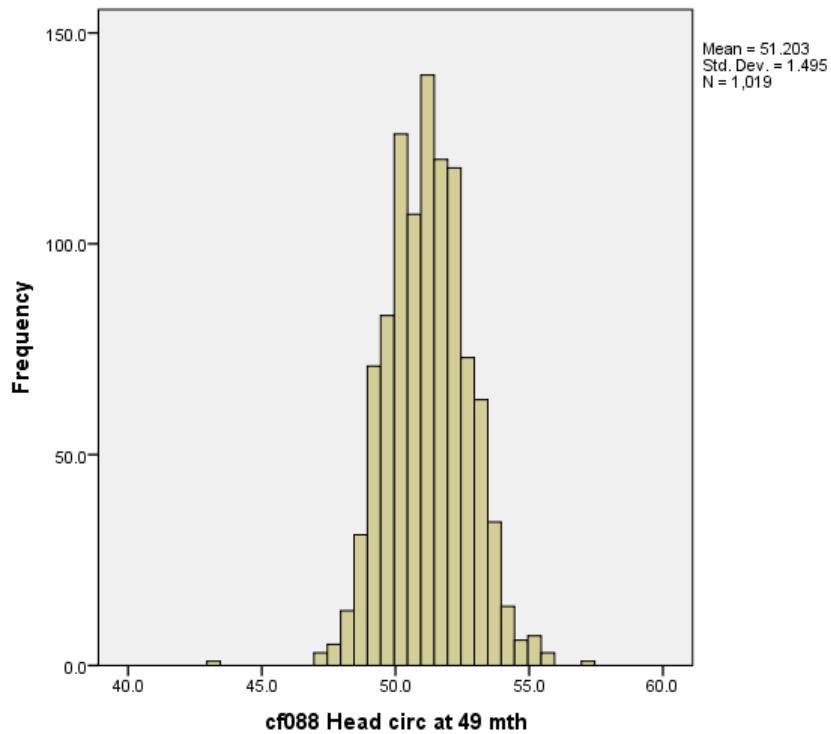
The head was measured as the widest horizontal circumference as the child looks ahead using Babytape, made by the Child Growth Foundation and donated by them to ALSPAC. Tapes were kept taut but not tight.





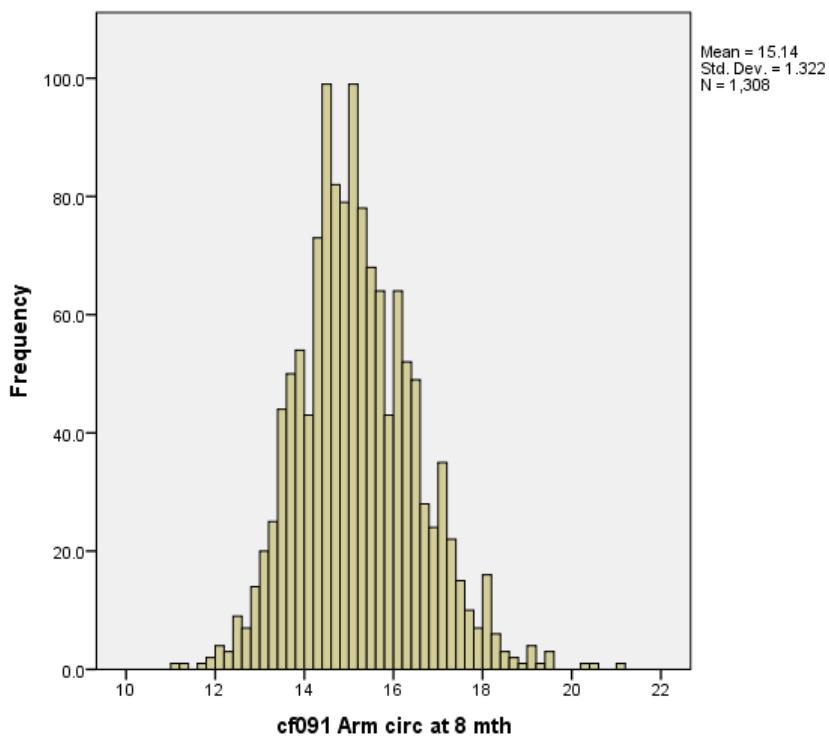
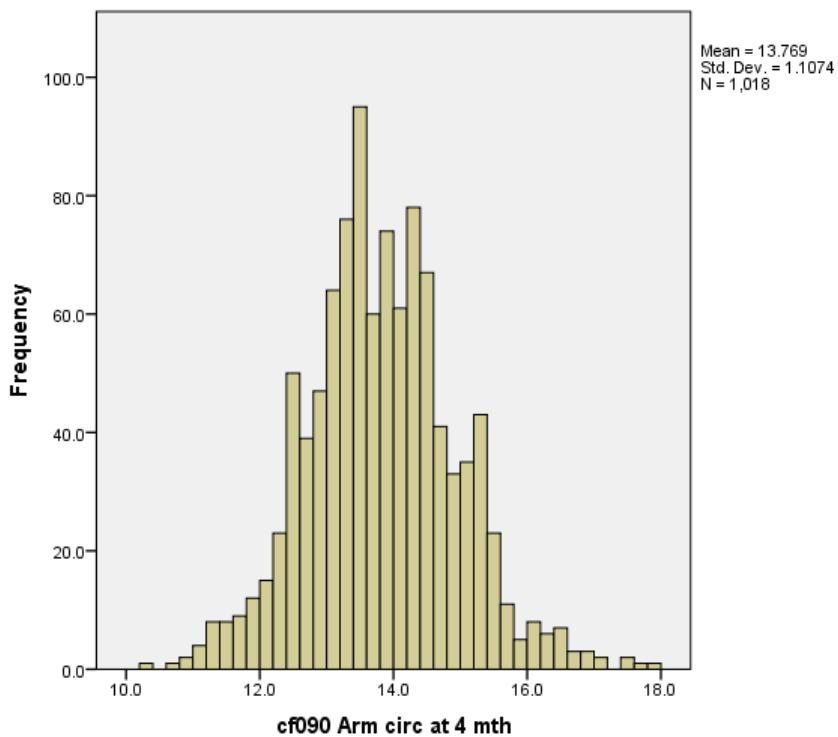


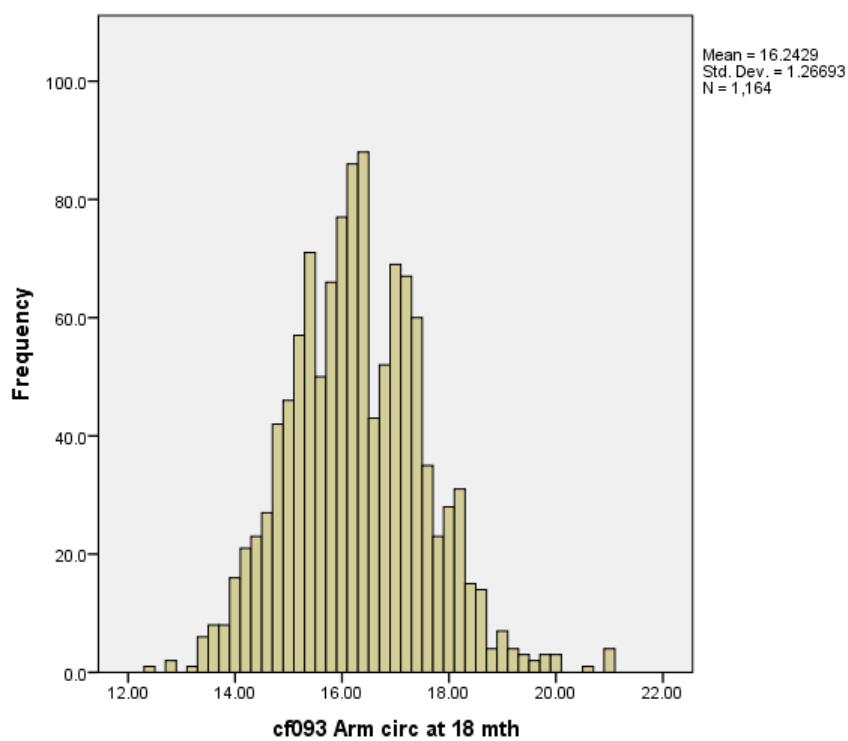
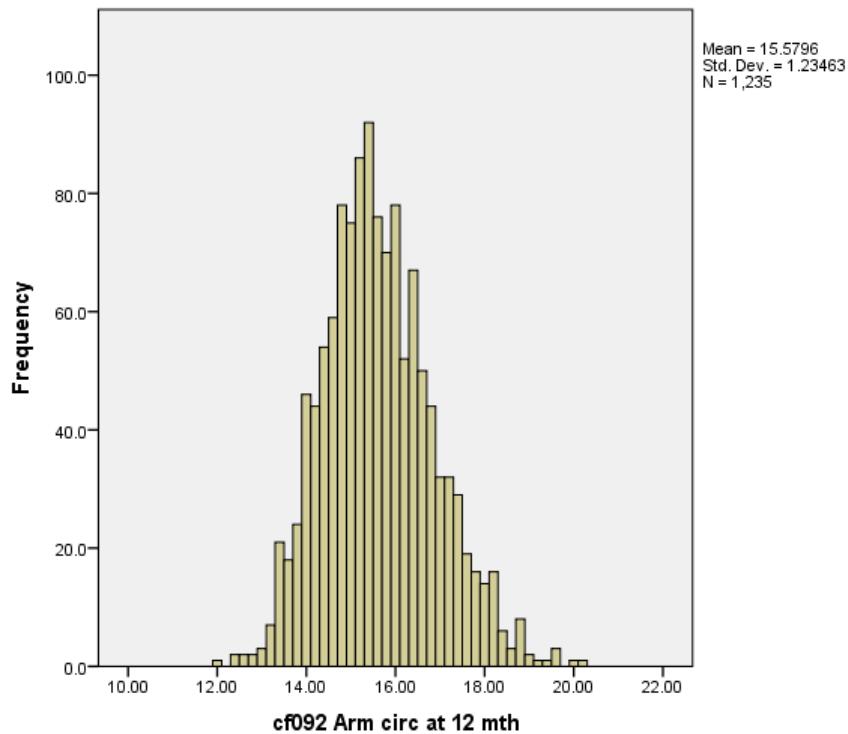


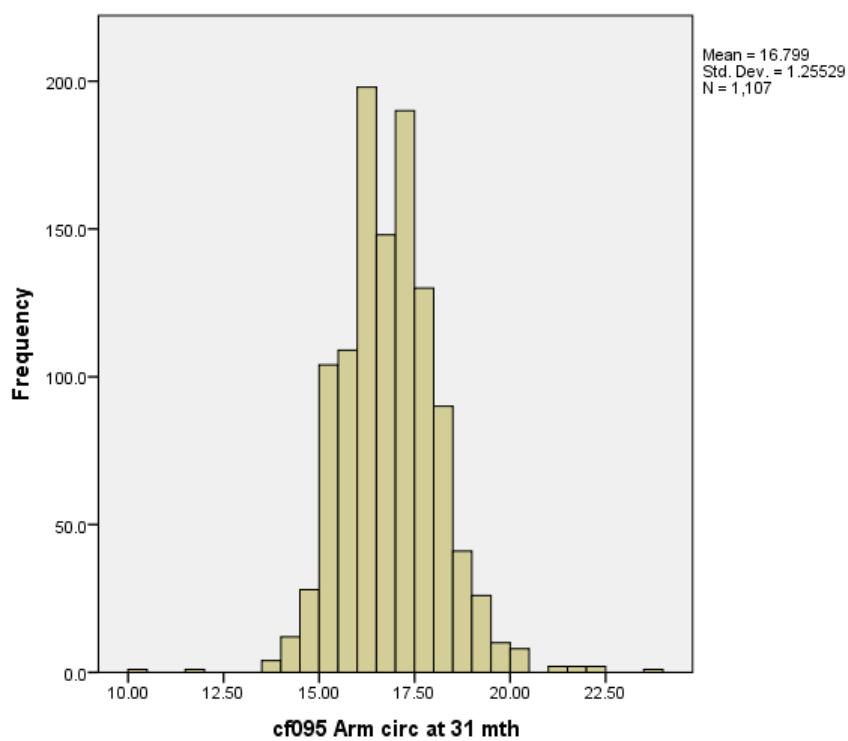
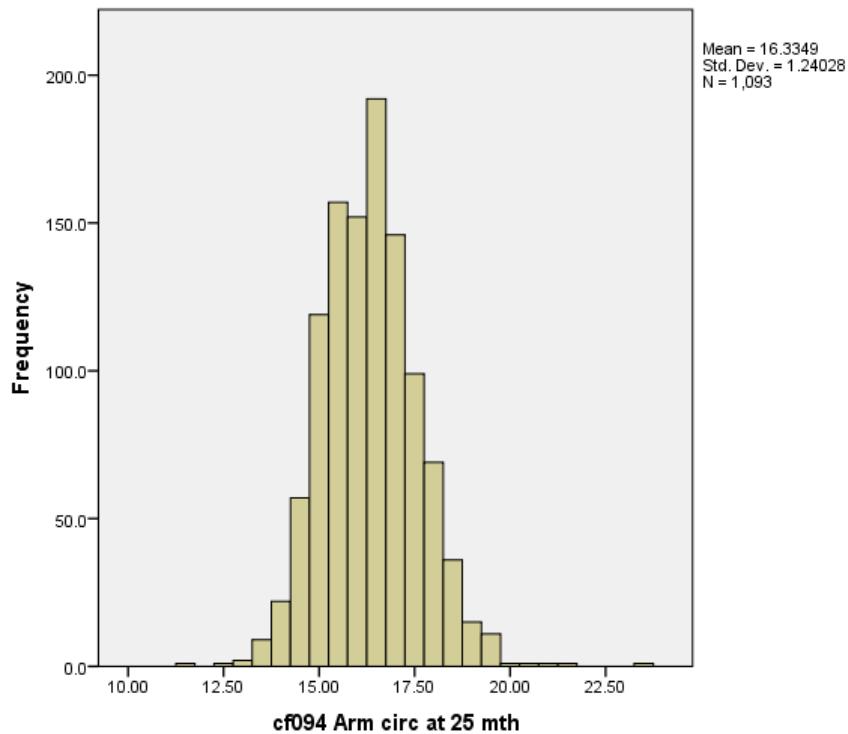


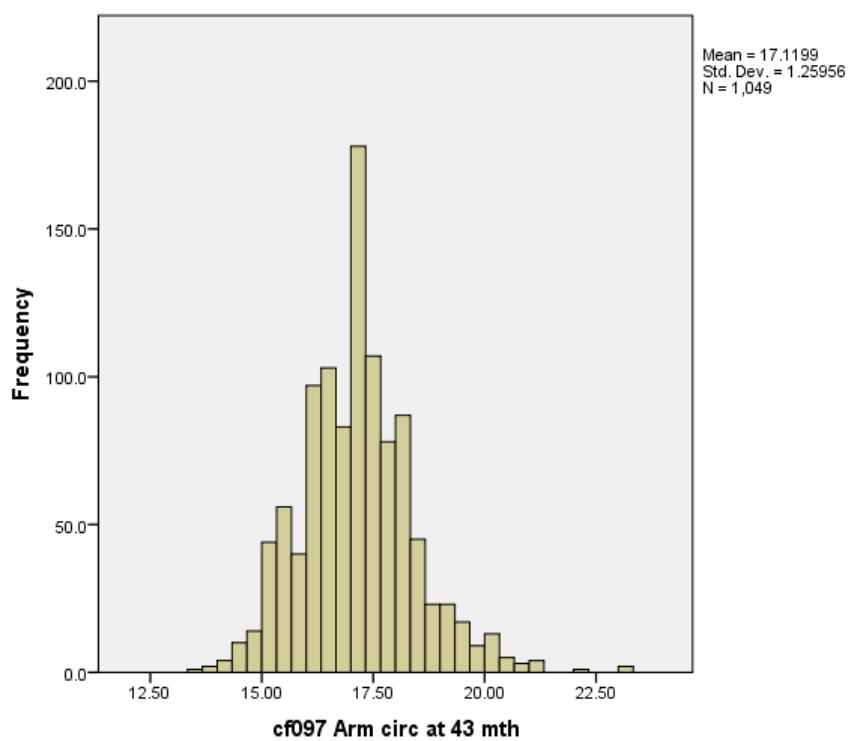
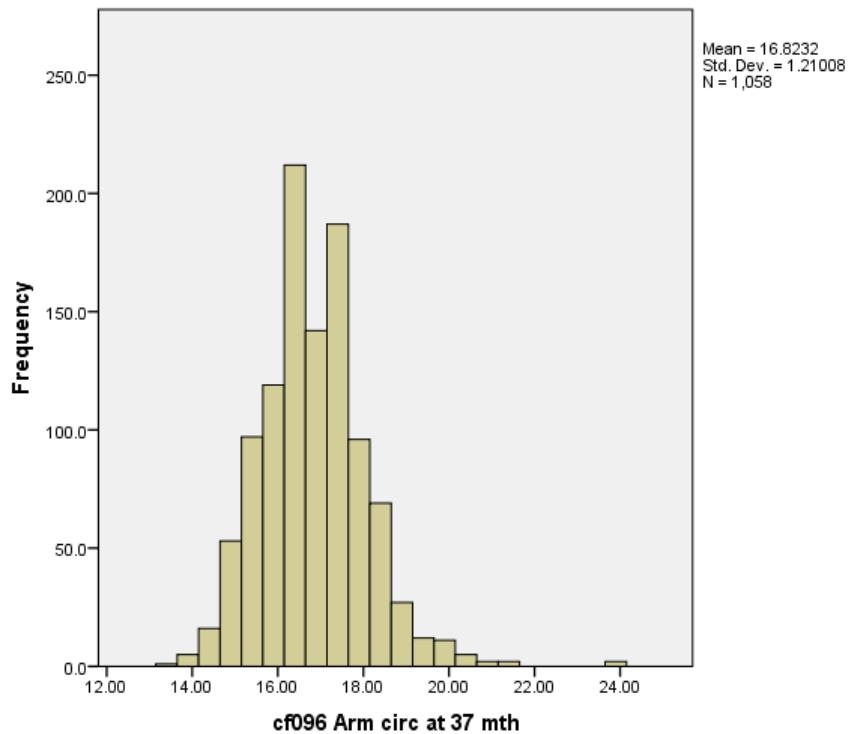
## 2.1.8 Arm circumference

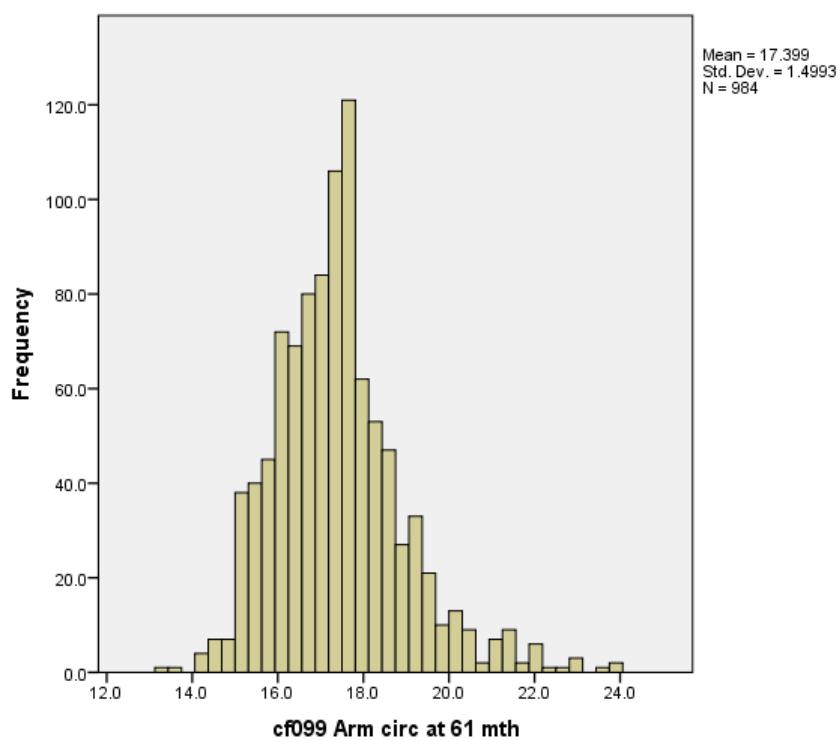
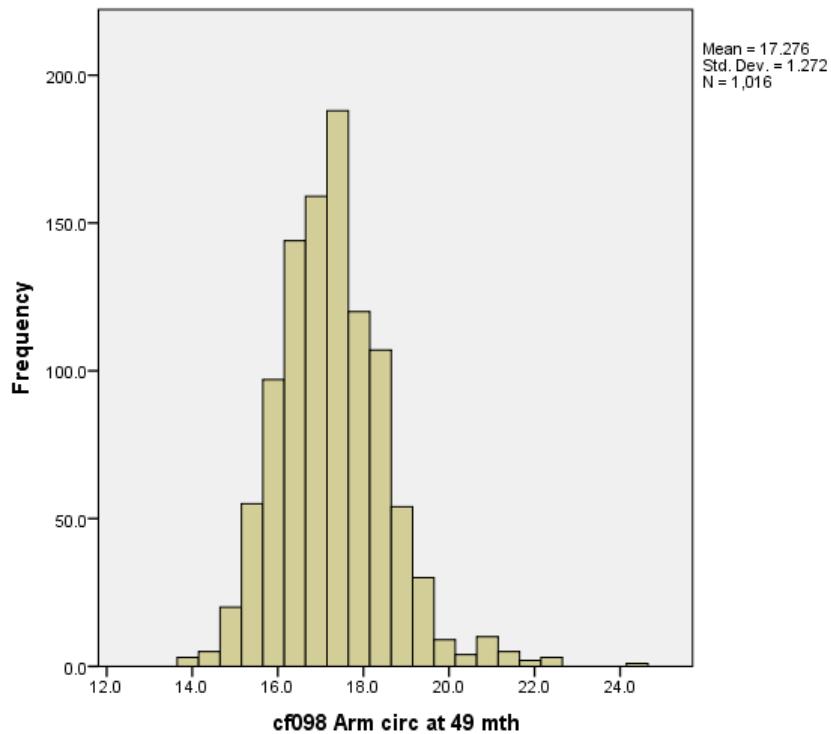
The arm was measured midway between scapula and elbow using Babytape made by the Child Growth Foundation and donated by them to ALSPAC. Tapes were kept taut but not tight.







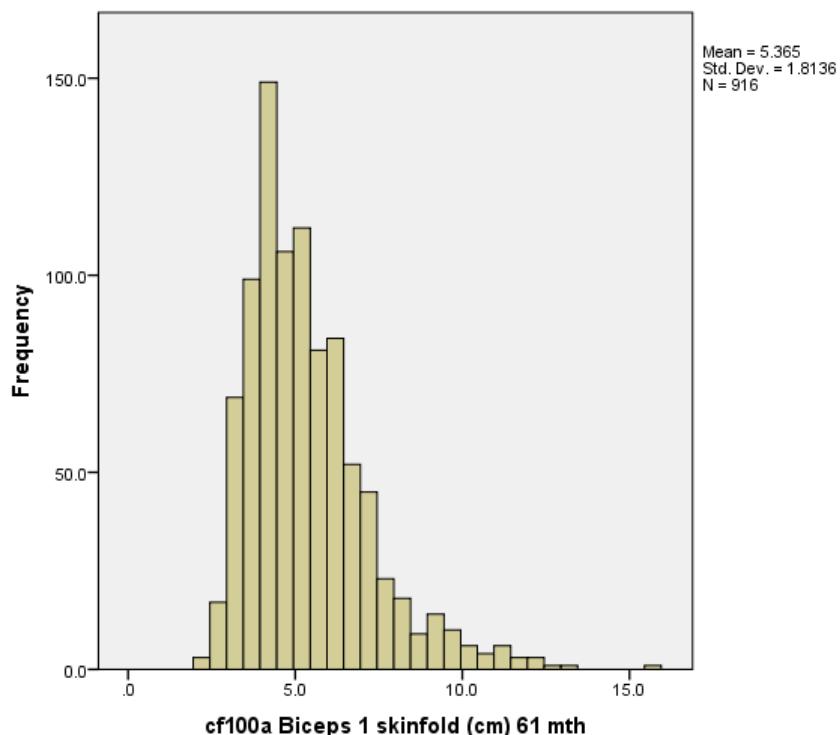


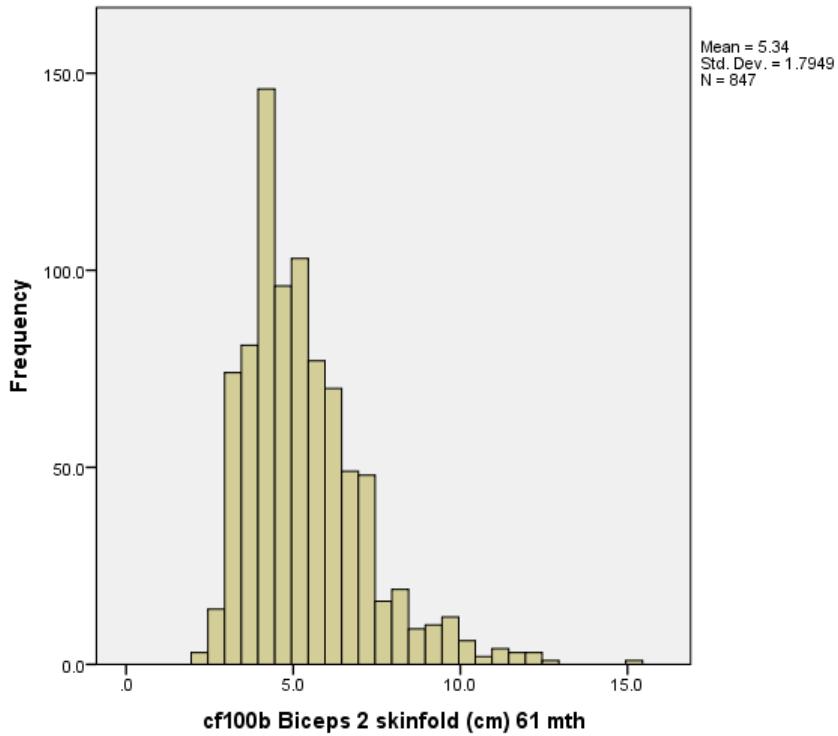


## 2.1.9 Skin fold thickness

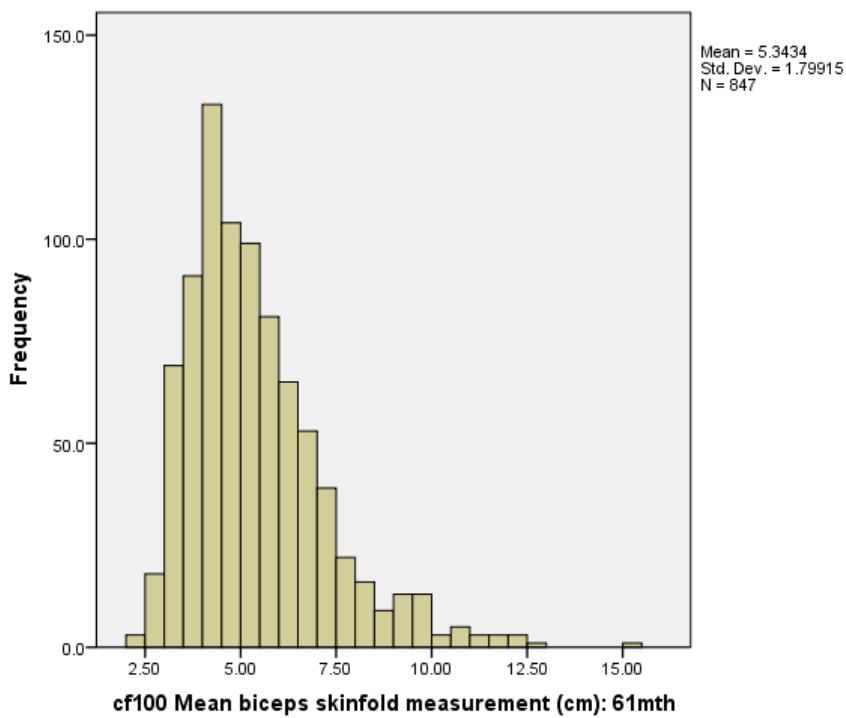
At 61 months the children had their surface body fat assessed by gently measuring the thickness of four skinfolds, taken at the biceps (front of the upper arm), triceps (back of the upper arm), subscapular (below the shoulder blade) and suprailiac (the hip). The skinfolds were measured using special callipers which are spring loaded and gently press against the skin. Harpenden spring-loaded callipers were used, loaded with a constant pressure of 10g/mm<sup>2</sup>.

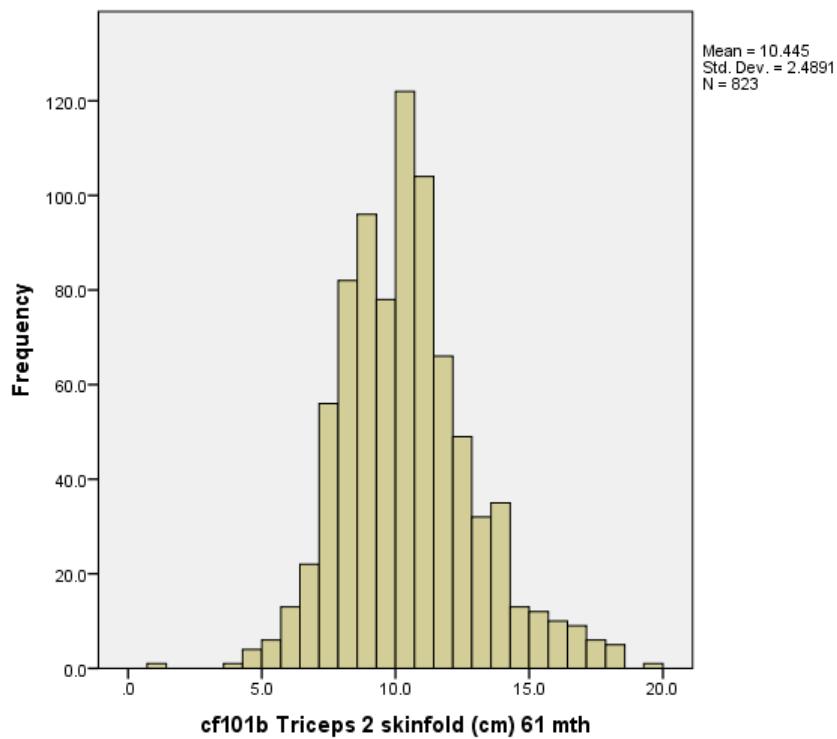
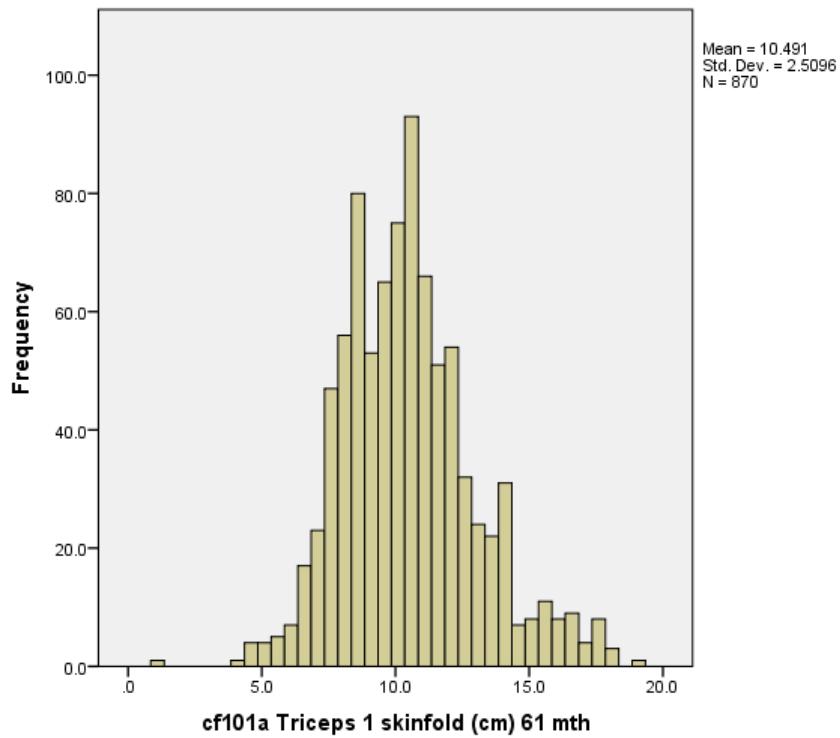
Each were measured twice and if they differed by more than 1 mm, the measurement was repeated, hence the small numbers for the third measure.



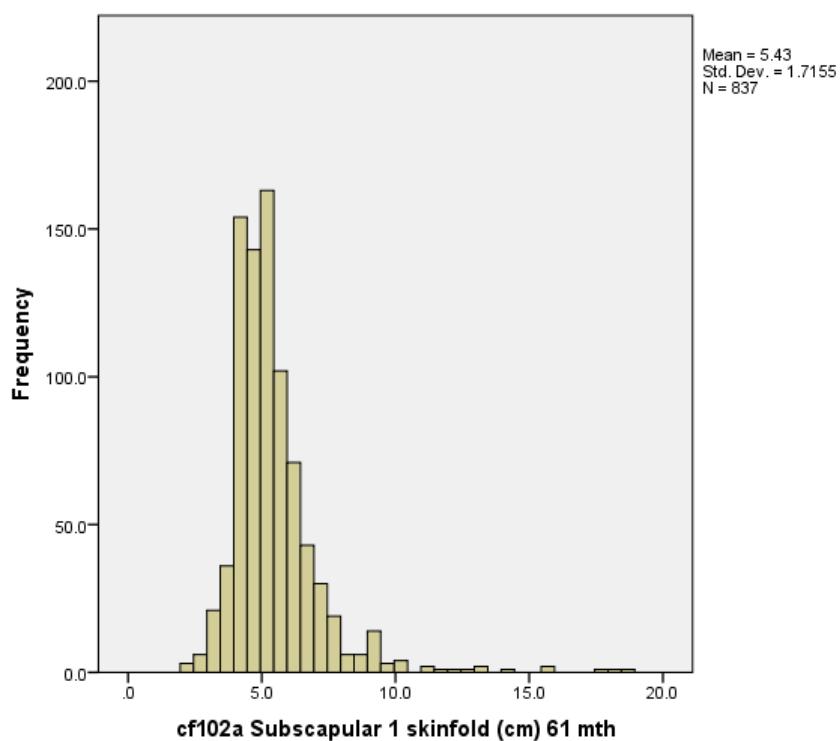
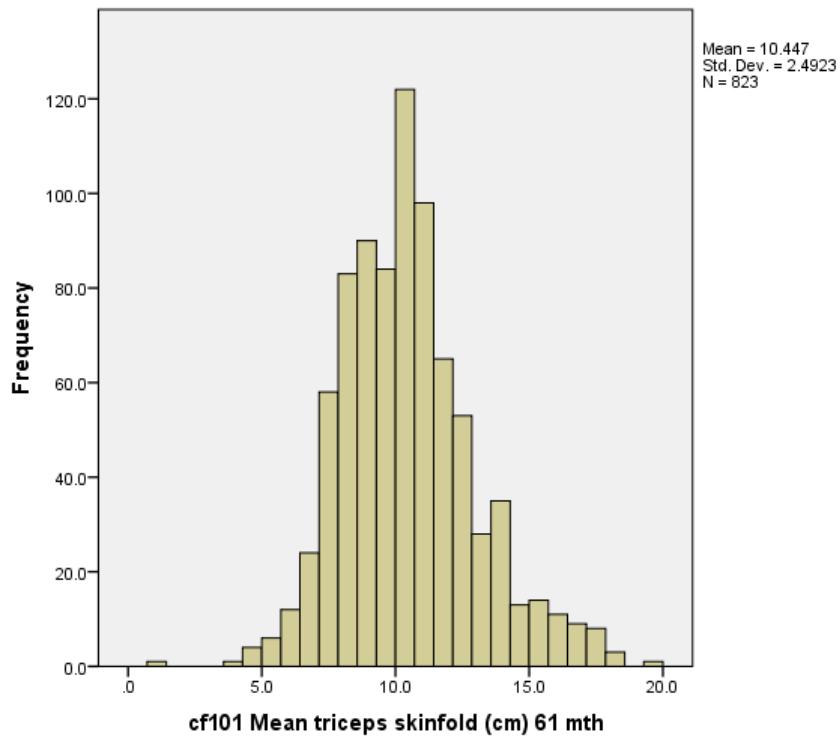


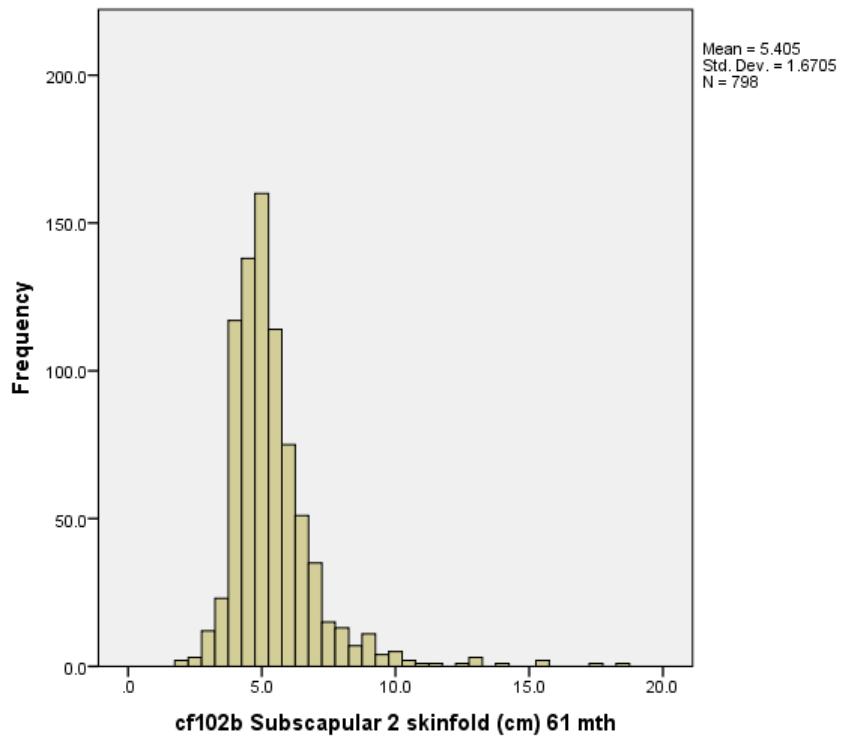
cf100c: Biceps 3 skinfold (cm) 61 mth – not summarized (n=5) – available in data



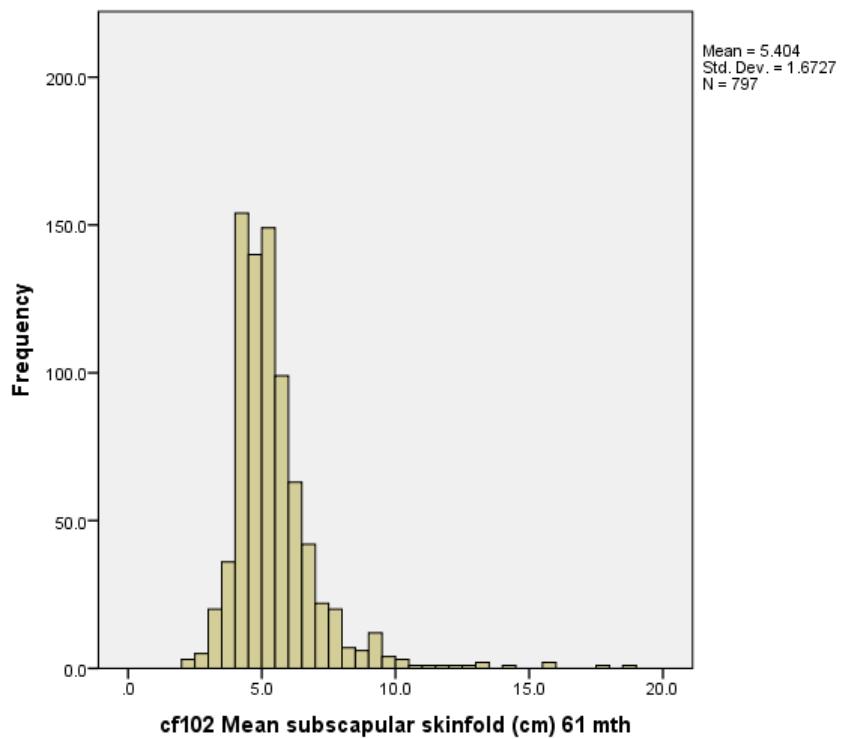


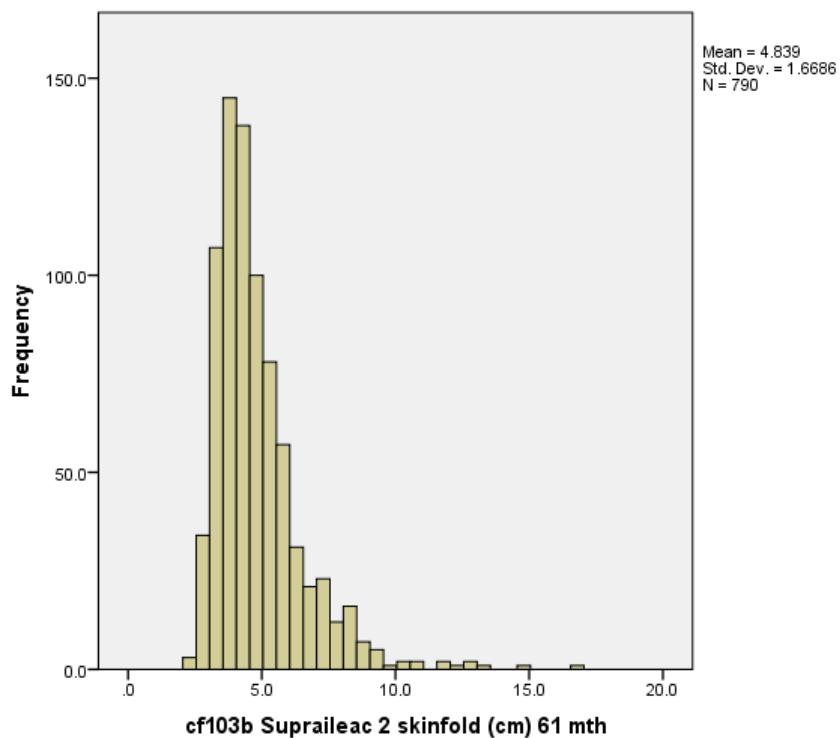
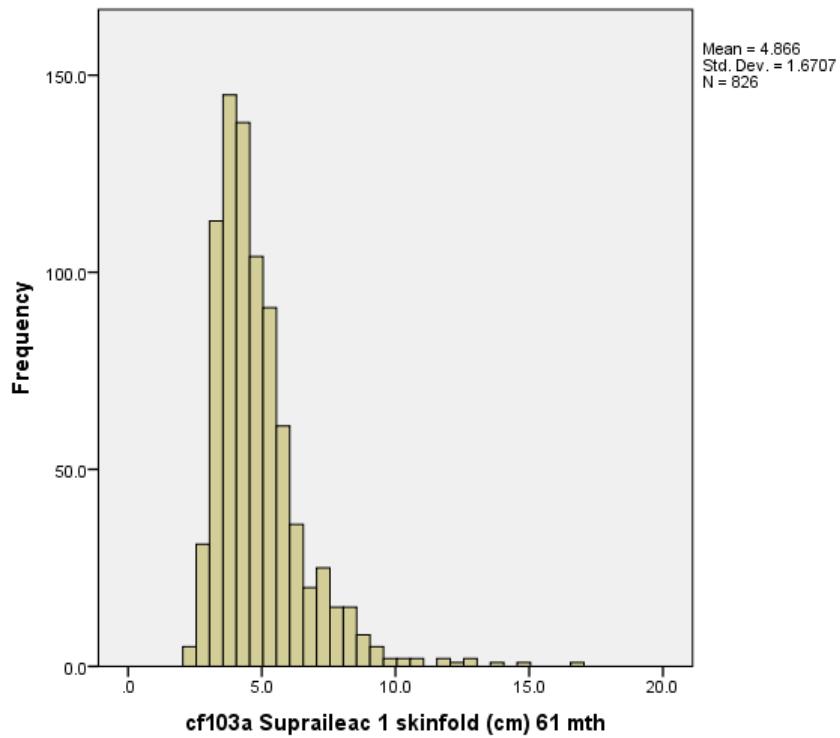
cf101c: Triceps 3 skinfold (cm) 61 mth – not summarized (n=3) – available in data



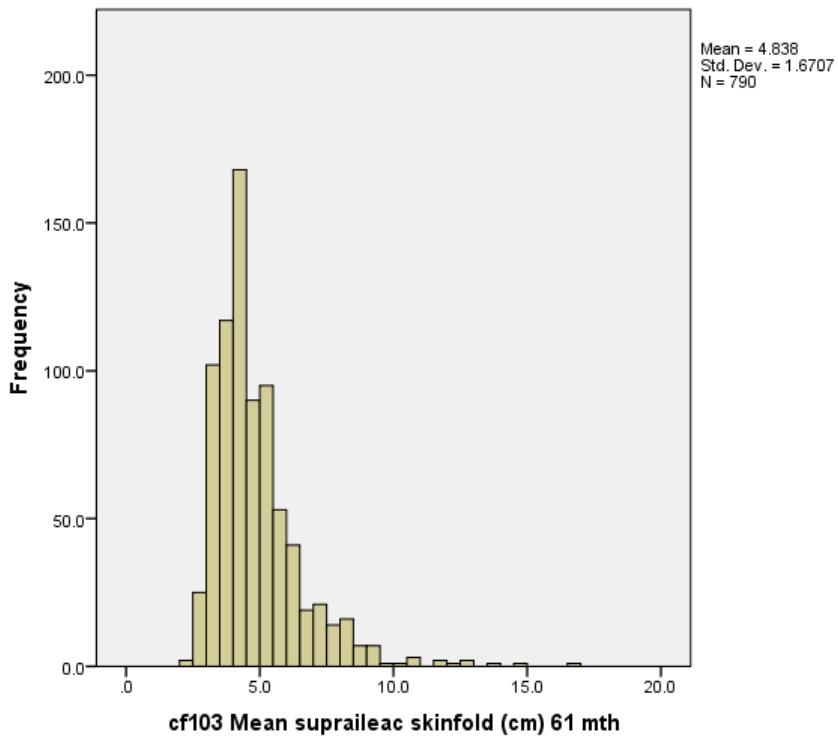


cf102c: Subscapular 3 skinfold (cm) 61 mth – not summarized (n=3) – available in data



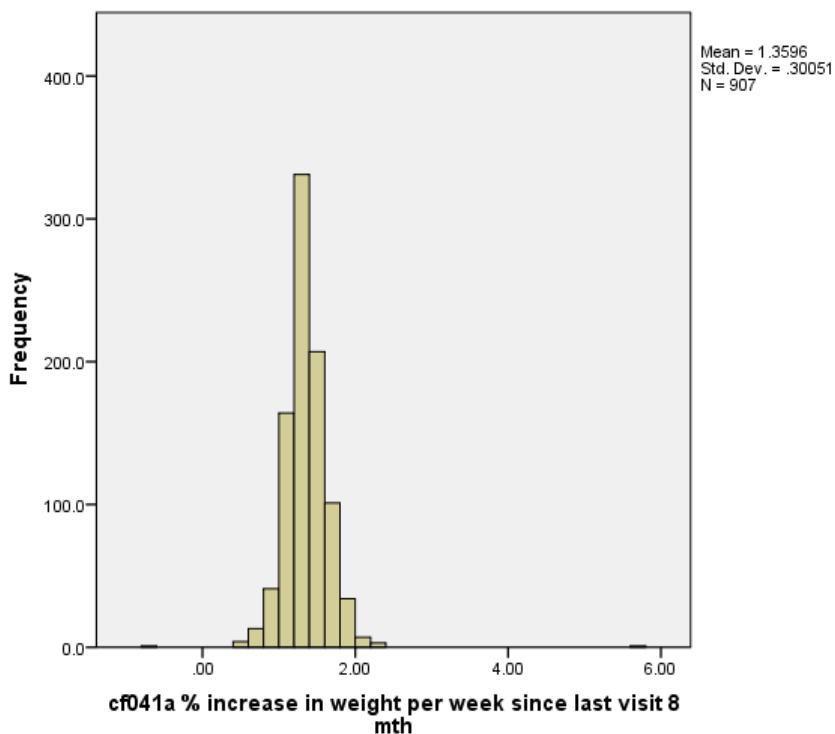


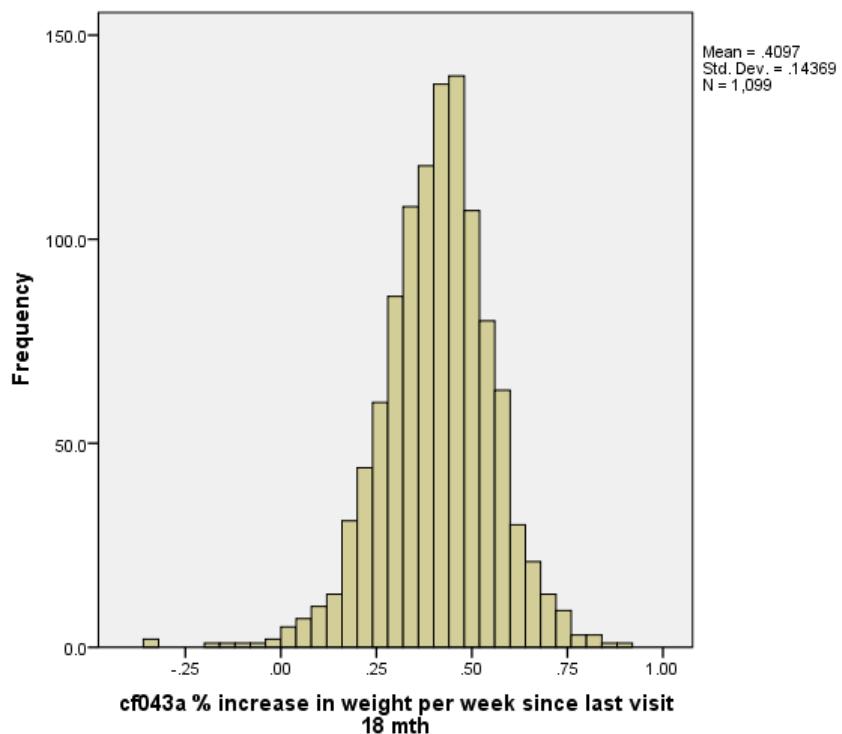
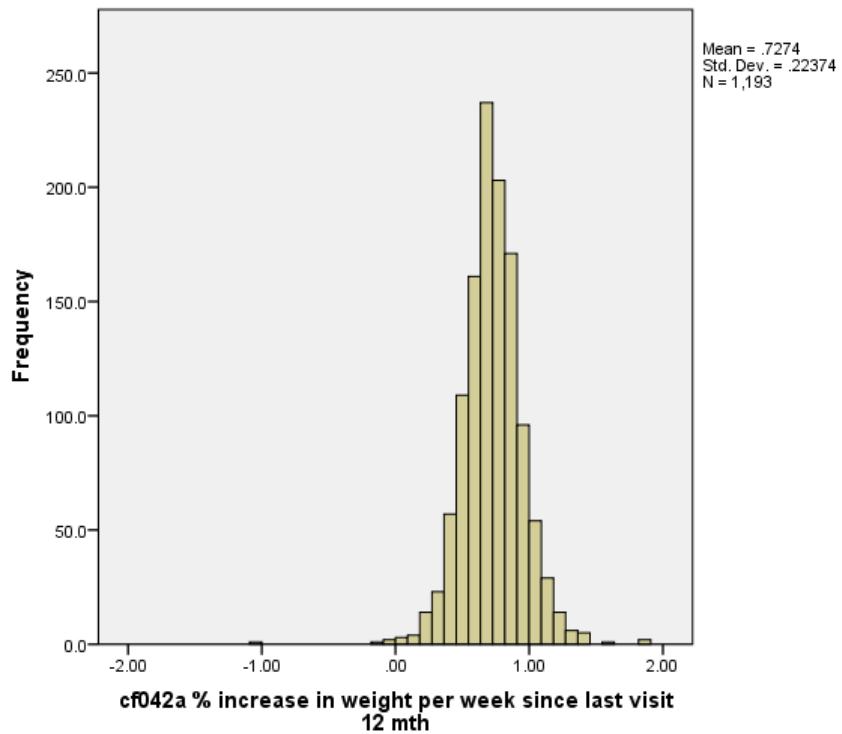
cf103c: Supraileac 3 skinfold (cm) 61 mth – not summarized (n=2) – available in data

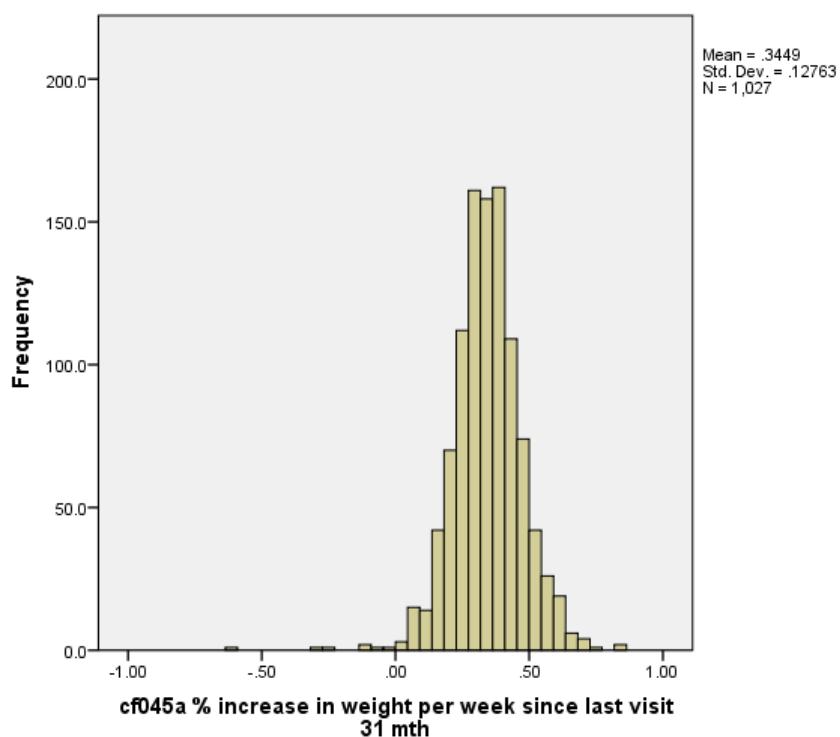
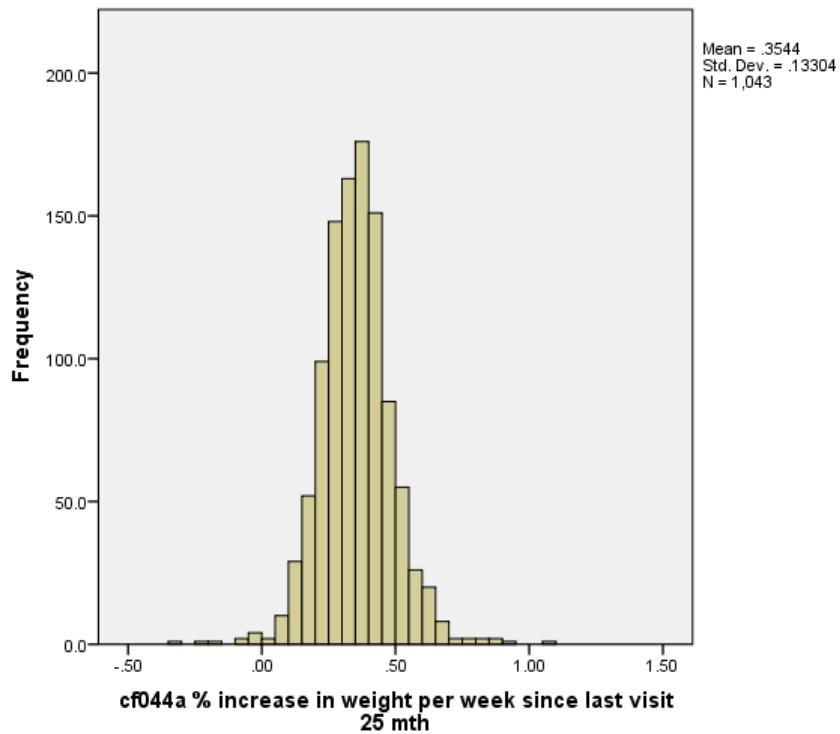


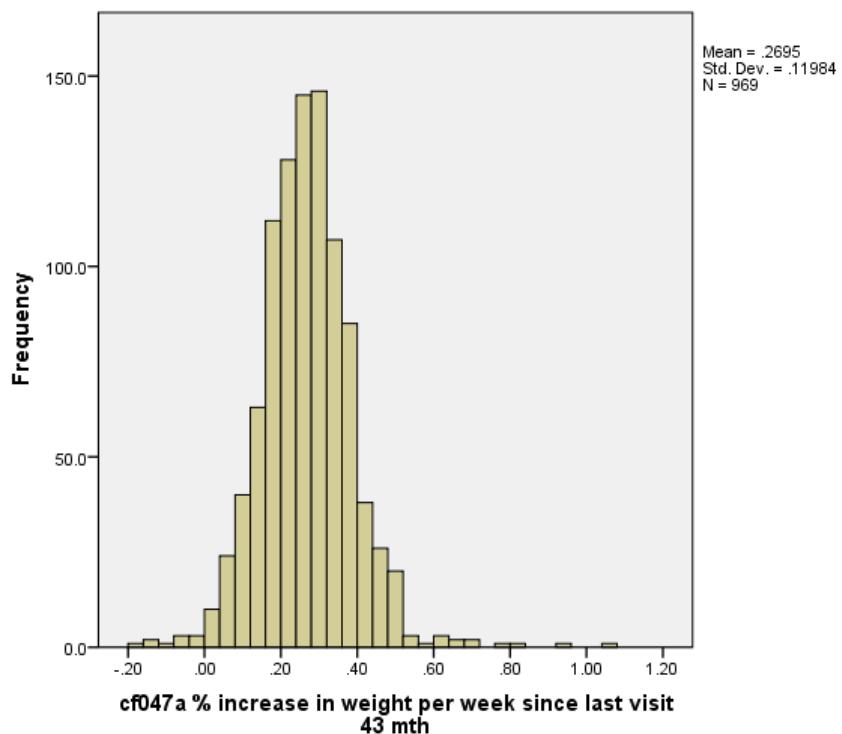
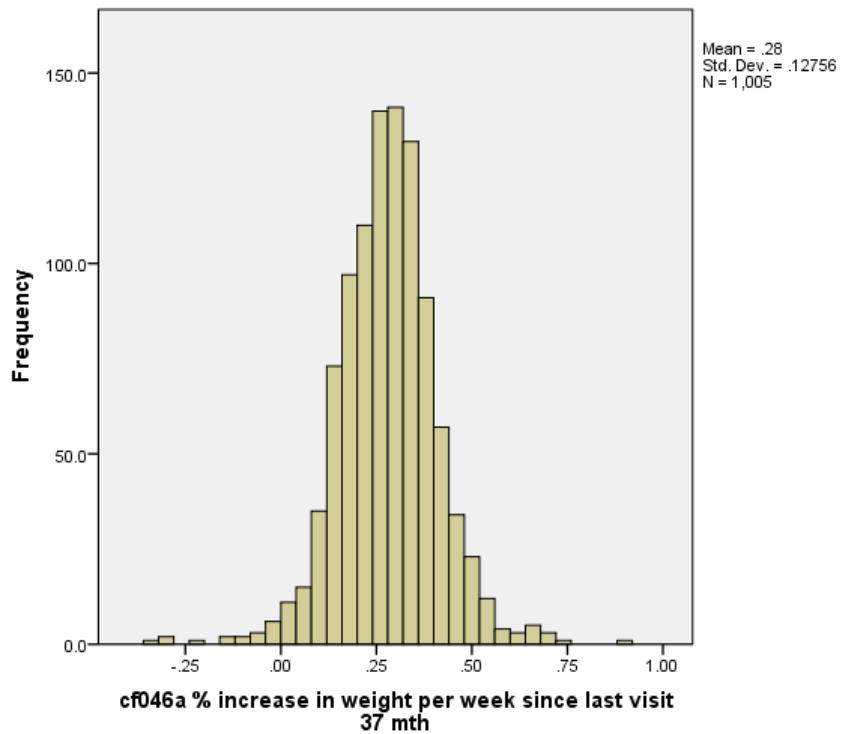
### 2.1.10 Growth velocity

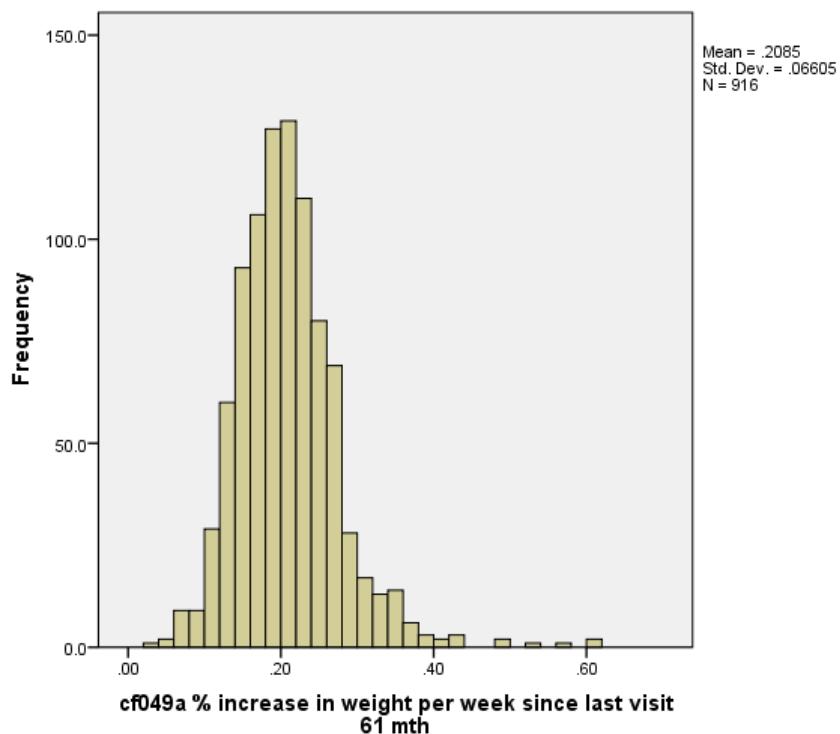
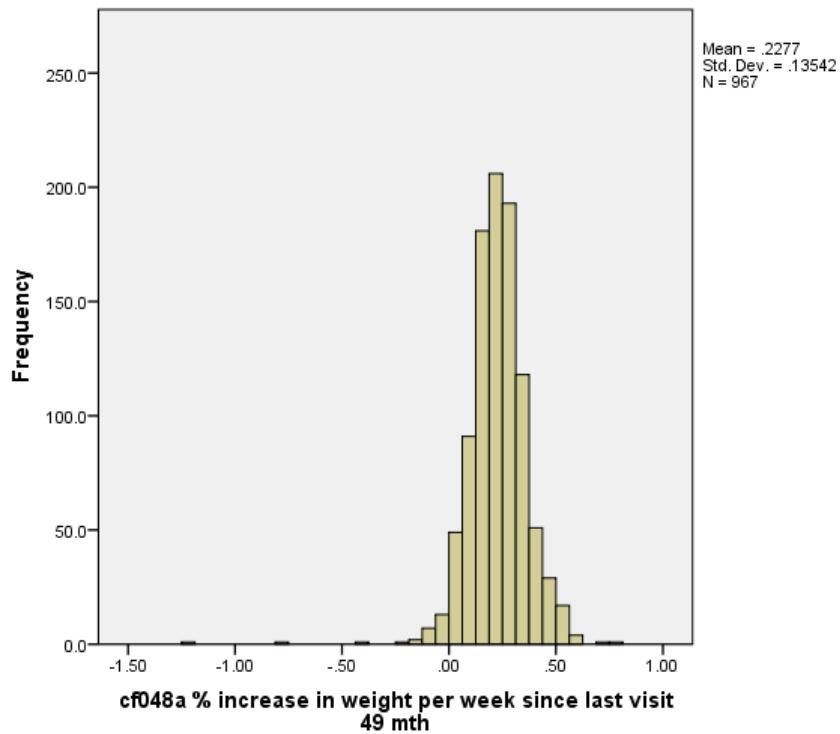
Variables were created indicating the velocity of growth (in terms of height and weight) between each visit. More specifically, the percentage increase in growth per week since the previous week.

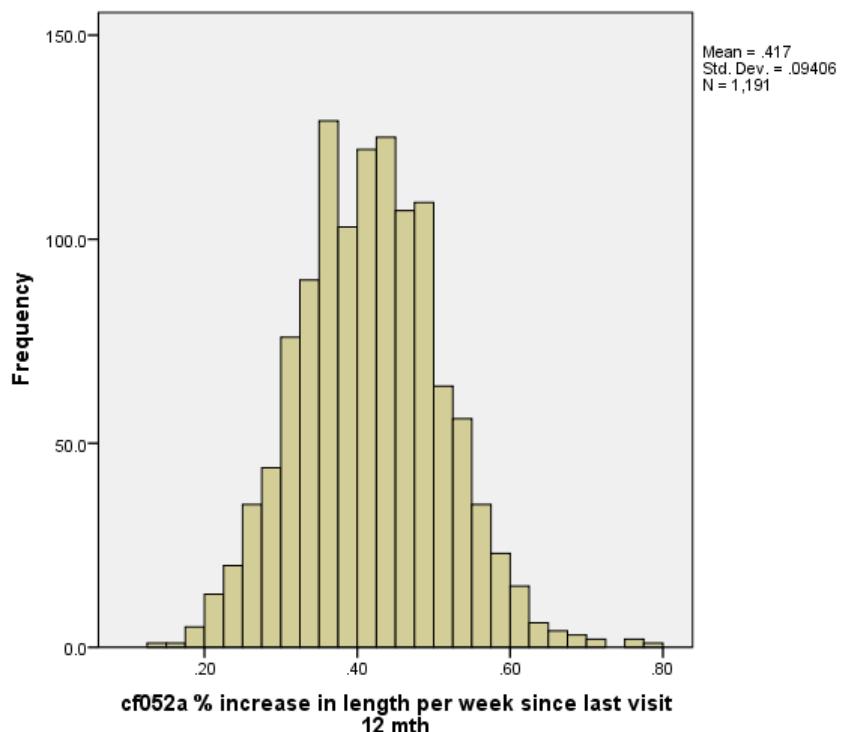
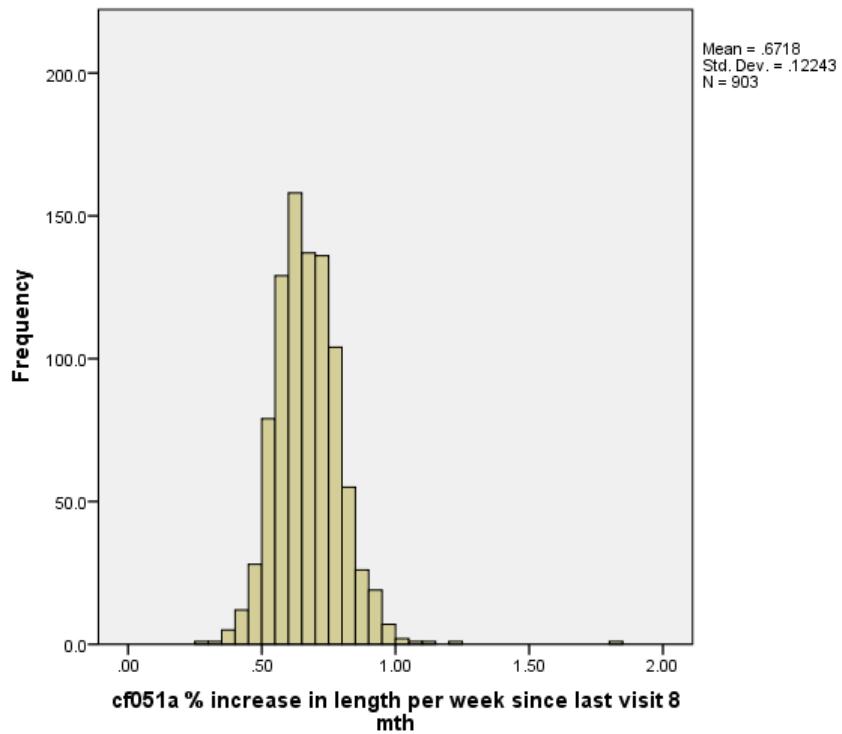


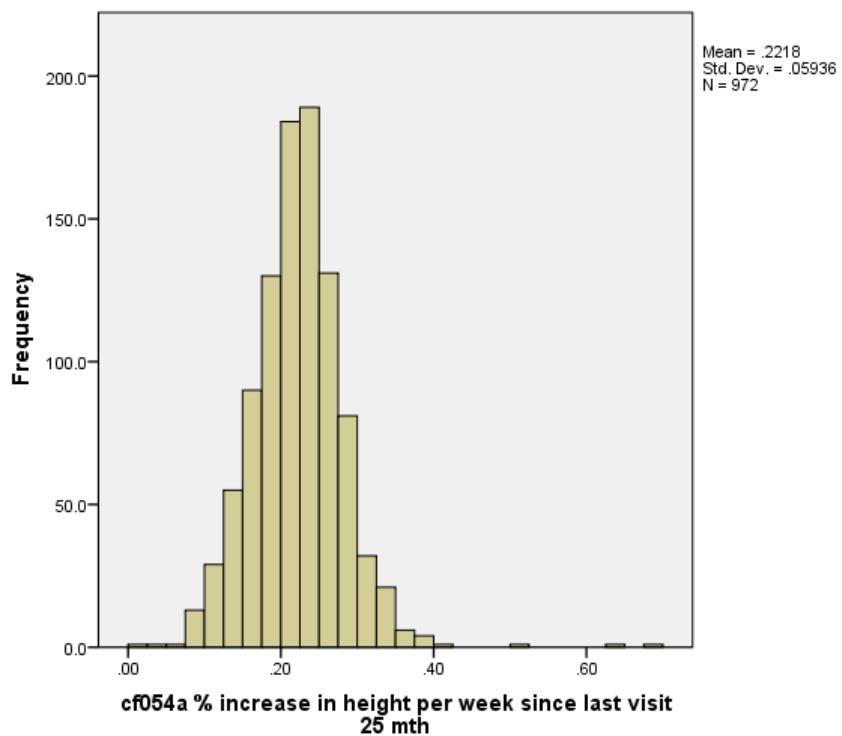
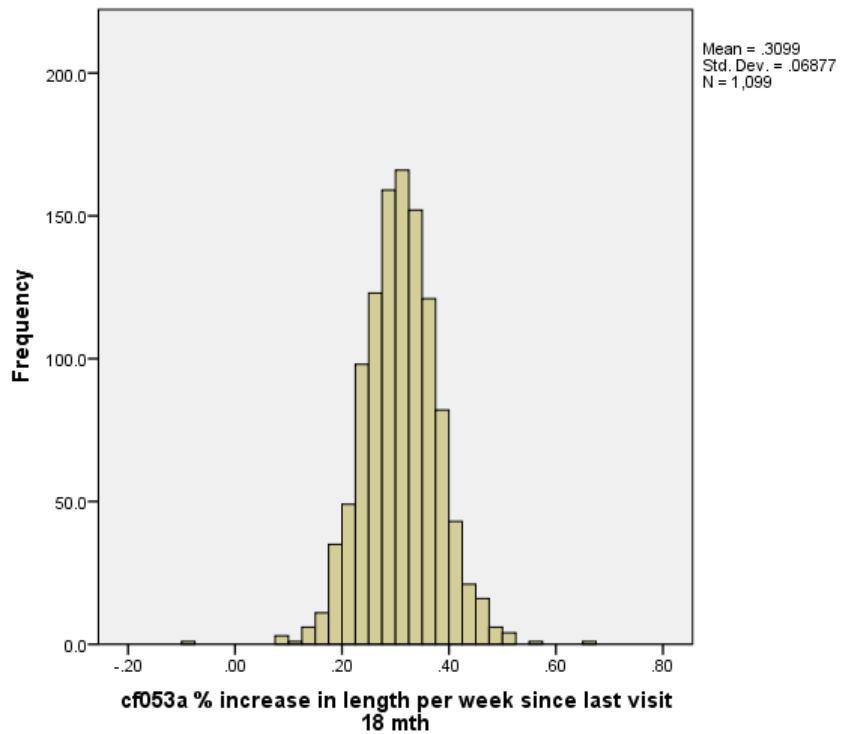


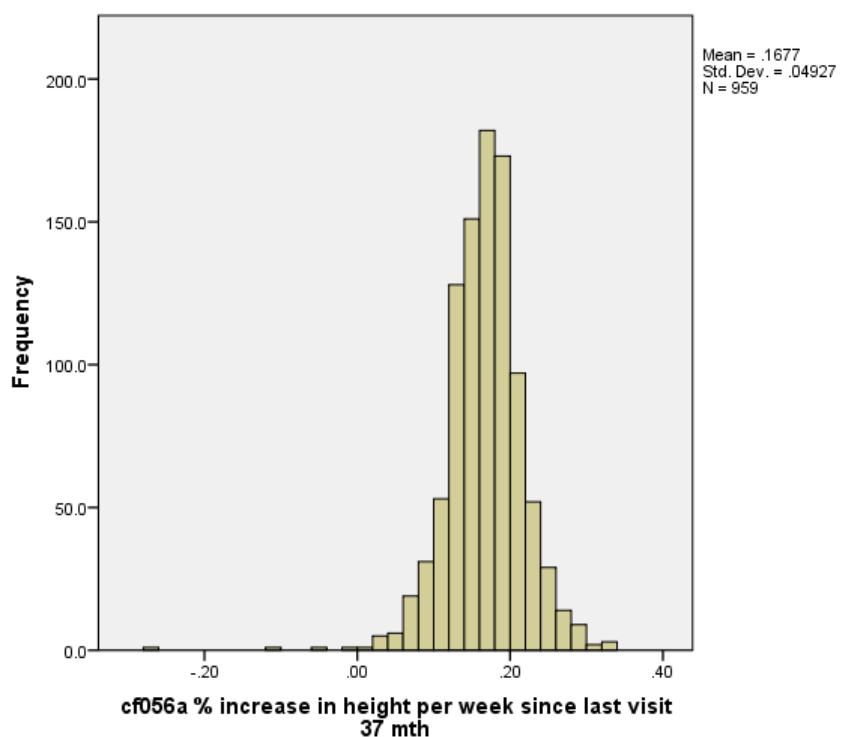
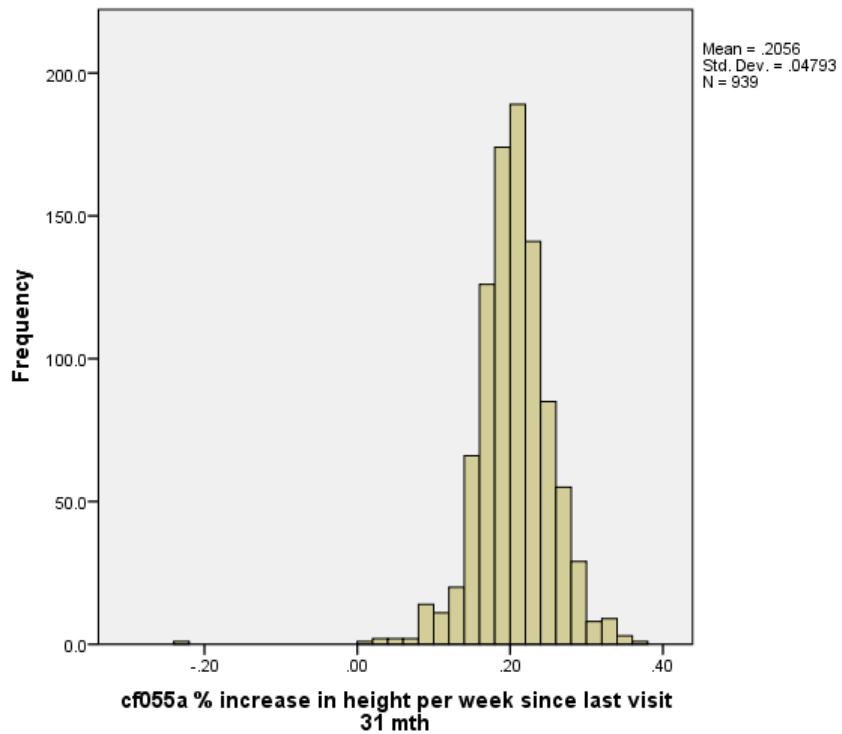


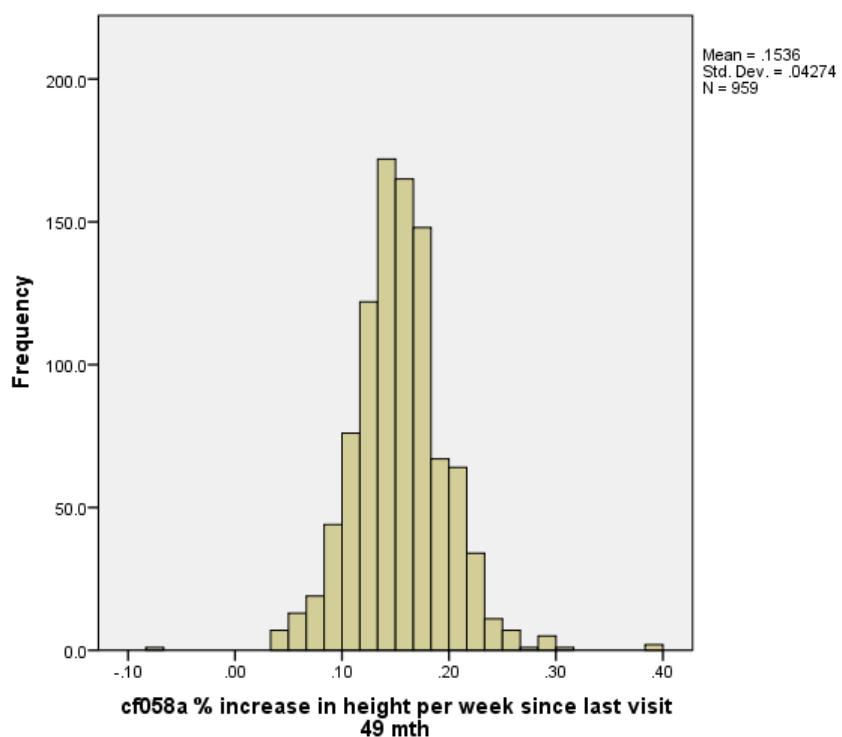
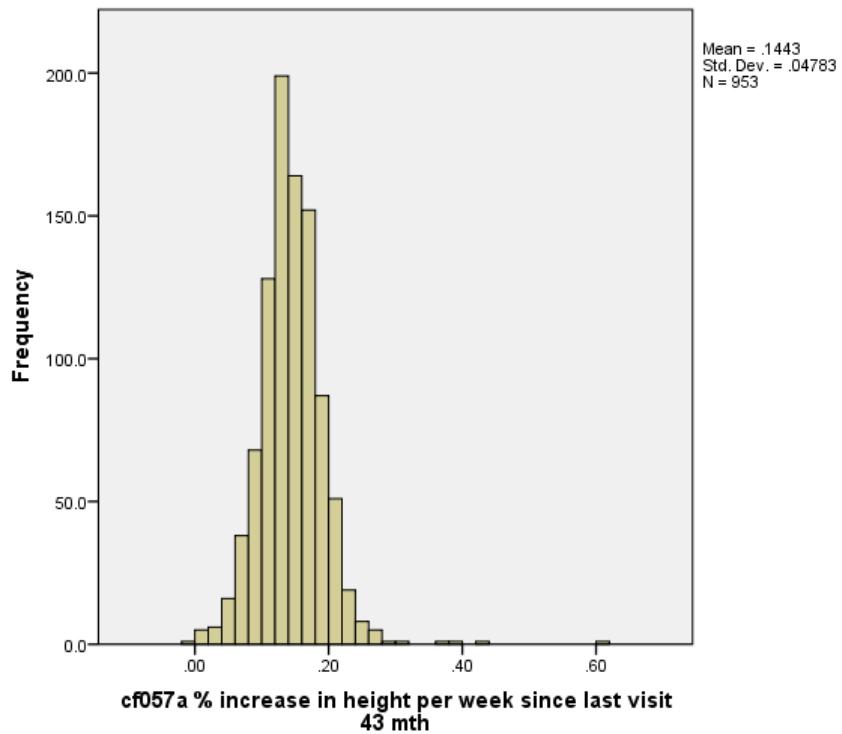


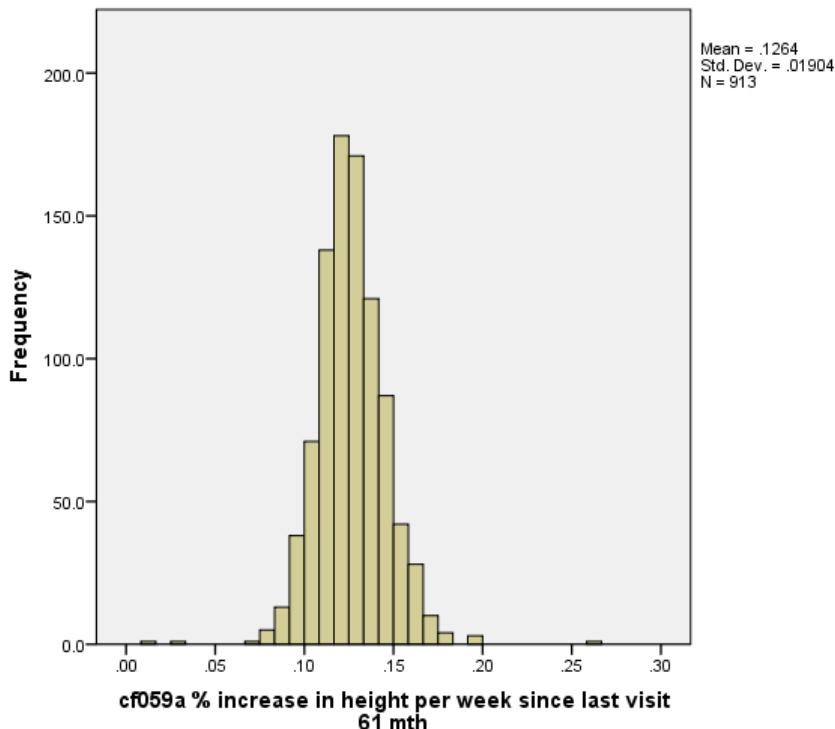












### 2.1.11 Catch-up and catch-down growth

Collaborators Ken Ong and David Dungar created sex and gestation-specific standard deviation scores for weight in order to determine 'catch-up' and 'catch-down' growth. Please see their paper for more details:

Dunger DB, Ong KK et al. Association of the *INS* VNTR with size at birth. *Nature Genetics*. 19: 98-100.

Ong, K. K., Petry, C. J., Emmett, P. M., Sandhu, M. S., Kiess, W., Hales, C. N., Ness, A. R., Dunger, D. B., the ALSPAC study team (2004) 'Insulin sensitivity and secretion in normal children related to size at birth, postnatal growth, and plasma insulin-like growth factor-I levels'. *Diabetologia*. 47: 1064-1070 DOI 10.1007/s00125-004-1405-8

**cf110 Catch Ups/Downs - Ong/Dungar variable**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
1 Catch Down	285	19.9	27.2	27.2
2 No Change	483	33.7	46.0	73.2
3 Catch Up	281	19.6	26.8	100.0
Total	1049	73.3	100.0	
Missing				
-1 Missing	383	26.7		
Total	1432	100.0		

## 2.1.12 Relative growth

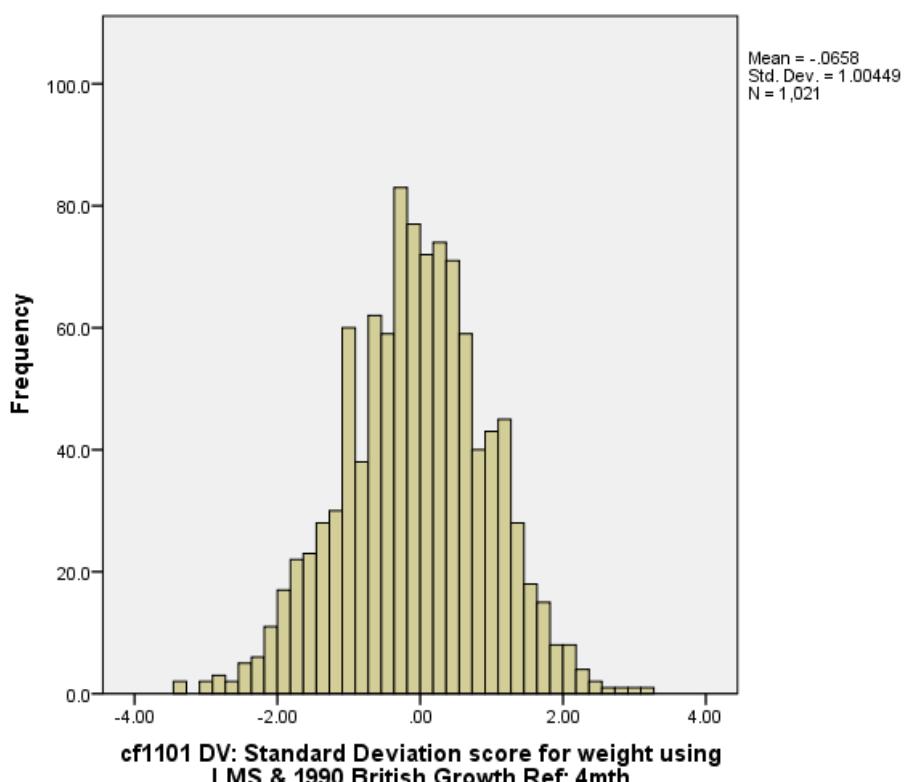
Anthropometric measures were converted to SD scores using the British 1990 Growth reference data. SD scores were adjusted for gender and age and calculated in Stata using the zanthro function.

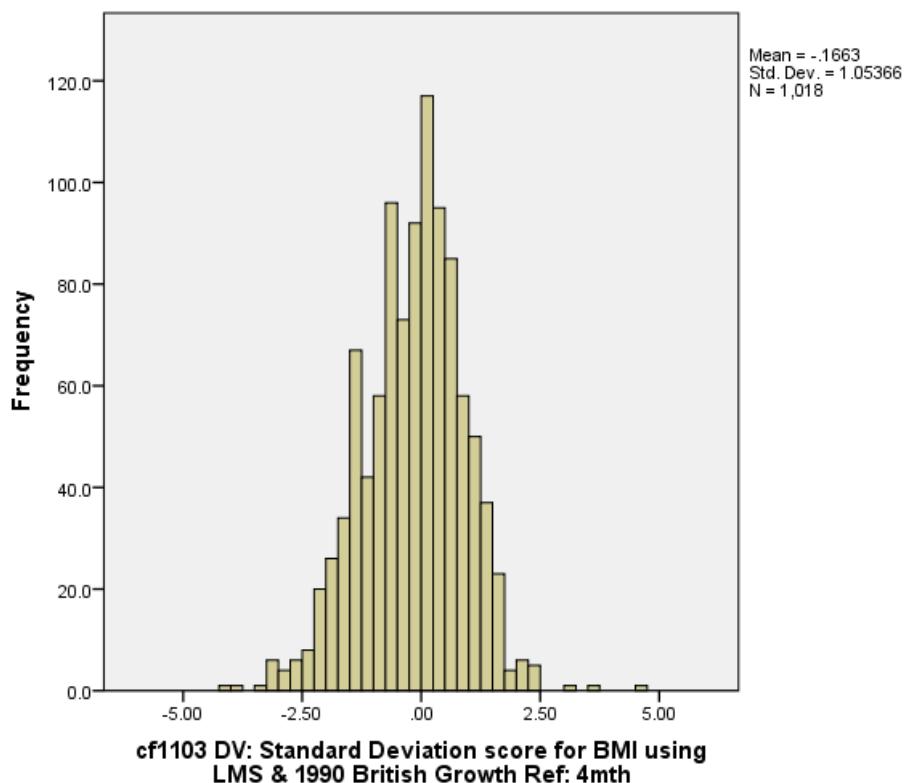
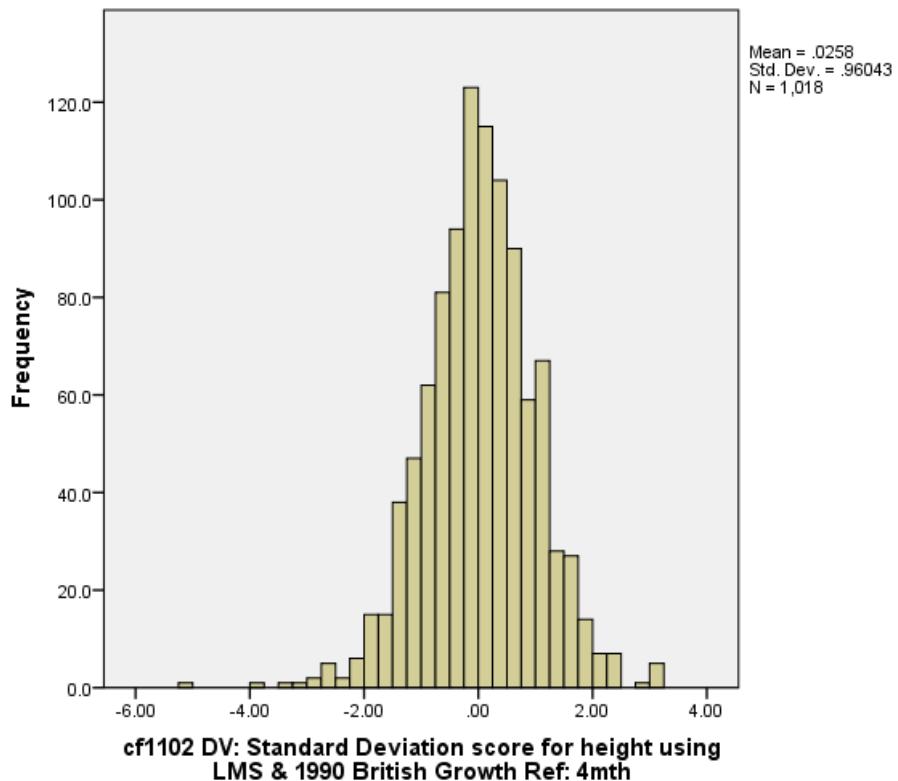
These data were first published in:

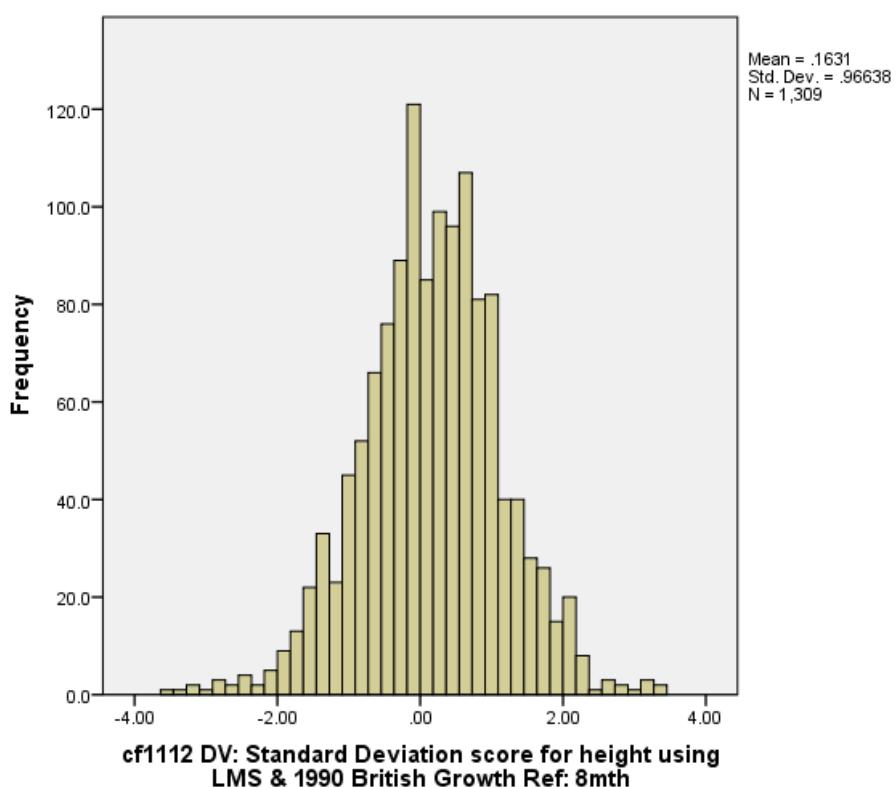
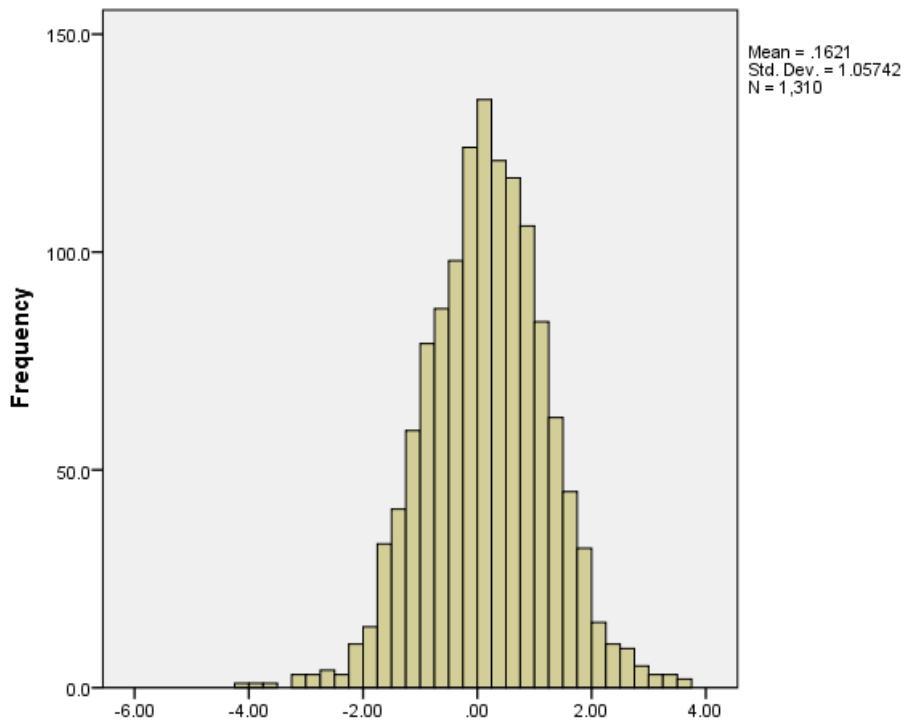
Blair, P.S; Drewett, R.F; Emmett, P.M; Ness, A; Emond, A.M. and the ALSPAC Study Team (2004) 'Family, socioeconomic and prenatal factors associated with failure to thrive in the Avon Longitudinal Study of Parents and Children (ALSPAC)'. *International Journal of Epidemiology*. 33 (4): 839-847. doi:10.1093/ije/dyh100

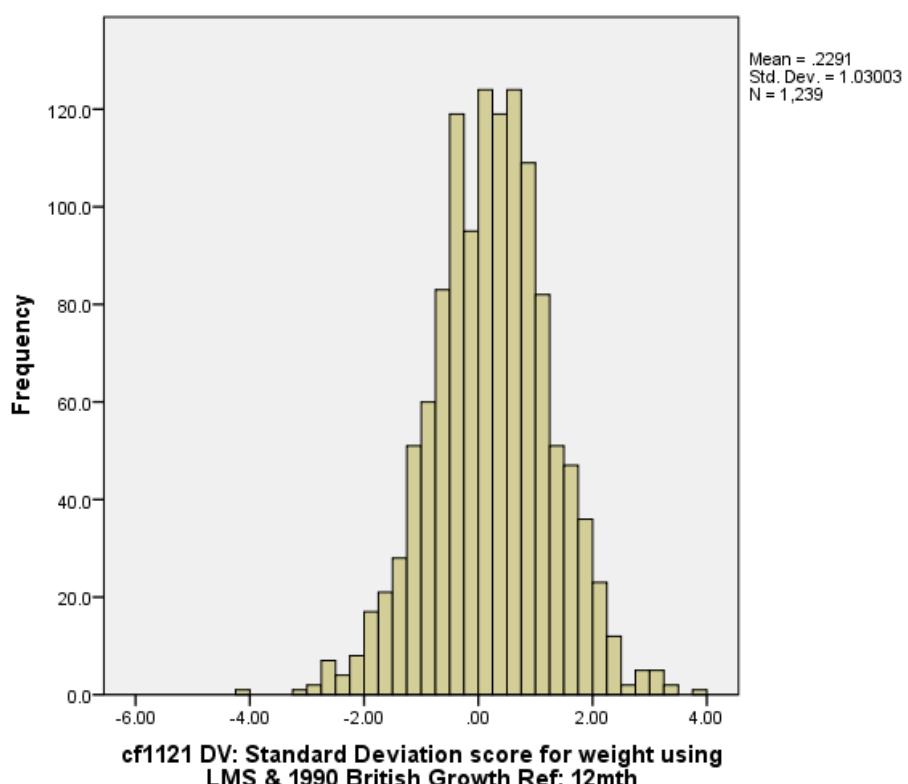
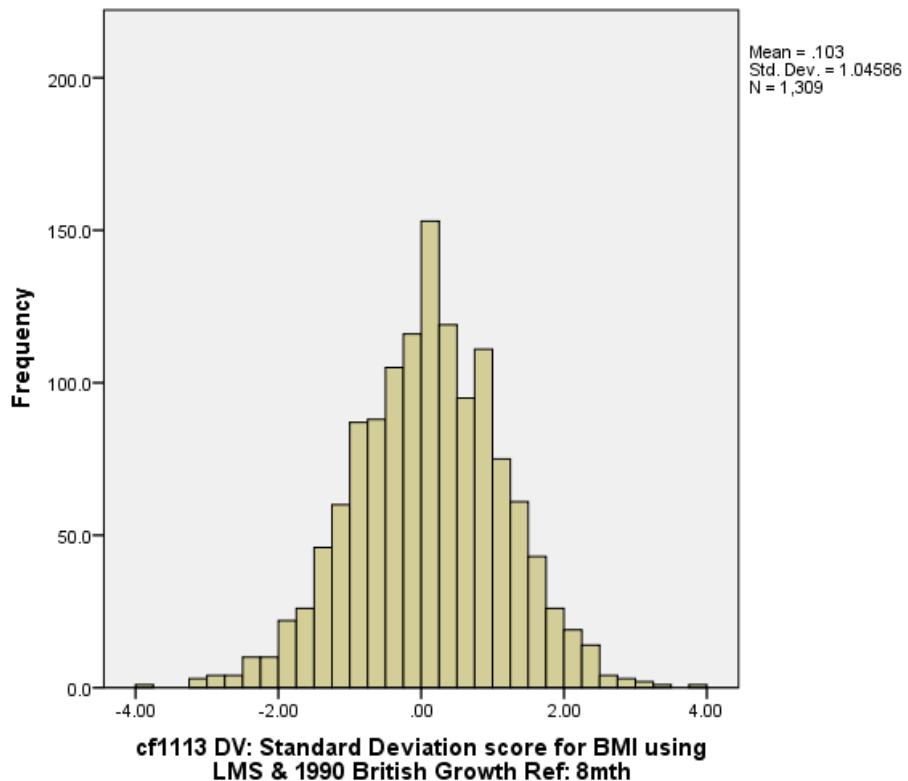
The method for derivation is also described in:

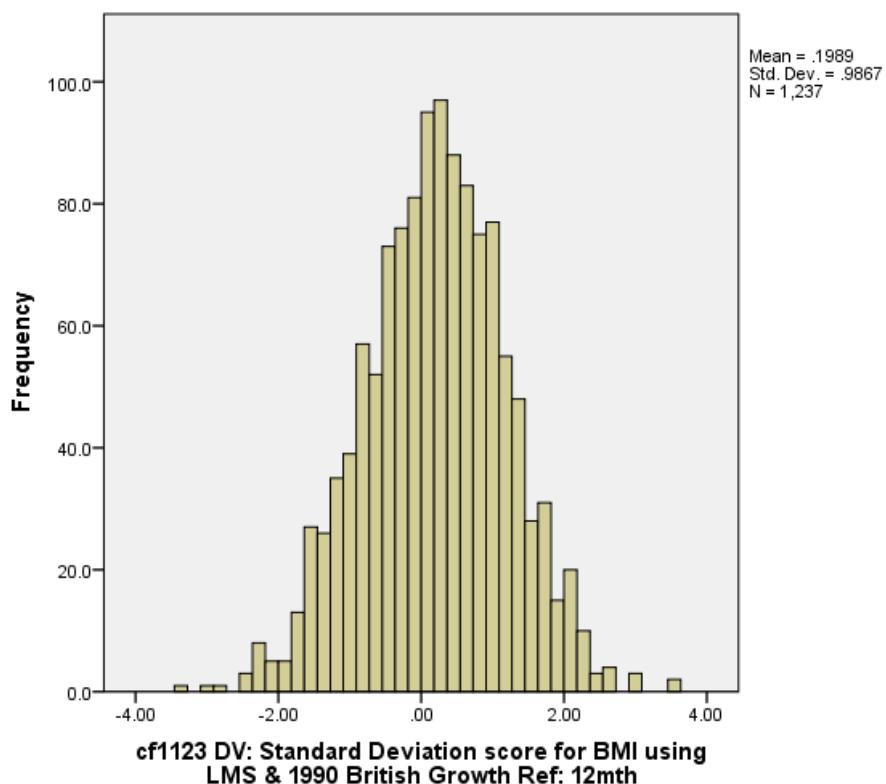
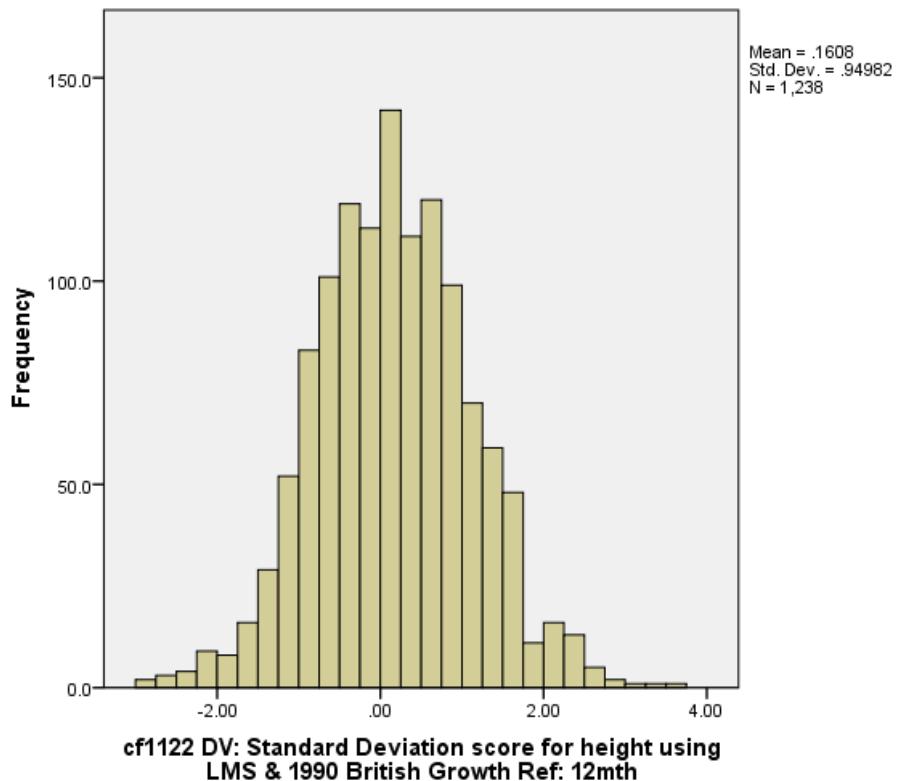
Vidmar, S., Carlin, J., Hesketh, K. & Cole, T. (2004). 'Standardizing anthropometric measures in children and adolescents with new functions for egen.' *Stata Journal*. 4: 50-55.

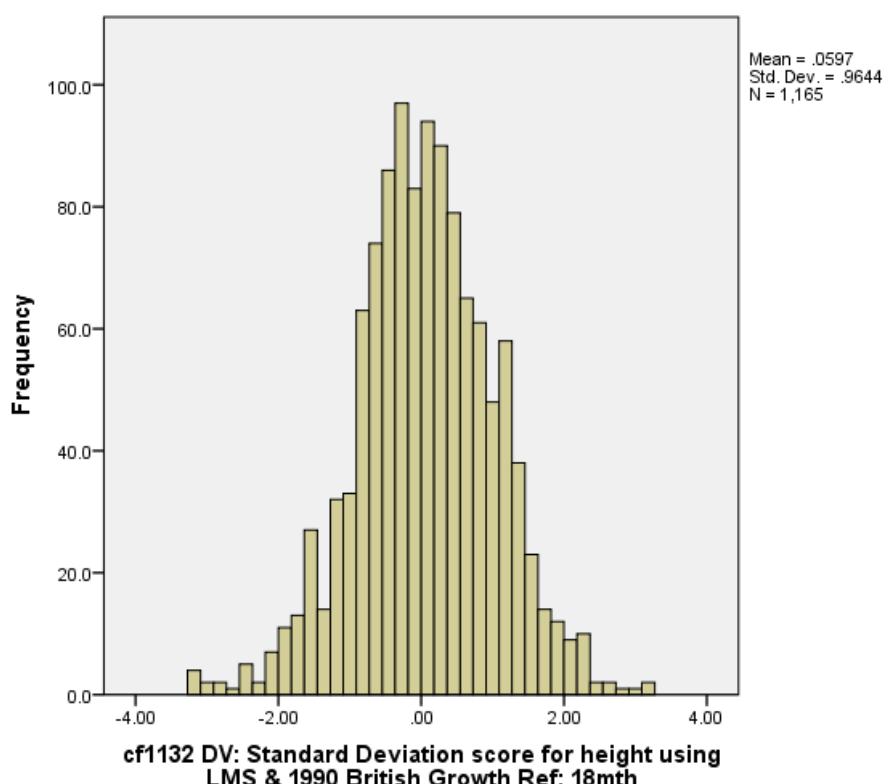
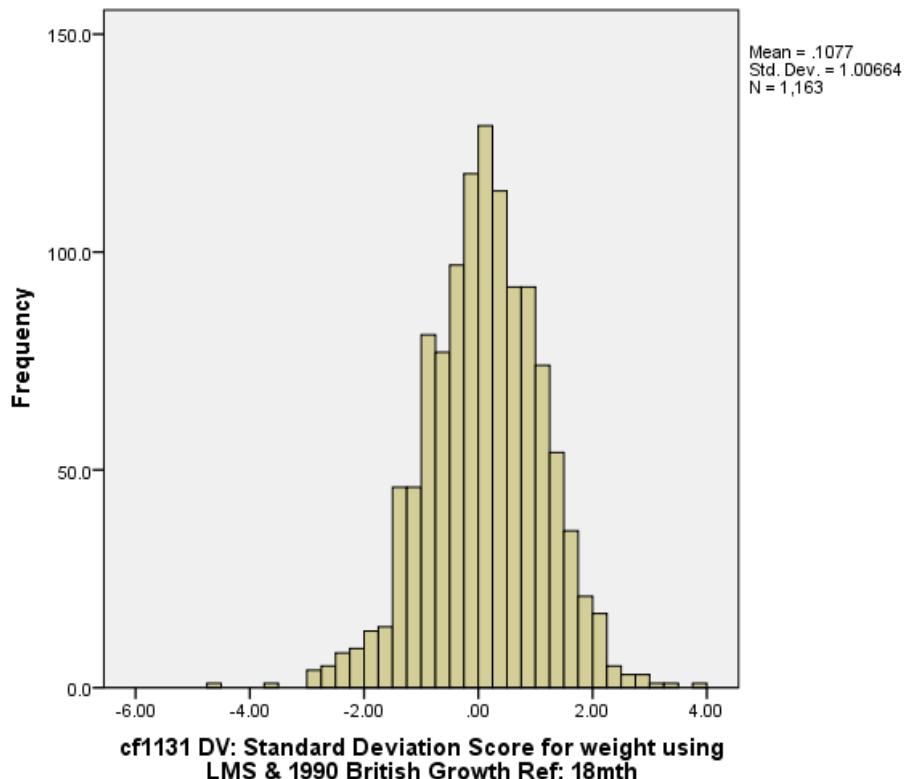


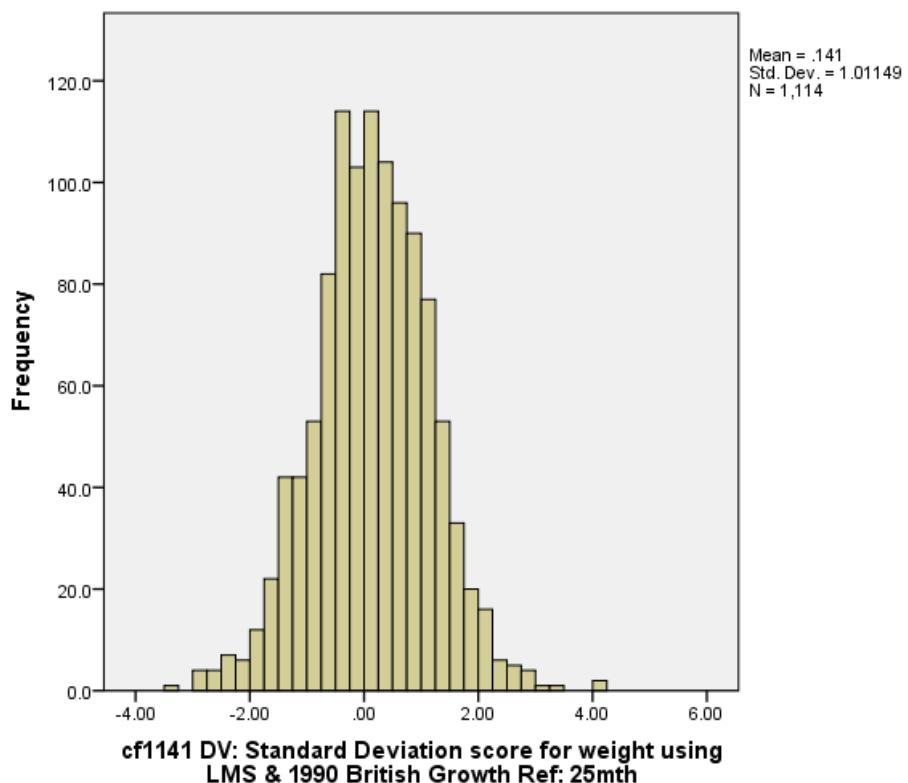
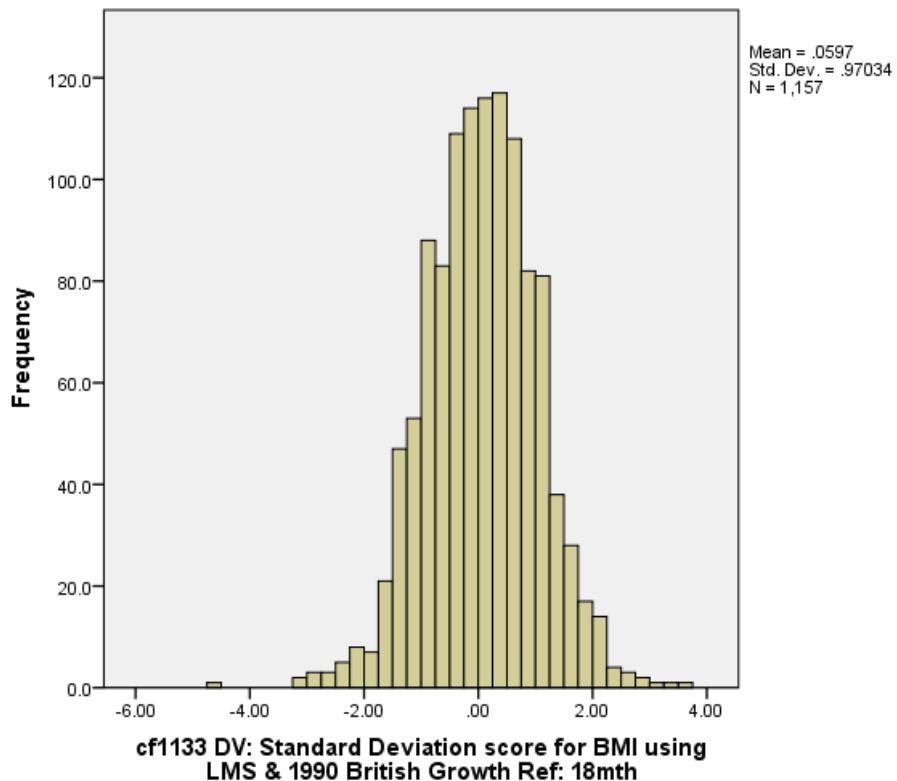


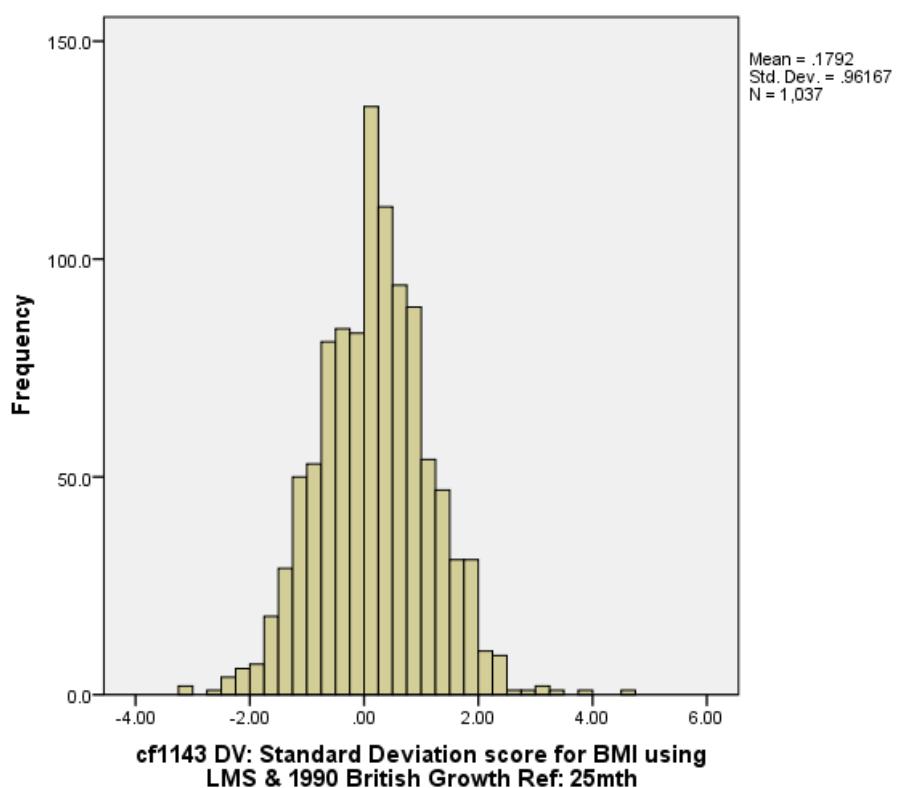
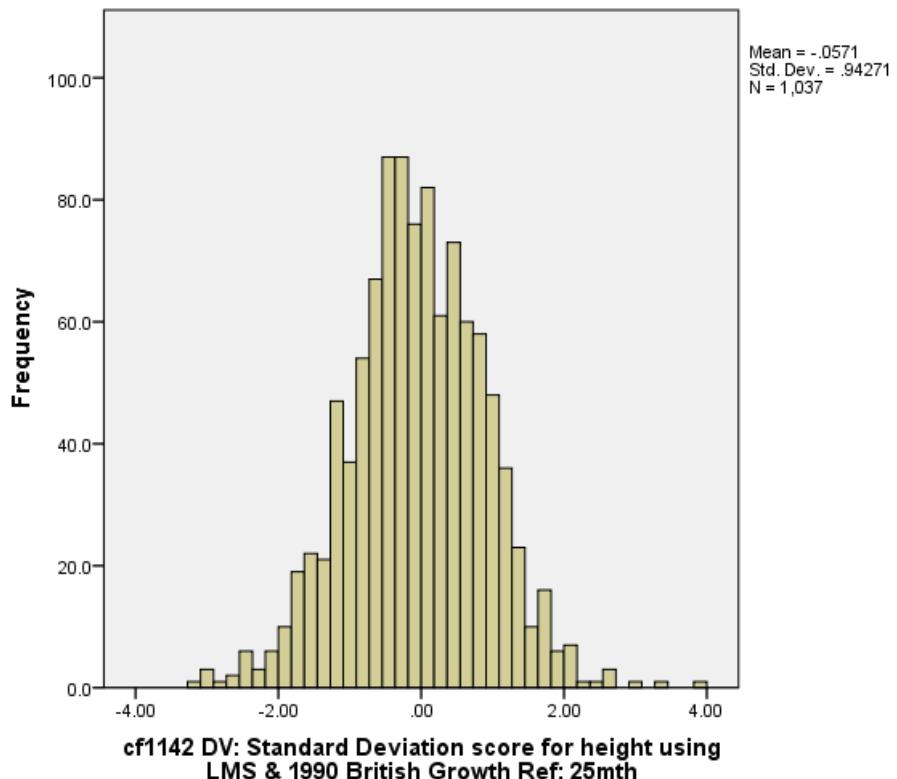


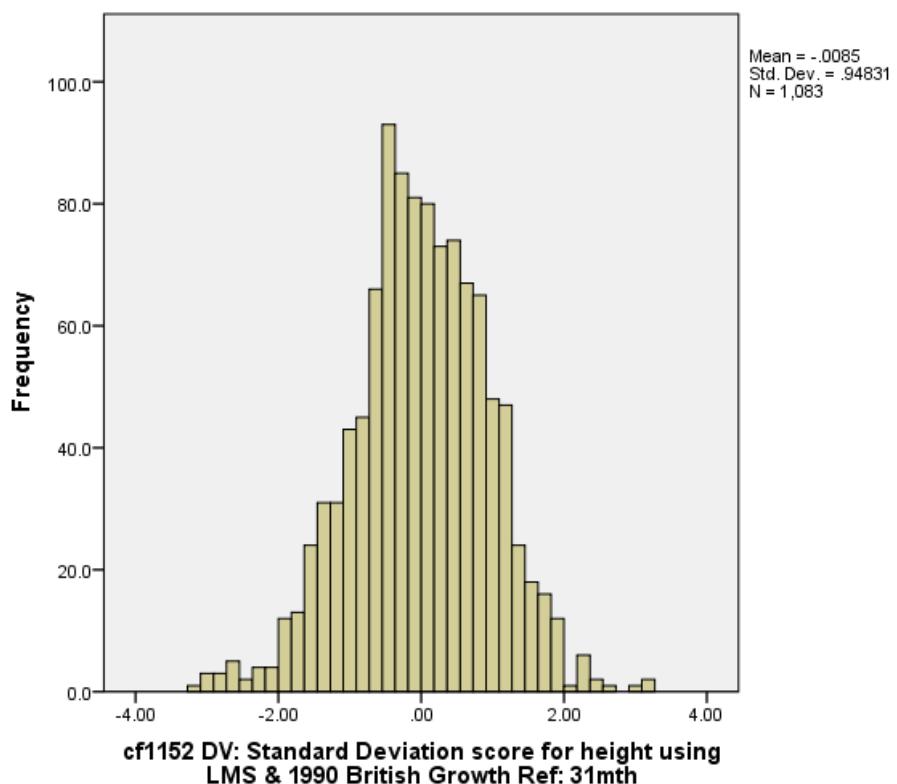
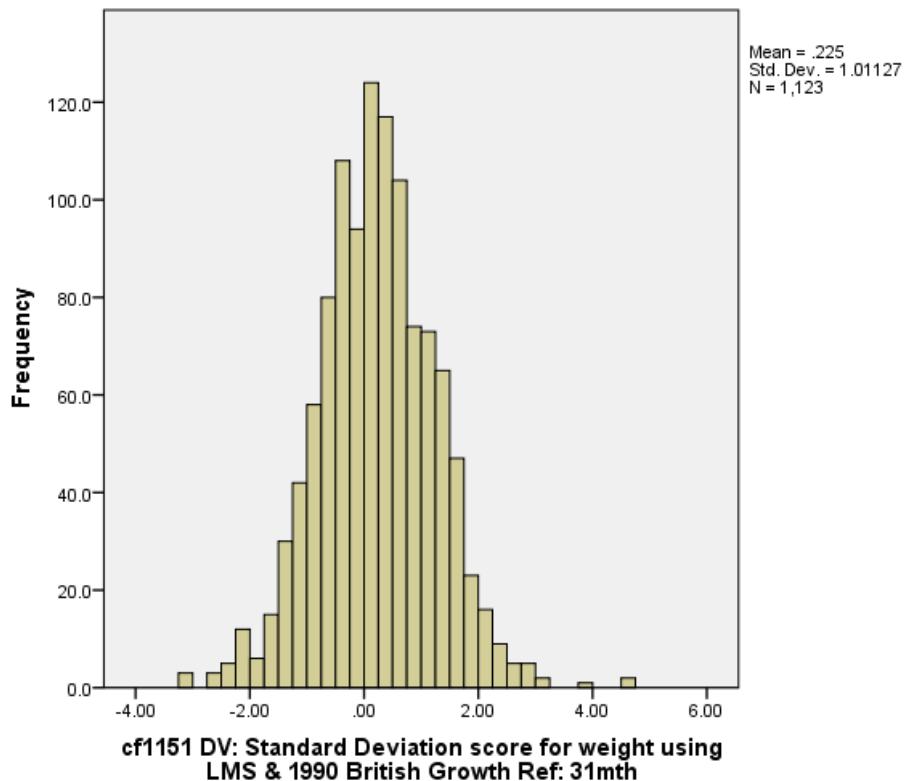


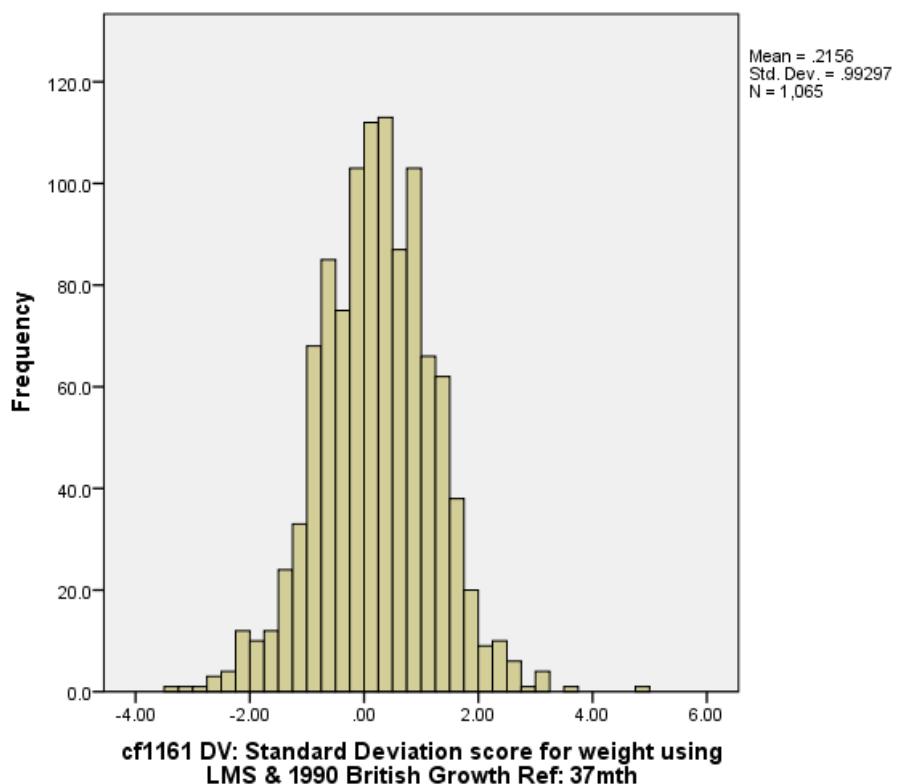
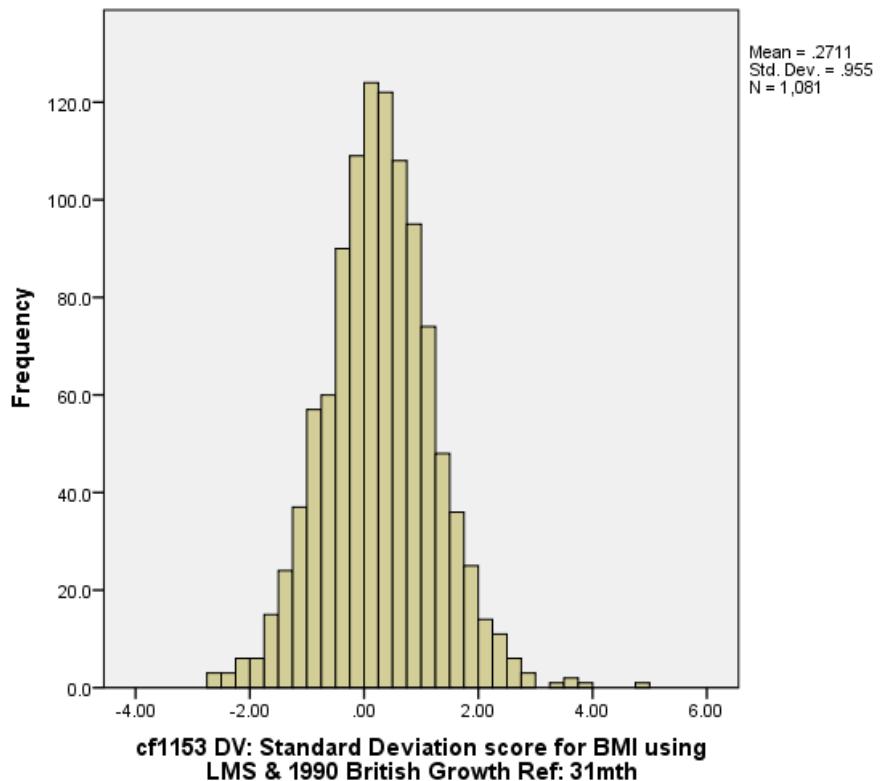


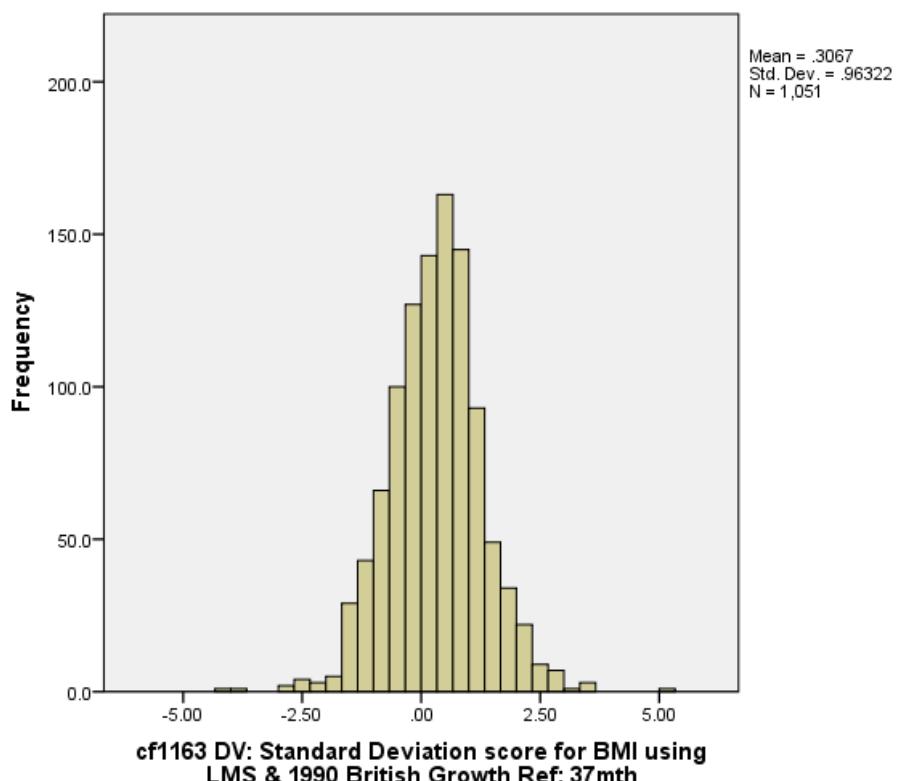
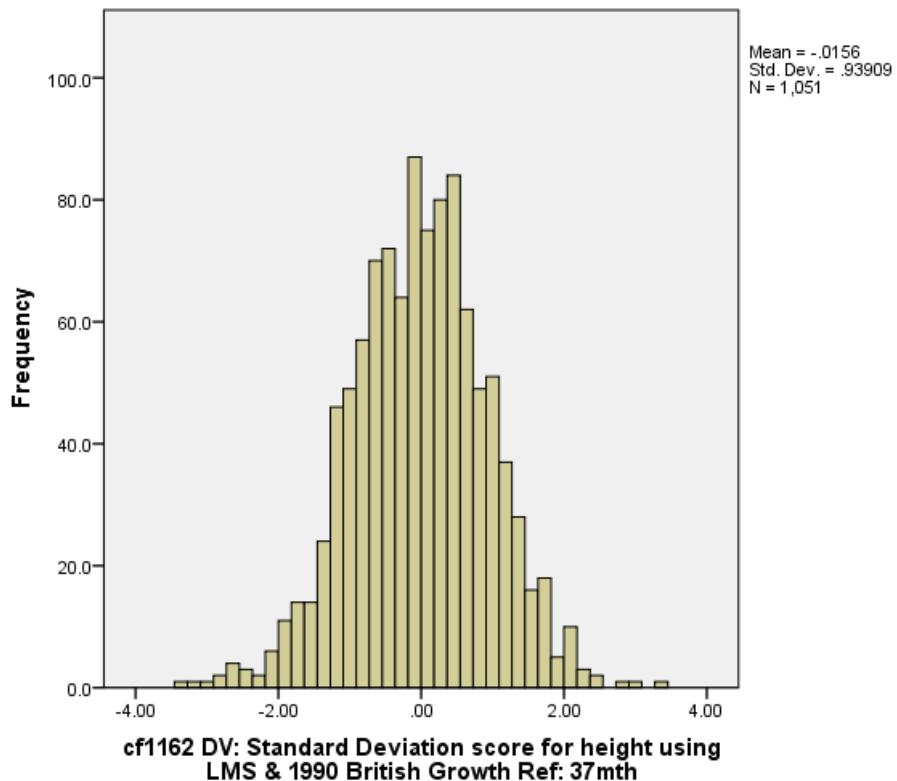


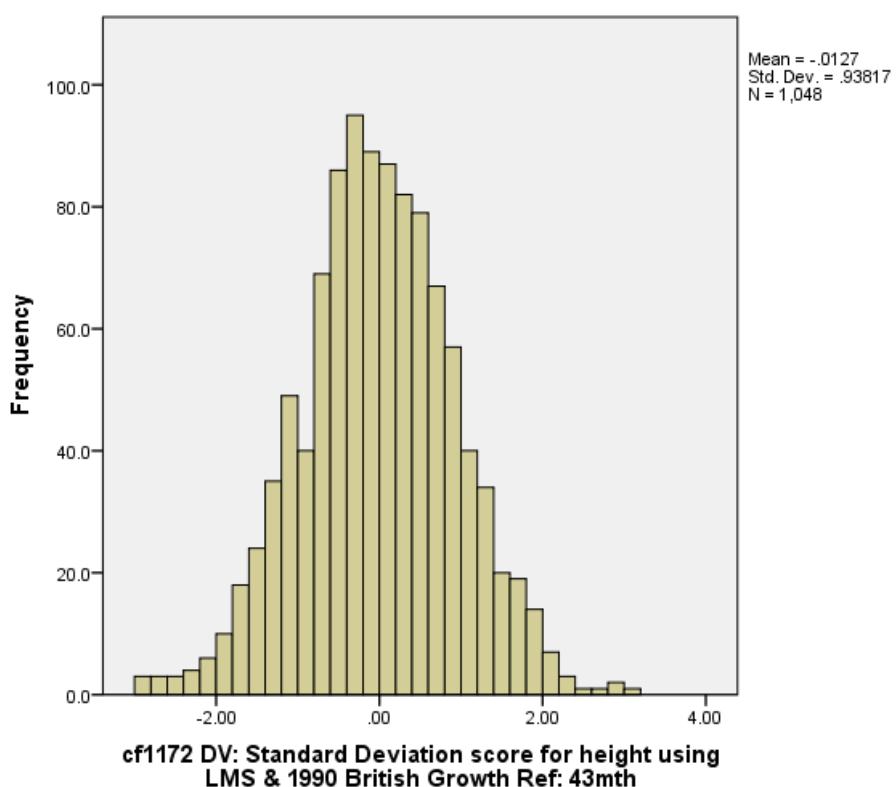
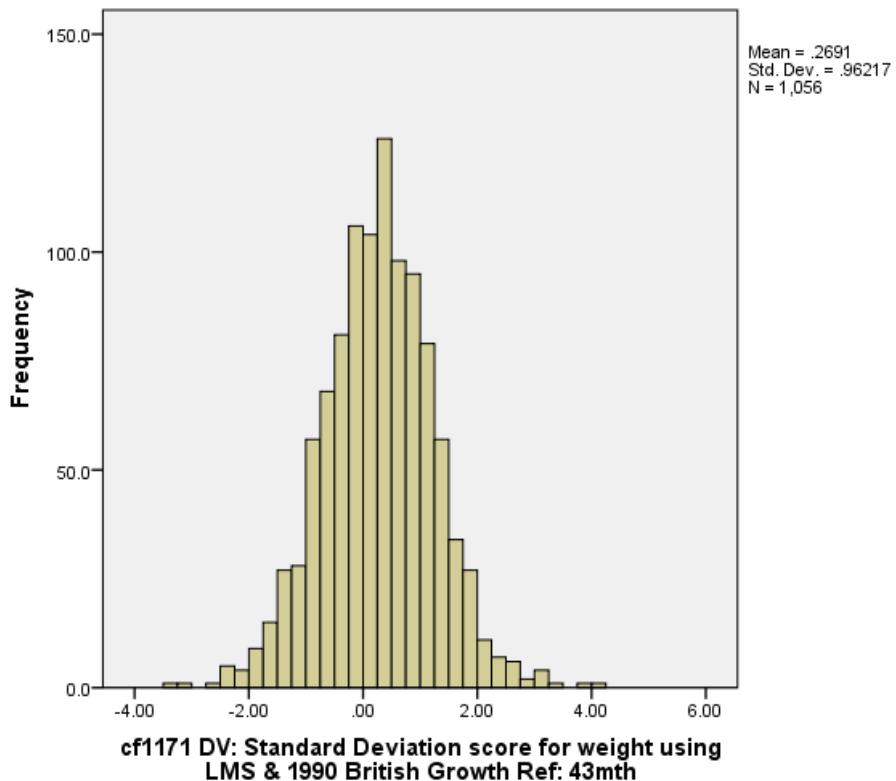


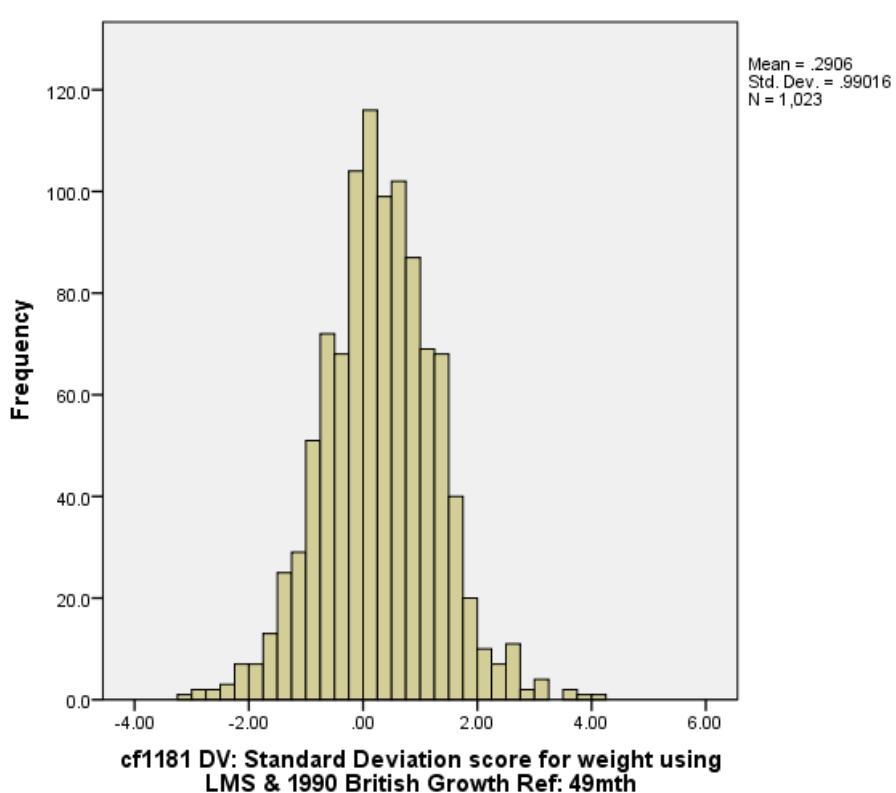
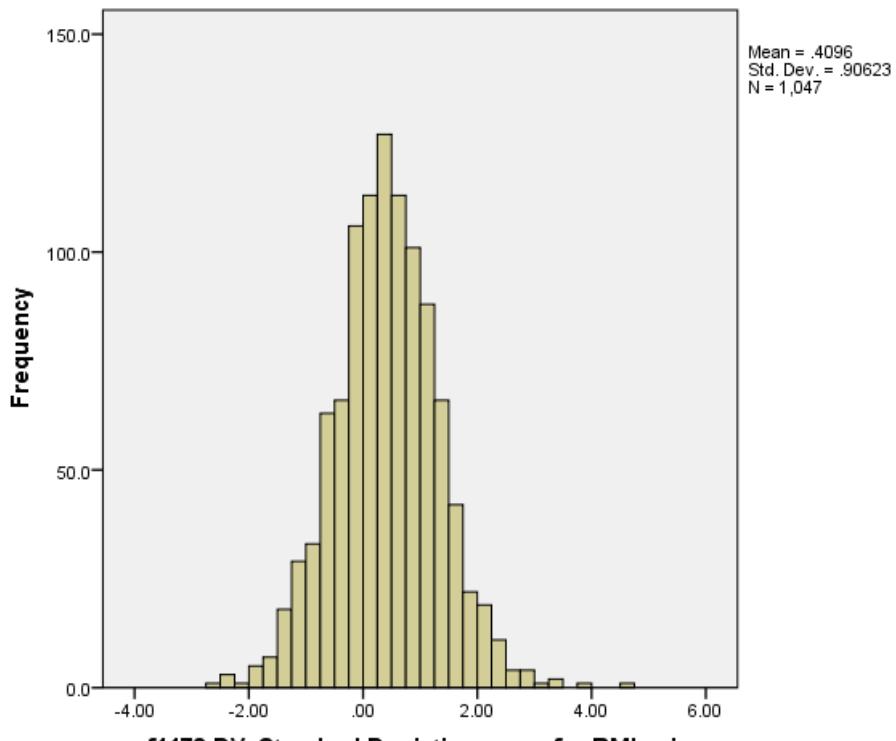


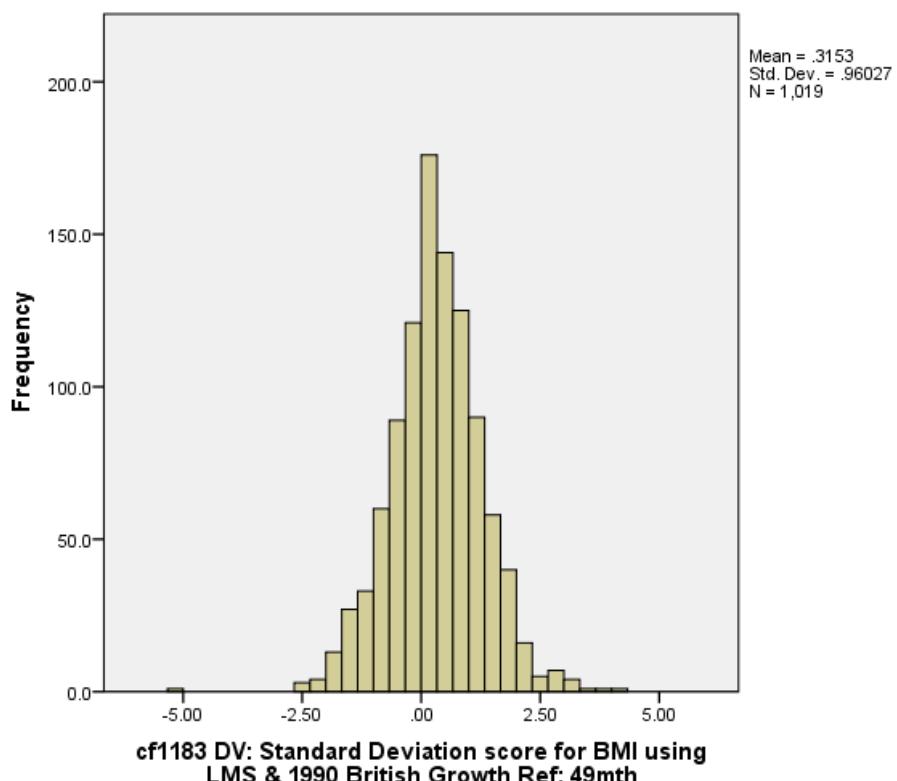
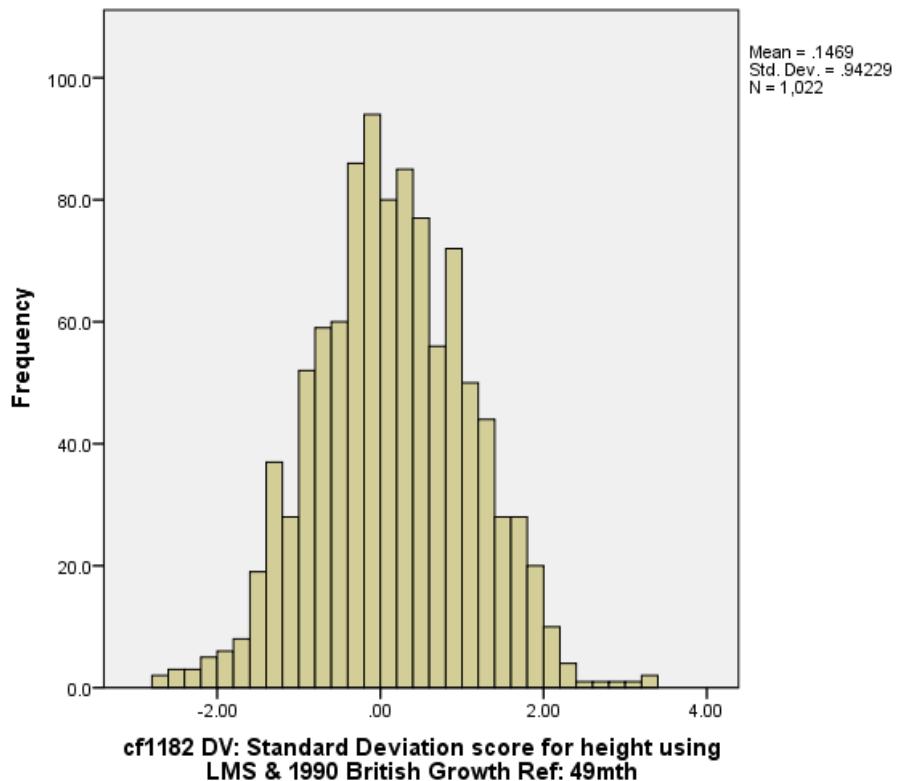


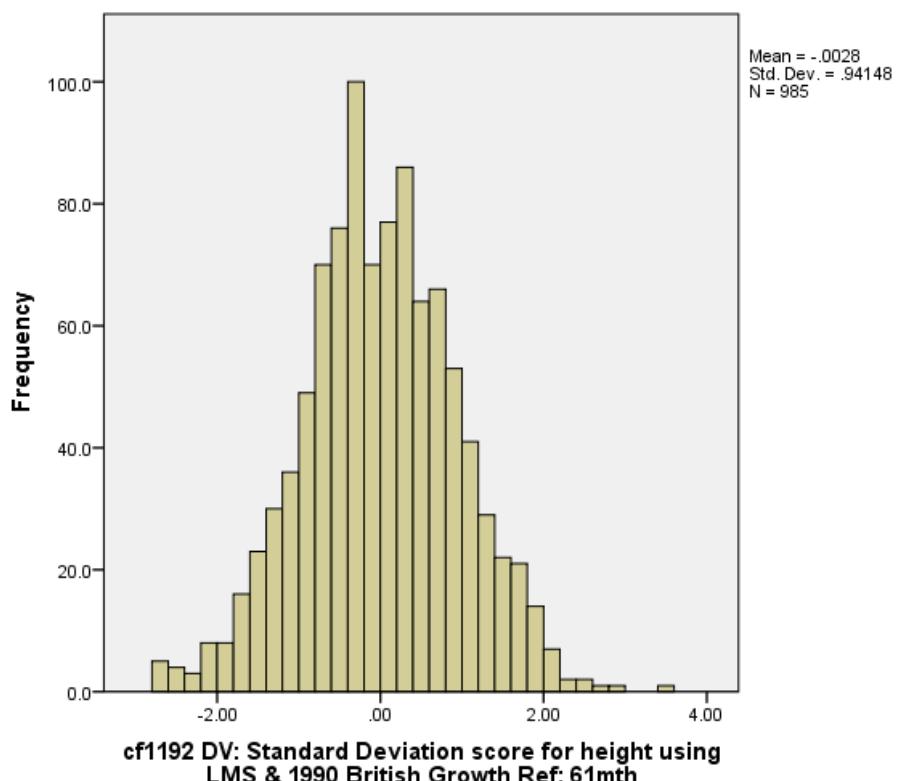
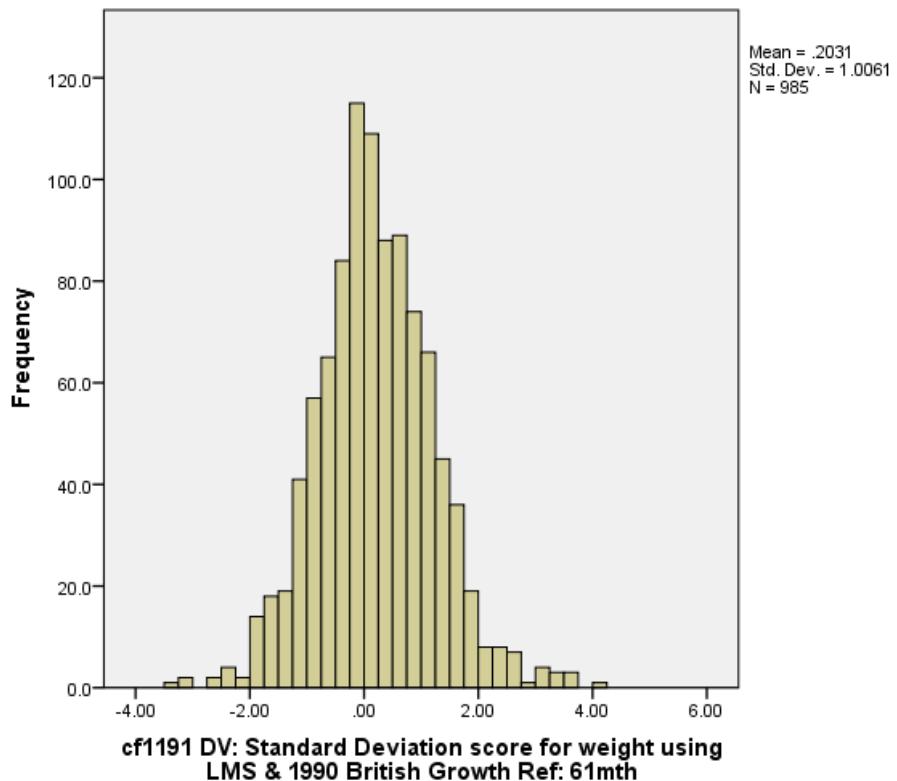


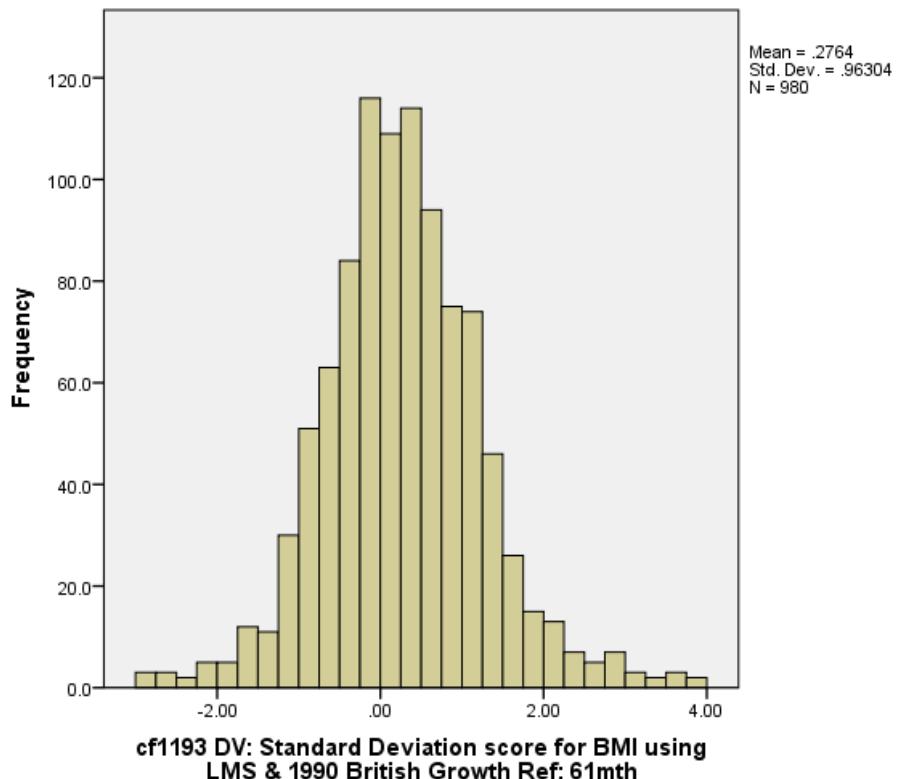












## 2.2 Blood pressure and pulse rate

### 2.2.1 Blood pressure

This was measured when the children reached 37 months, using a Dinamap 9300 Vital Signs Monitor generously lent to the study by Johnson and Johnson Medical Ltd. The children were seated on the parent's lap and given an explanation of what would happen using an inflating and deflating balloon to explain the action of the cuff. They watched a video while the 2 readings were taken. A piece of cotton tubing was slid up the child's arm to cushion it before the cuff was attached, and the initial inflation was set at 125mmHg. Occasionally the cuff reinflated before a reading was obtained. If the child became distressed at any time the reading was aborted.

The time of day, indoor and outdoor temperature and the child's demeanour were all noted. Blood pressure was taken again at the 49 and 61 month clinics, this time with initial inflation at 130mm Hg to reduce the incidence of automatic reinflation. The child-sized cuff (upper arm circumference 12-19 cms) was used at 37 months, and again at 49 and 61 months if the child's arm was 19 cms or less. If more, the young adult cuff was used first, and if the child was willing, a further 2 readings were taken with the child's cuff.

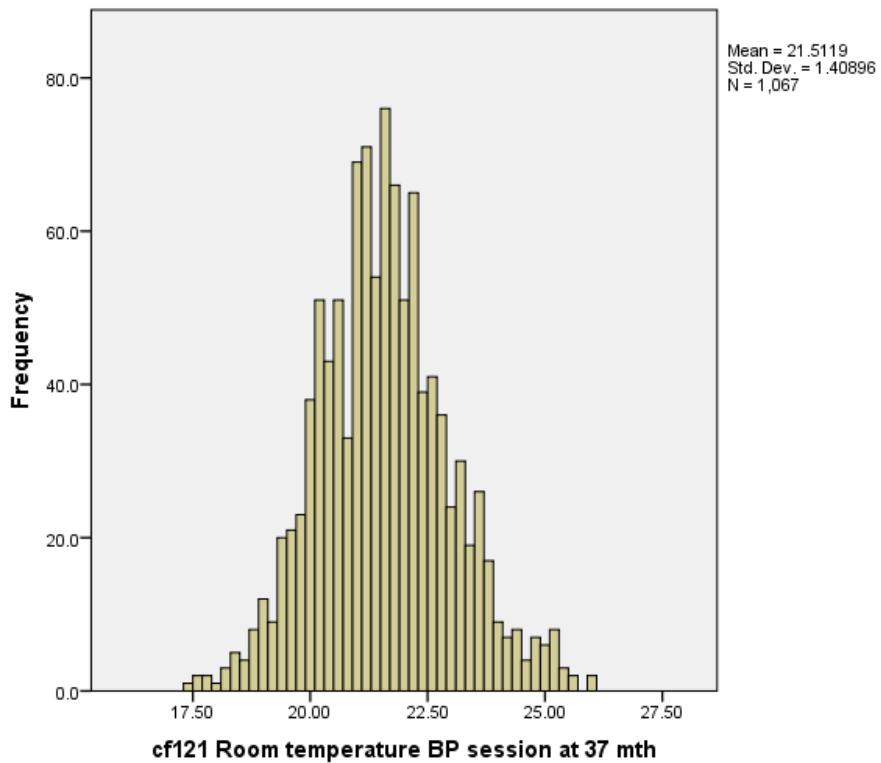
As children's pulse rates were measured using the Dinamap 9301 Vital Signs Monitor, which was introduced halfway through the clinic, there are only pulse readings for those attending later in the clinic cycle.

We are indebted to Dr. Peter Whincup, Dept. of Public Health, The Royal Free Hospital, London, for advice and support.

### 37months

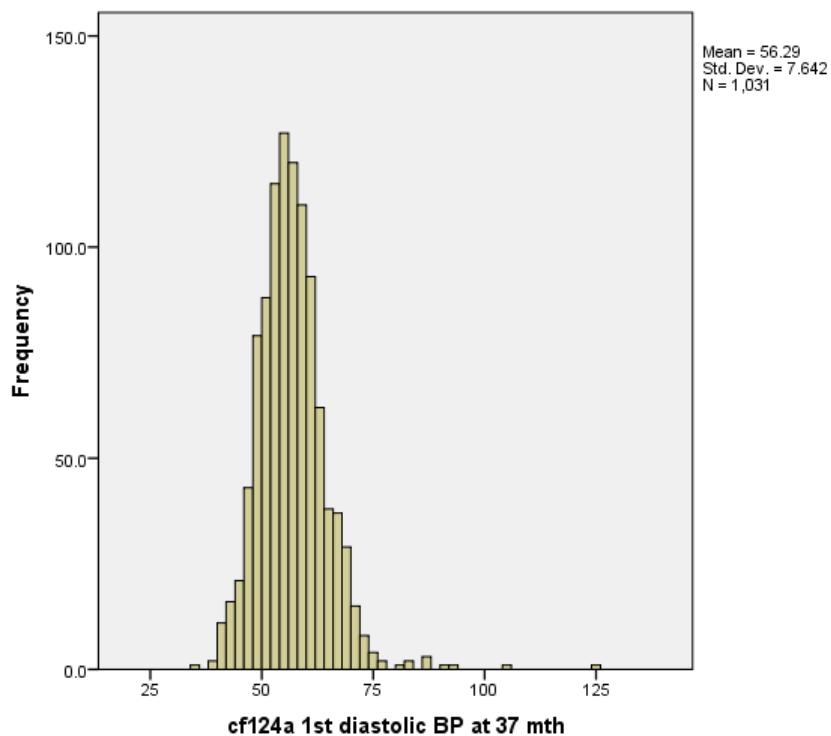
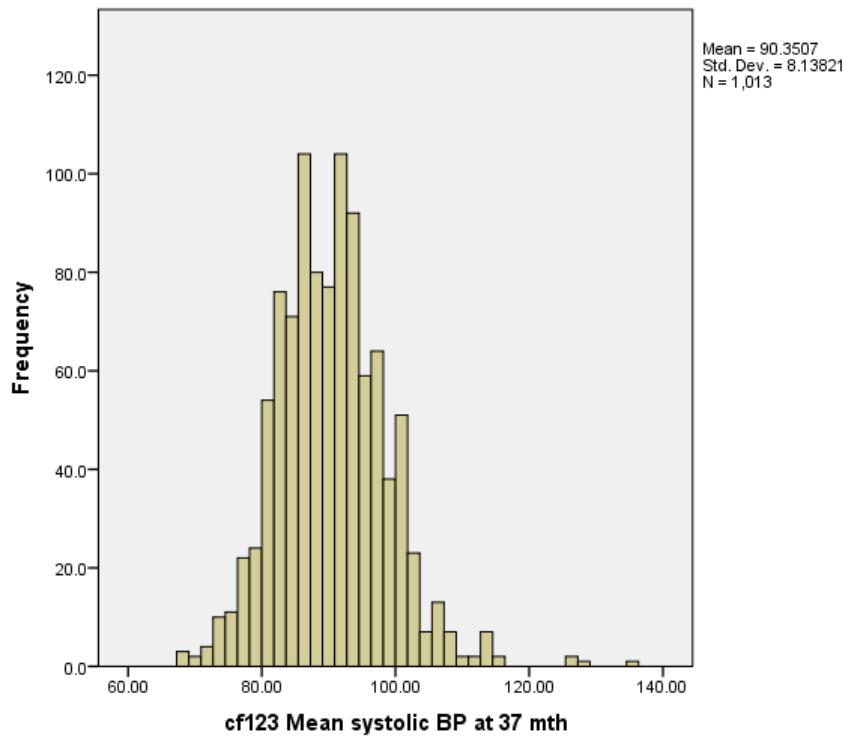
cf120 BP obtained 37 mth

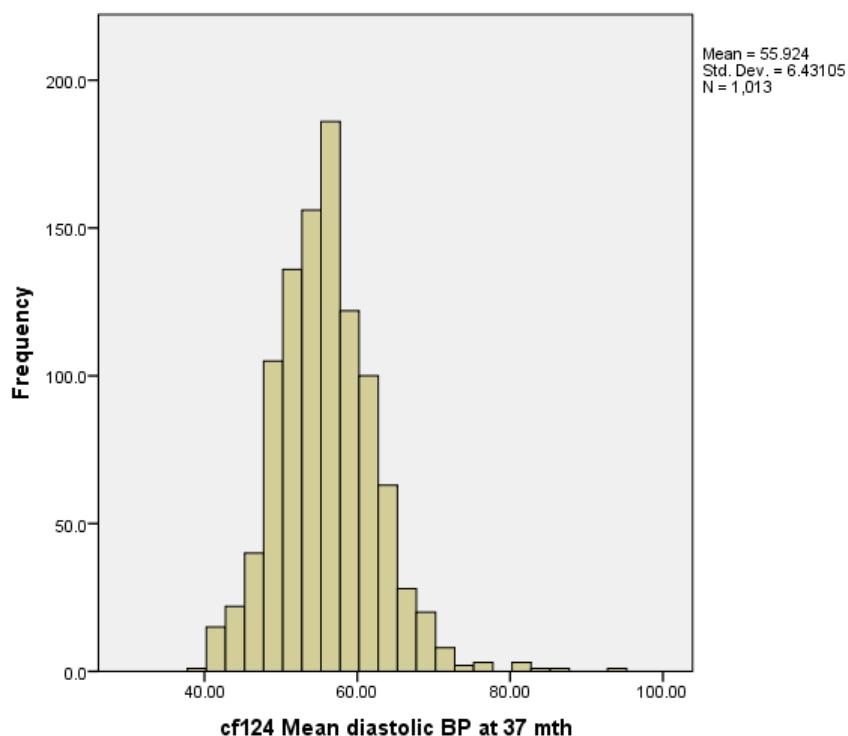
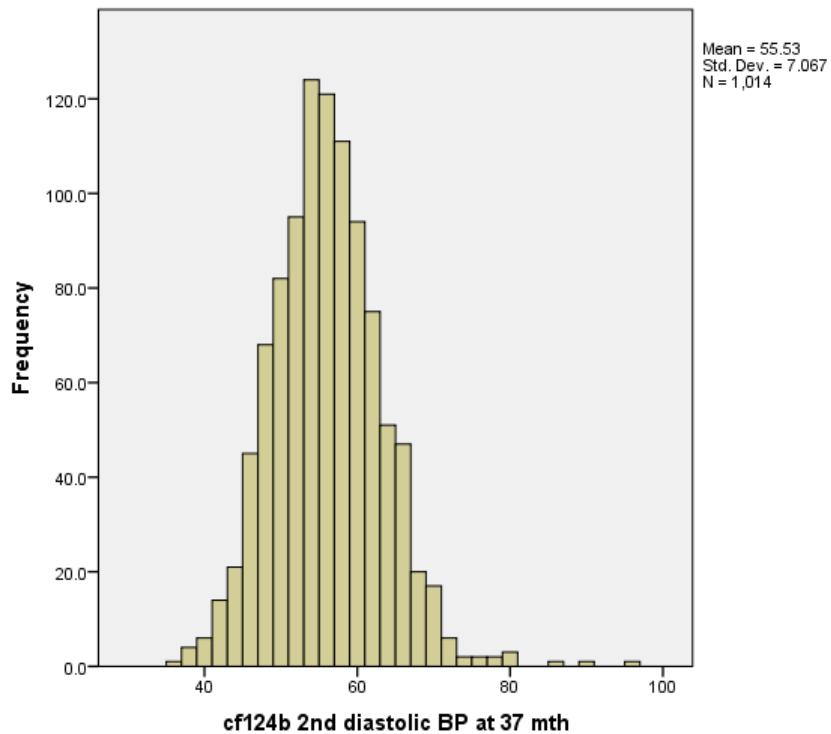
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1031	72.0	96.3	96.3
	2 No	40	2.8	3.7	100.0
	Total	1071	74.8	100.0	
Missing	-2 Did not attend	351	24.5		
	-1 Missing	10	.7		
	Total	361	25.2		
Total		1432	100.0		



cf122 Hour BP taken at 37 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9	36	2.5	3.4	3.4
	10	223	15.6	20.9	24.3
	11	191	13.3	17.9	42.2
	12	217	15.2	20.3	62.5
	13	108	7.5	10.1	72.6
	14	211	14.7	19.8	92.4
	15	79	5.5	7.4	99.8
	16	2	.1	.2	100.0
	Total	1067	74.5	100.0	
Missing	-2 Did not attend	351	24.5		
	-1 Missing	14	1.0		
	Total	365	25.5		
	Total	1432	100.0		



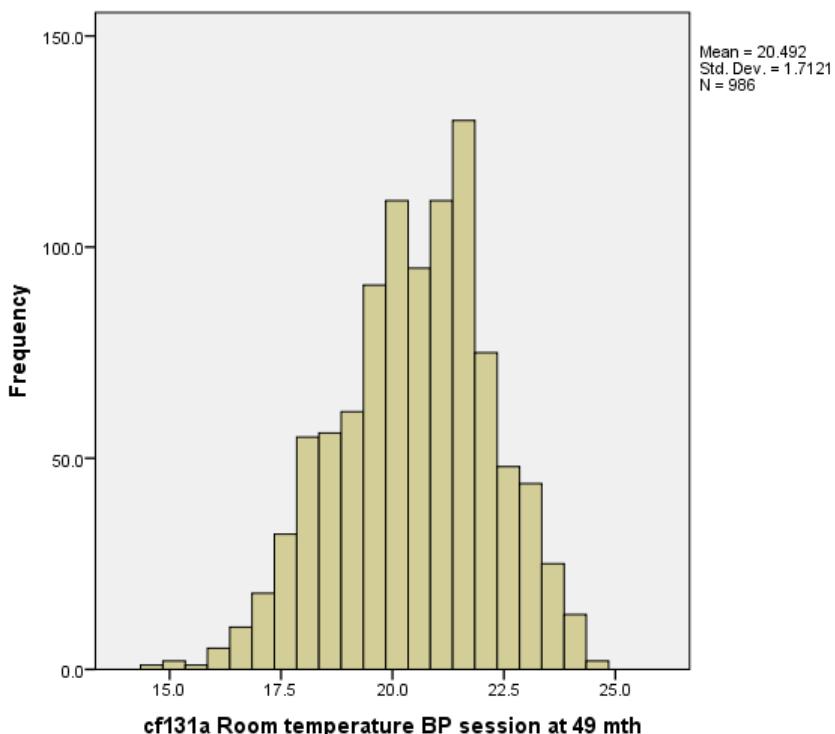


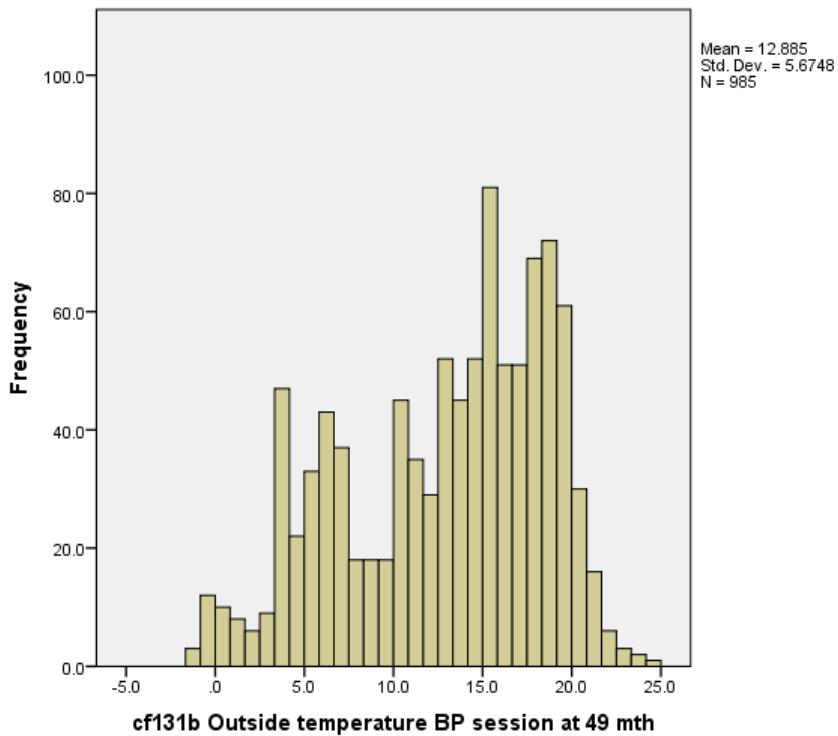
**cf125 BP taker at 37 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	339	23.7	31.4	31.4
	2	47	3.3	4.4	35.8
	3	161	11.2	14.9	50.7
	4	124	8.7	11.5	62.2
	5	39	2.7	3.6	65.9
	6	75	5.2	7.0	72.8
	7	293	20.5	27.2	100.0
	Total	1078	75.3	100.0	
Missing	-2 Did not attend	351	24.5		
	-1 Missing	3	.2		
	Total	354	24.7		
	Total	1432	100.0		

**49 months****cf130 BP obtained at 49 mth**

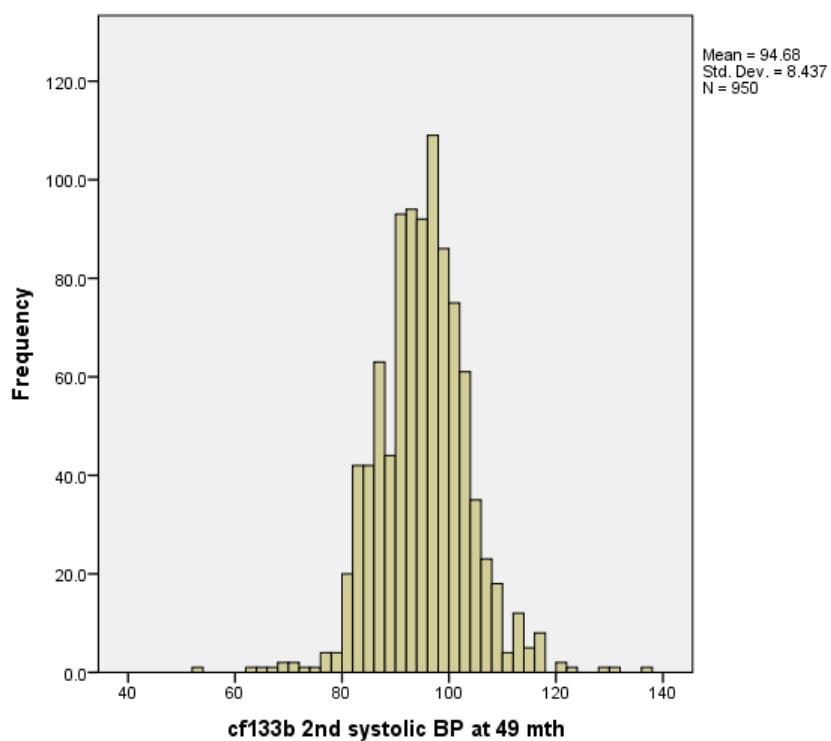
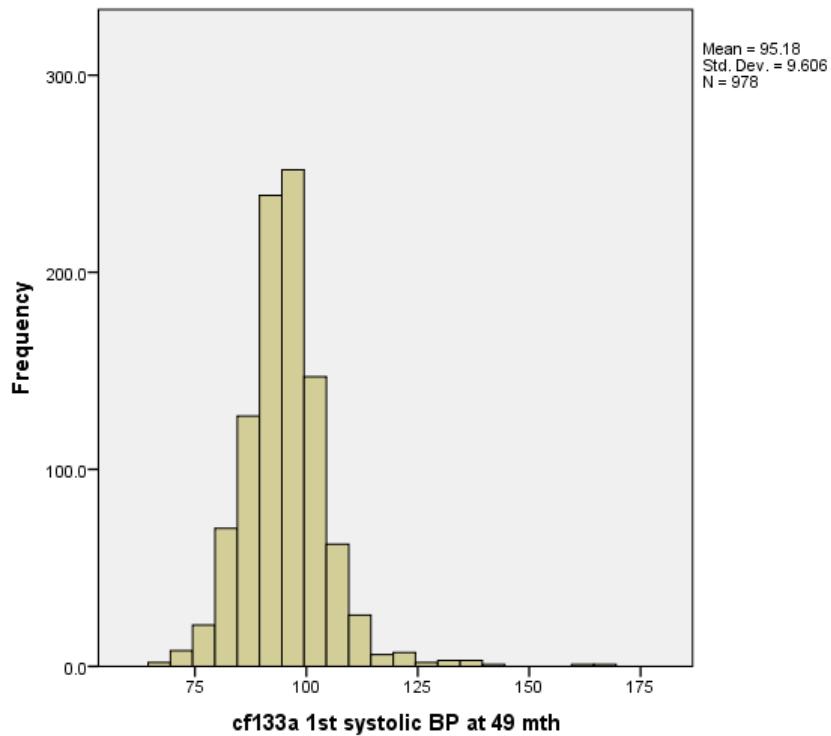
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	978	68.3	94.9	94.9
	2 No	53	3.7	5.1	100.0
	Total	1031	72.0	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	1	.1		
	Total	401	28.0		
	Total	1432	100.0		

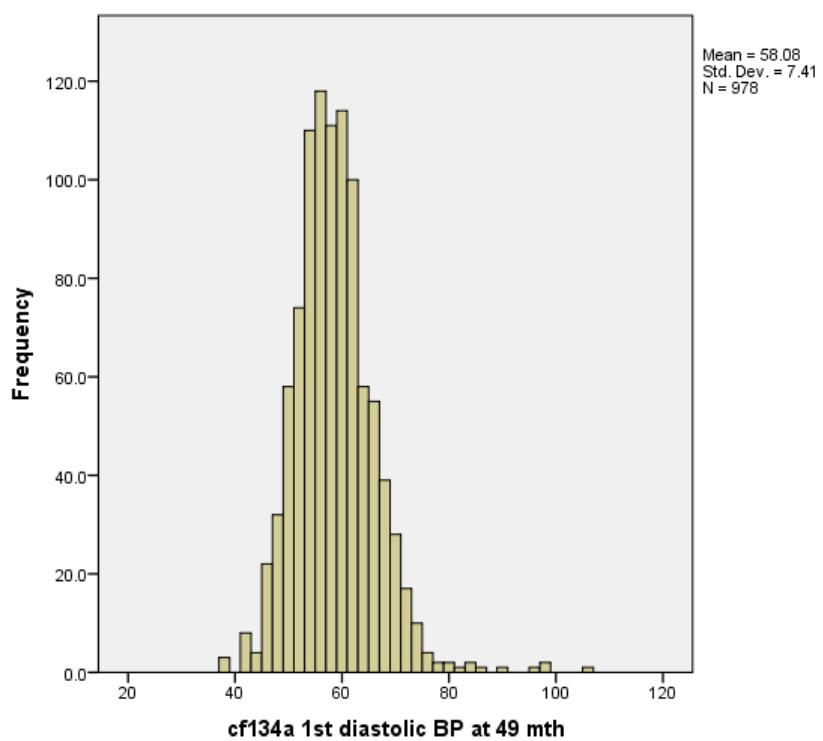
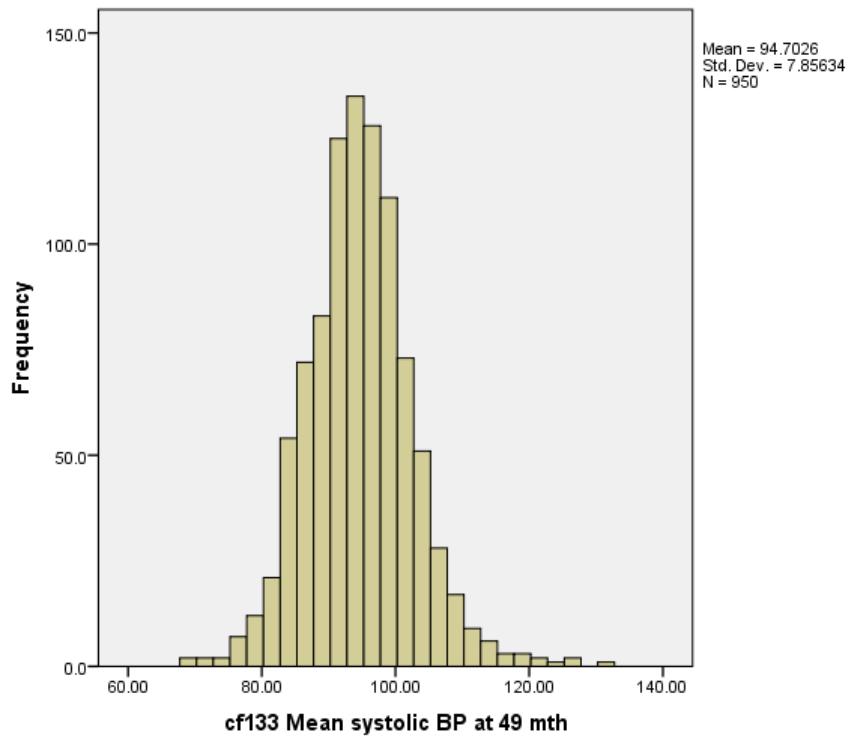


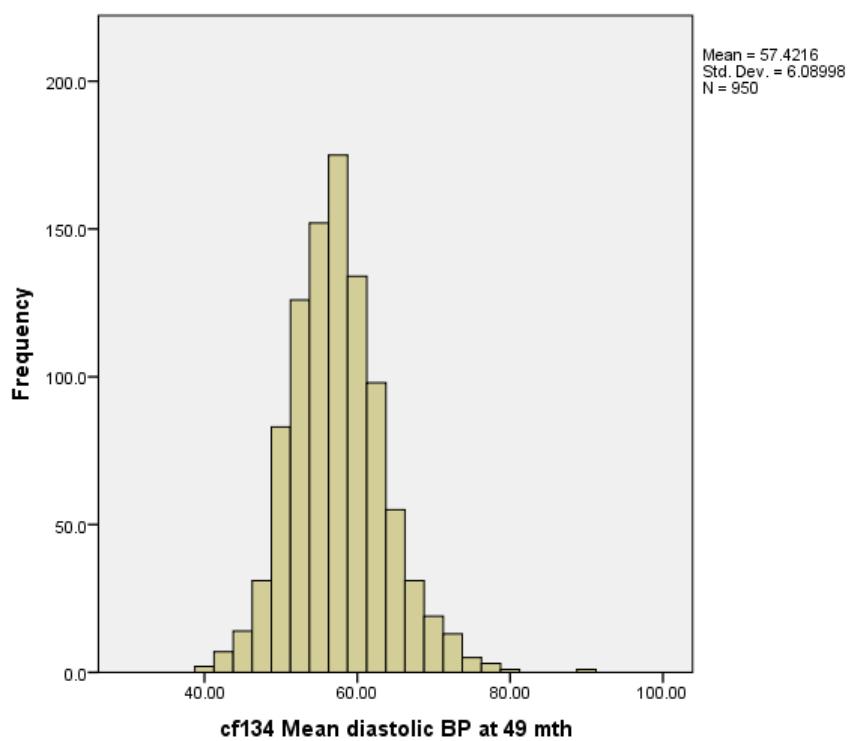
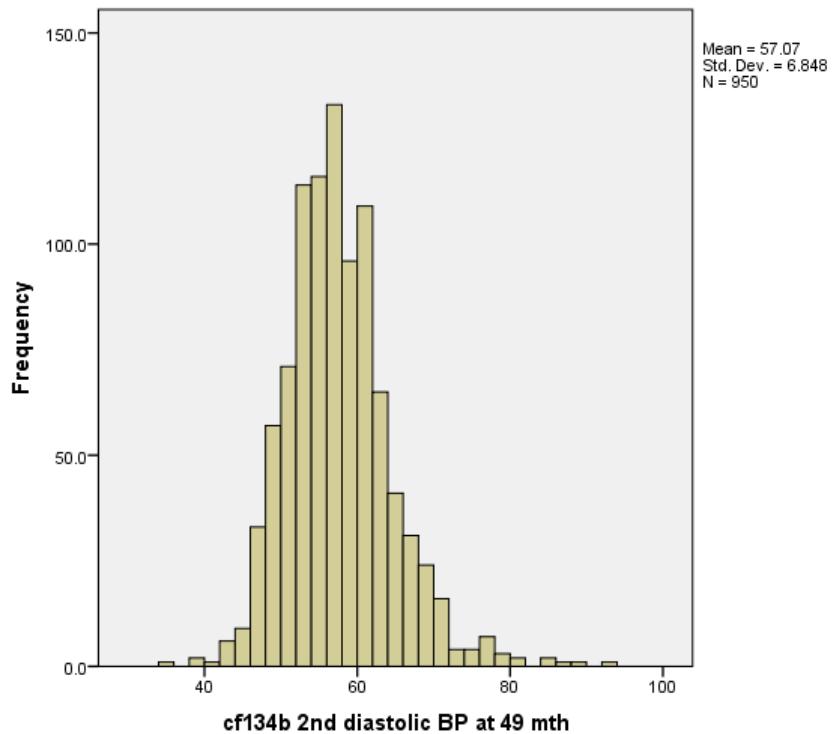


cf132 Hour BP taken at 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	106	7.4	10.7	10.7
	11	253	17.7	25.5	36.1
	12	171	11.9	17.2	53.3
	13	218	15.2	21.9	75.3
	14	217	15.2	21.8	97.1
	15	29	2.0	2.9	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	38	2.7		
	Total	438	30.6		
	Total	1432	100.0		







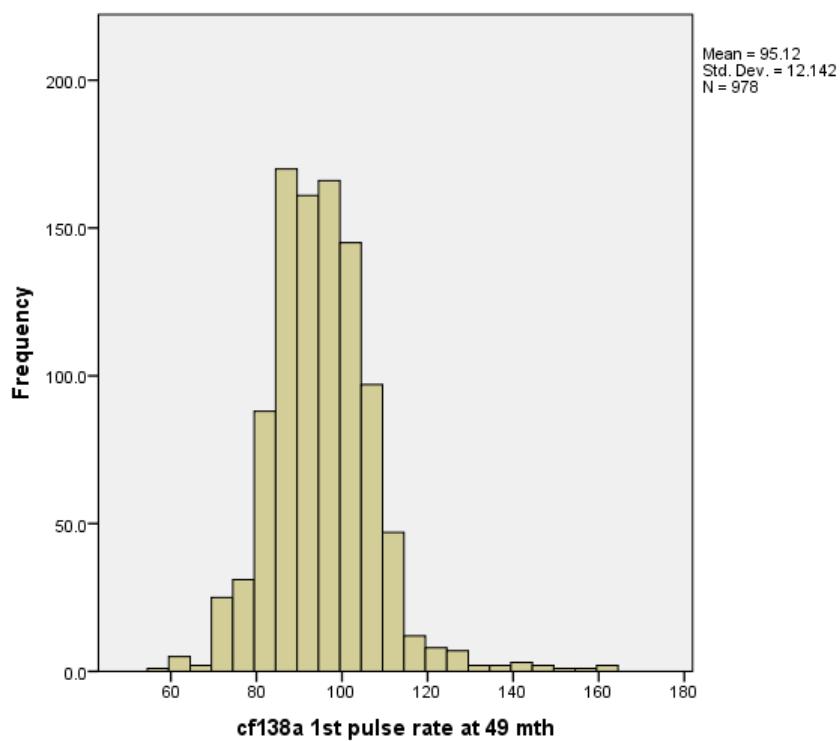
BP taker at 49 months is not available

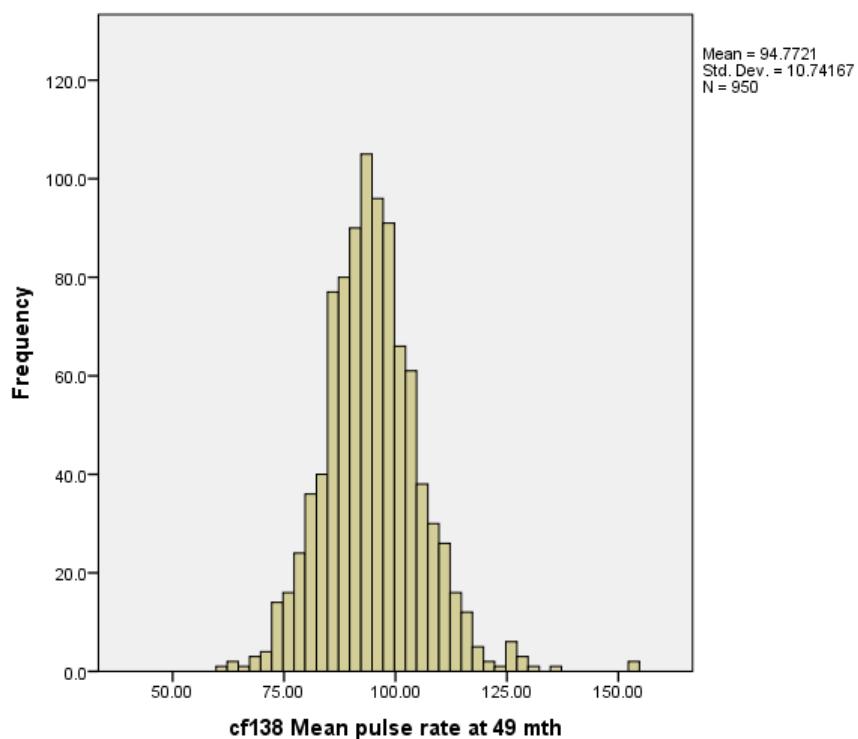
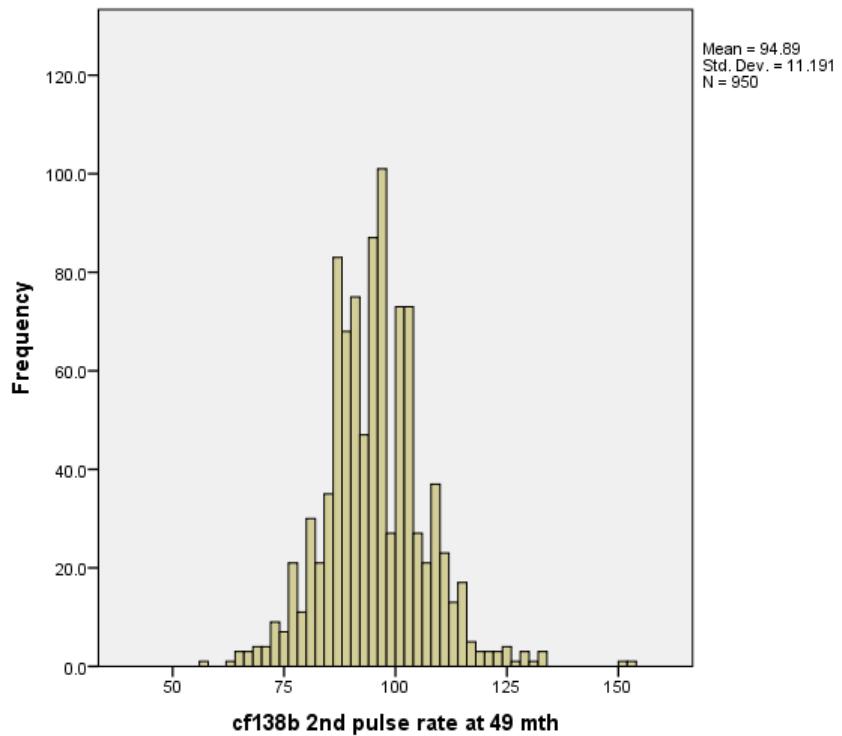
**cf136 Child's demeanour in BP session at 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Quiet	746	52.1	76.7	76.7
	2 Talking	144	10.1	14.8	91.5
	3 Fidgeting	30	2.1	3.1	94.6
	4 Distressed	53	3.7	5.4	100.0
	Total	973	67.9	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	59	4.1		
	Total	459	32.1		
Total		1432	100.0		

**cf137 Infection present/recent (BP) at 49mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	309	21.6	31.6	31.6
	2 No	670	46.8	68.4	100.0
	Total	979	68.4	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	53	3.7		
	Total	453	31.6		
Total		1432	100.0		

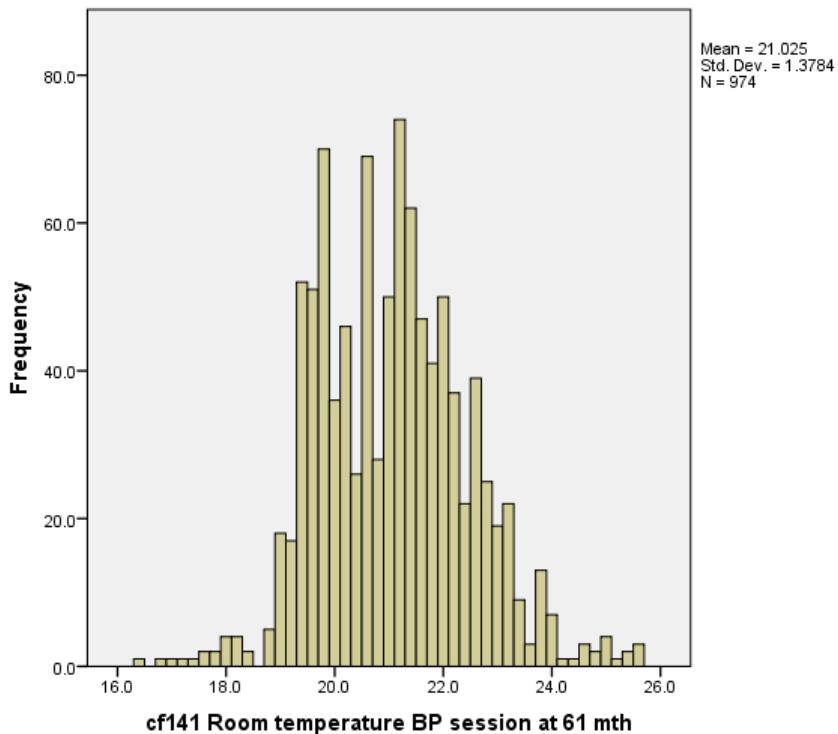




## 61 months

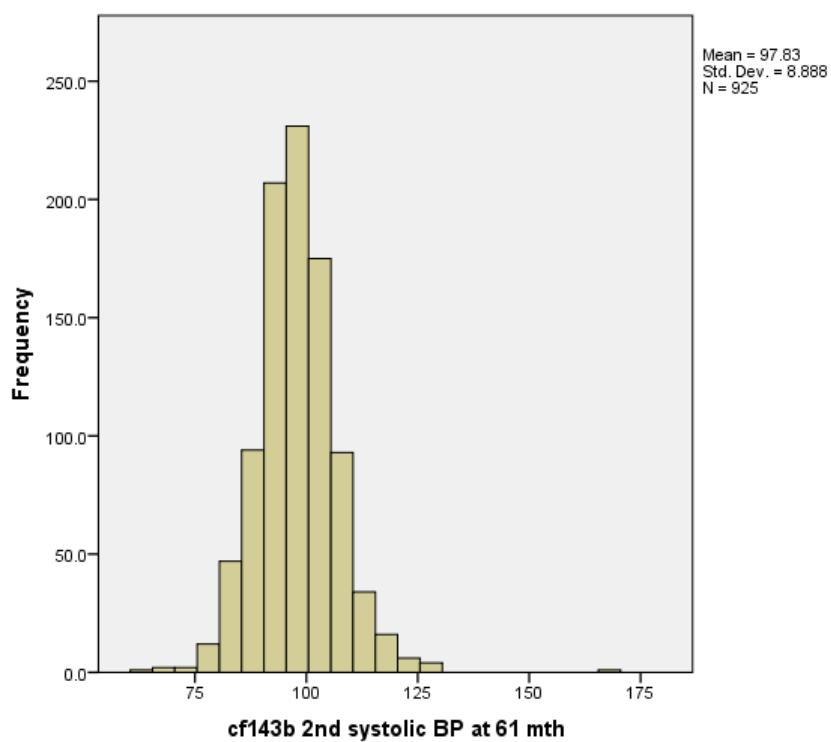
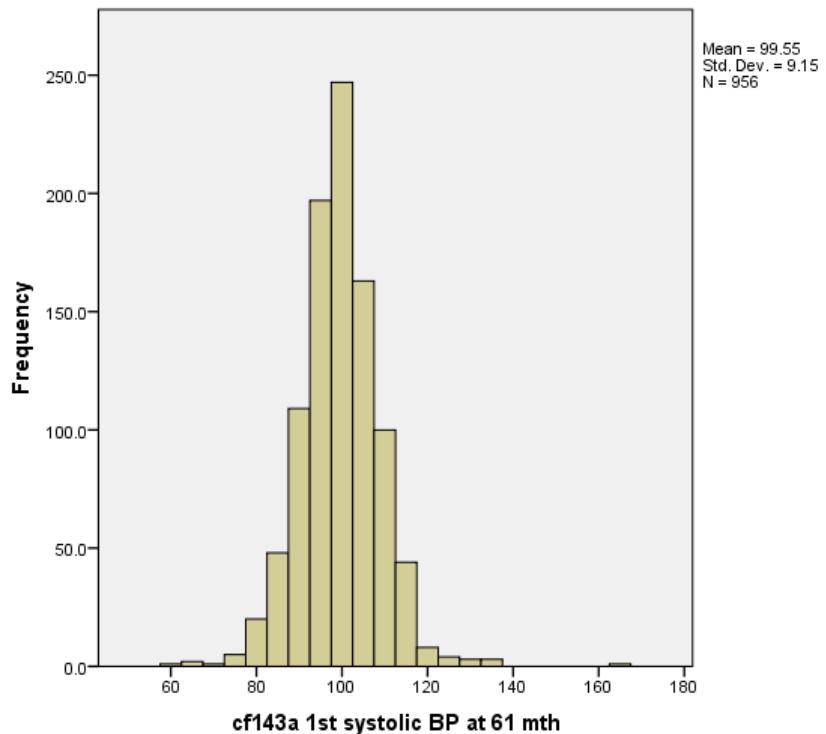
cf140 BP obtained at 61 mth

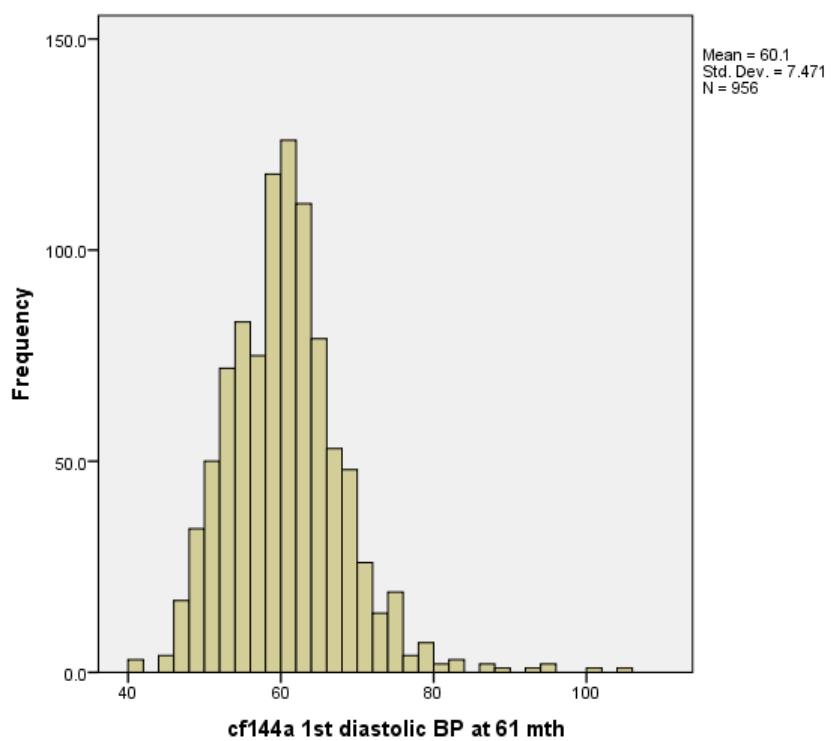
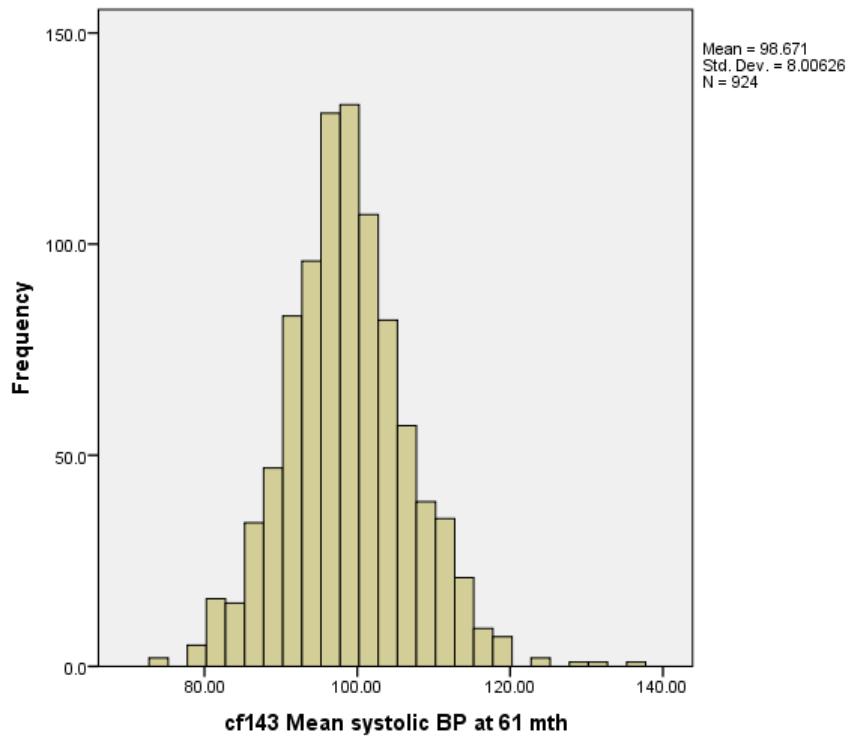
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	957	66.8	96.3	96.3
	2 No	37	2.6	3.7	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	438	30.6		
Total		1432	100.0		

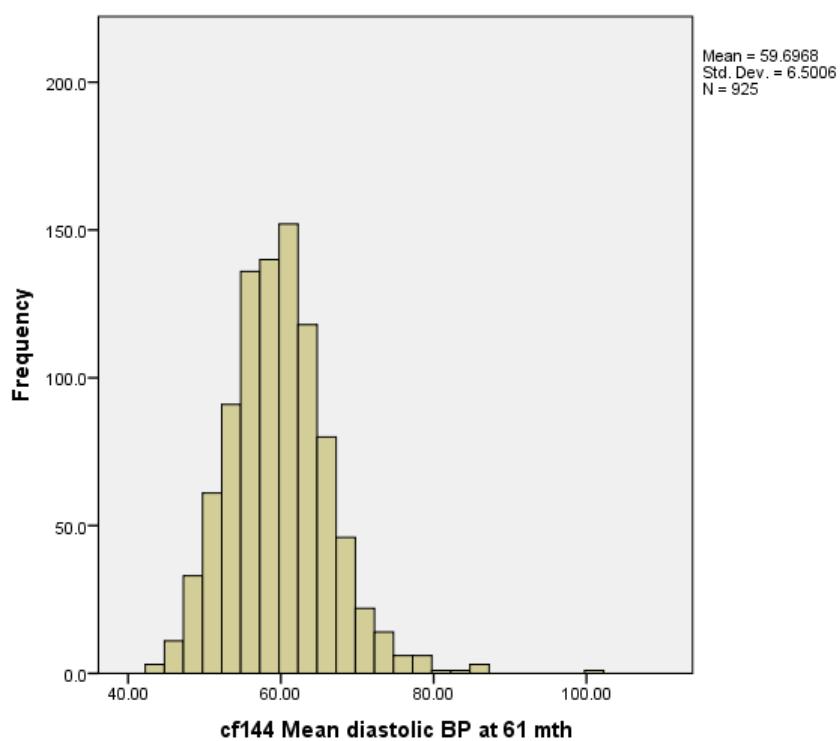
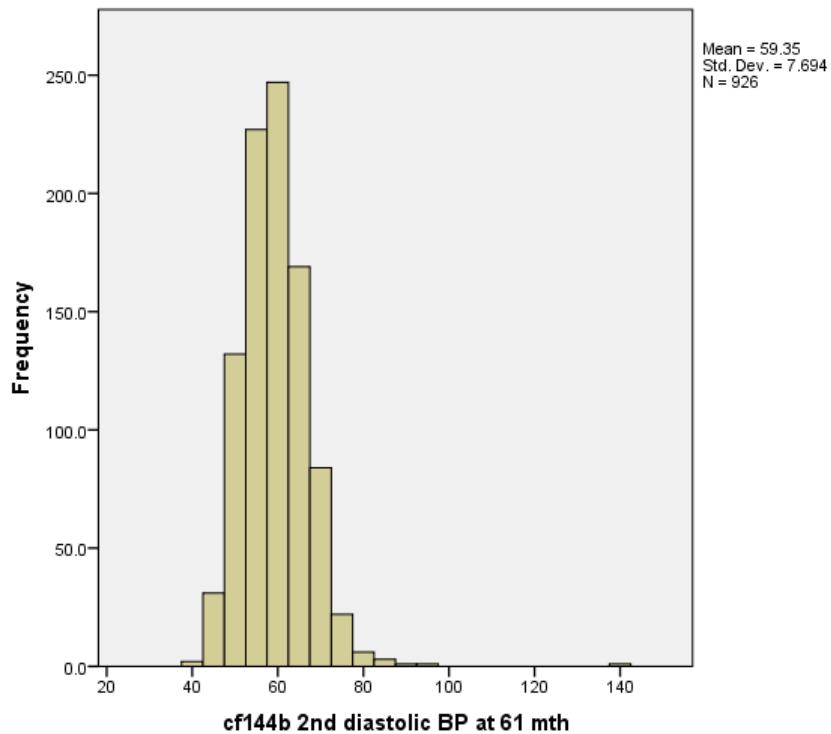


cf142 Hour BP taken at 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9	96	6.7	9.8	9.8
	10	192	13.4	19.7	29.5
	11	173	12.1	17.7	47.3
	12	84	5.9	8.6	55.9
	13	191	13.3	19.6	75.5
	14	154	10.8	15.8	91.3
	15	85	5.9	8.7	100.0
	Total	975	68.1	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	19	1.3		
	Total	457	31.9		
Total		1432	100.0		







**cf145 BP taker at 61 mth**

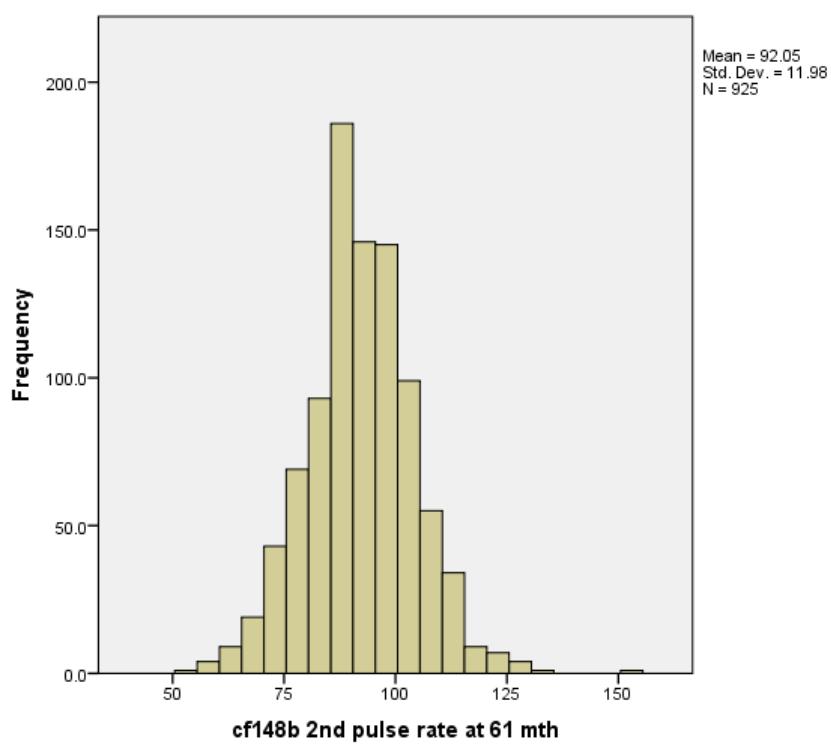
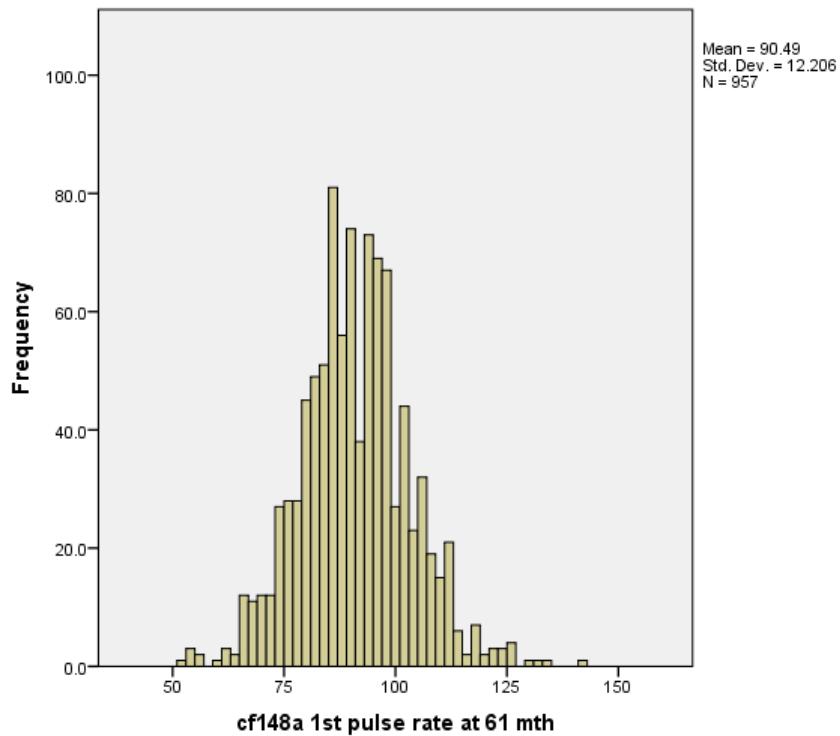
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	307	21.4	31.1	31.1
	3	211	14.7	21.4	52.4
	4	4	.3	.4	52.8
	5	463	32.3	46.9	99.7
	35	3	.2	.3	100.0
	Total	988	69.0	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		

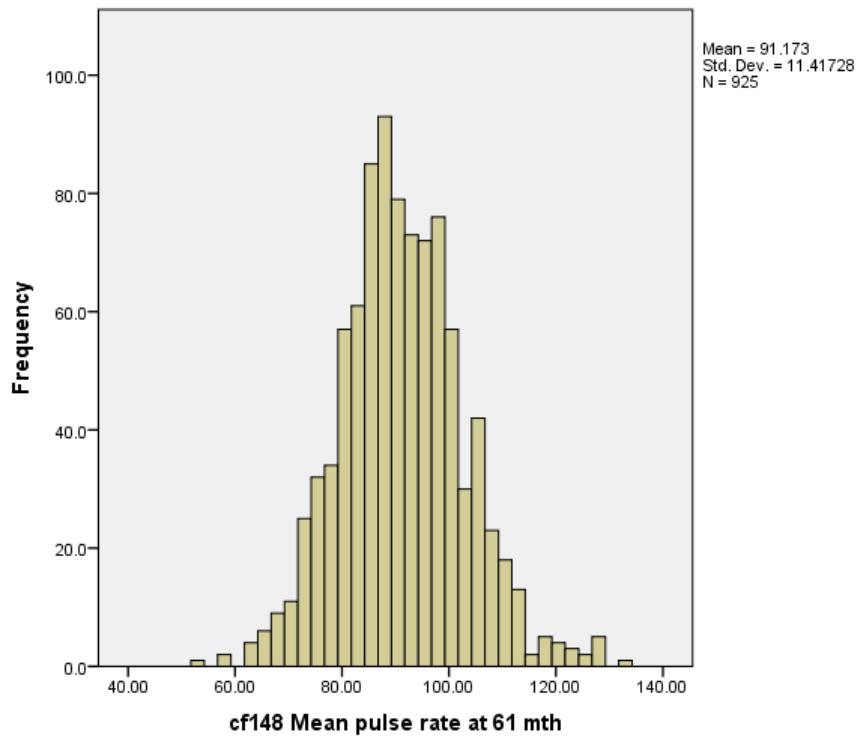
**cf146 Child's demeanour in BP session at 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Quiet	733	51.2	78.0	78.0
	2 Talking	121	8.4	12.9	90.9
	3 Fidgeting	59	4.1	6.3	97.1
	4 Distressed	16	1.1	1.7	98.8
	5 Other	1	.1	.1	98.9
	9 Uncooperative	3	.2	.3	99.3
	12 Combination 1 & 2	2	.1	.2	99.5
	13 Combination 1 & 3	1	.1	.1	99.6
	23	1	.1	.1	99.7
	24 Combination 2 & 4	3	.2	.3	100.0
	Total	940	65.6	100.0	
Missing	-2 Did not attend	475	33.2		
	-1 Missing	17	1.2		
	Total	492	34.4		
Total		1432	100.0		

**cf147 Infection present/recent (BP) at 61mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	87	6.1	9.2	9.2
	2 No	861	60.1	90.8	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	475	33.2		
	-1 Missing	9	.6		
	Total	484	33.8		
Total		1432	100.0		





## 2.3 Fitness and lung function

An exercise challenge was developed for the 61-month clinic, during which the child's cardiorespiratory fitness was measured and peak expiratory flow (measure of lung function) was taken before and after exercise.

In advance of the visit parents were asked to withhold any asthma treatments from affected children where the condition permitted and to provide a list of treatments currently in use.

Children who had had an acute respiratory tract infection and/or had had a course of oral steroids within the past 3 weeks were excluded from the exercise test.

### 2.3.1 Lung function

On arrival at the clinic parents were given instructions and asked to train their child to use a small peak flow meter. This enabled the children to practice until they were able to give repeatable readings of peak flow. At each measurement the child was asked to blow into the peak flow meter three times with the mouthpiece inside the lips but in front of the teeth, in a relaxed standing posture. Each blow was recorded and the highest reading for each child selected (the three measurements should be  $\pm 10\%$  of the mean). Before exercise the child's peak expiratory flow (PEF) was checked against their height using a prepared graph. If the PEF was less than 70% for the child's height they were excluded. After performing the exercise (see below) three peak flow measurements were taken at 1 minute, 5 minutes and 10 minutes post-exercise.

cf180a PEF test done 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	850	59.4	85.5	85.5
	2 No	144	10.1	14.5	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	438	30.6		
	Total	1432	100.0		

cf180b PEF minimum % achieved 61 mth

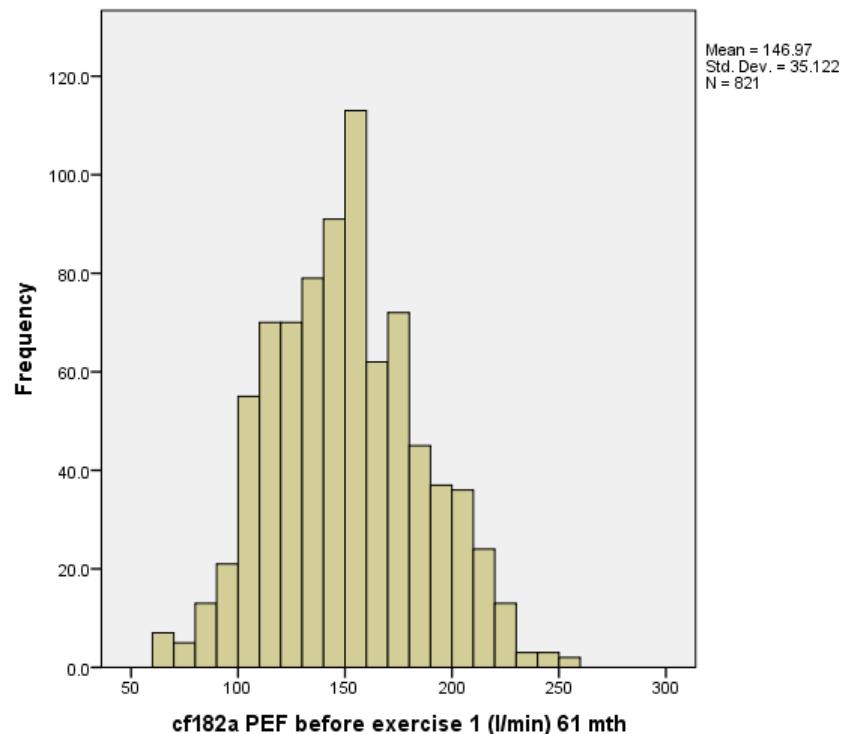
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	849	59.3	99.9	99.9
	2 No	1	.1	.1	100.0
	Total	850	59.4	100.0	
Missing	-3 Test not done	144	10.1		
	-2 Did not attend	438	30.6		
	Total	582	40.6		
Total		1432	100.0		

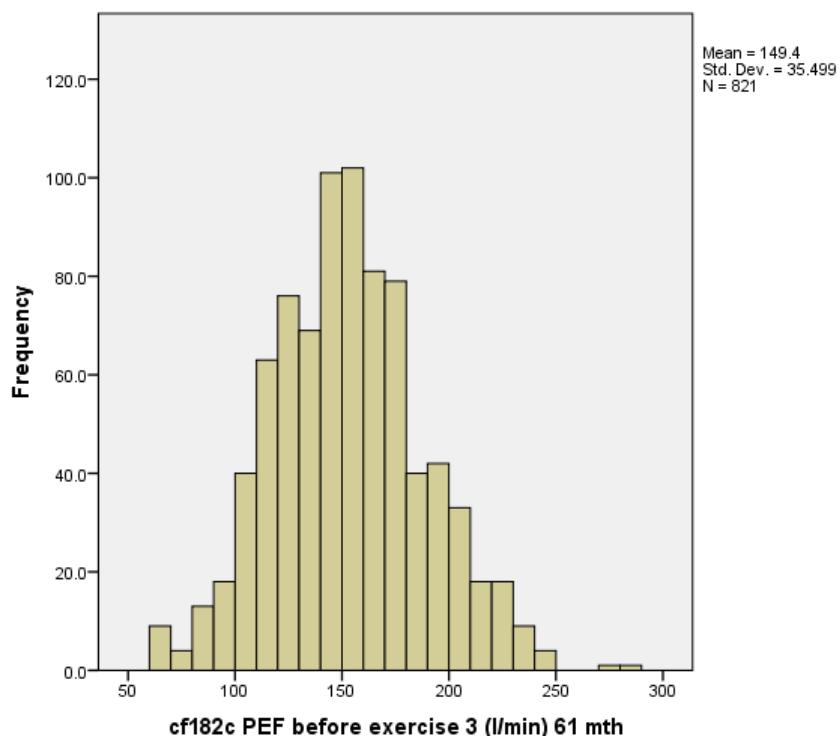
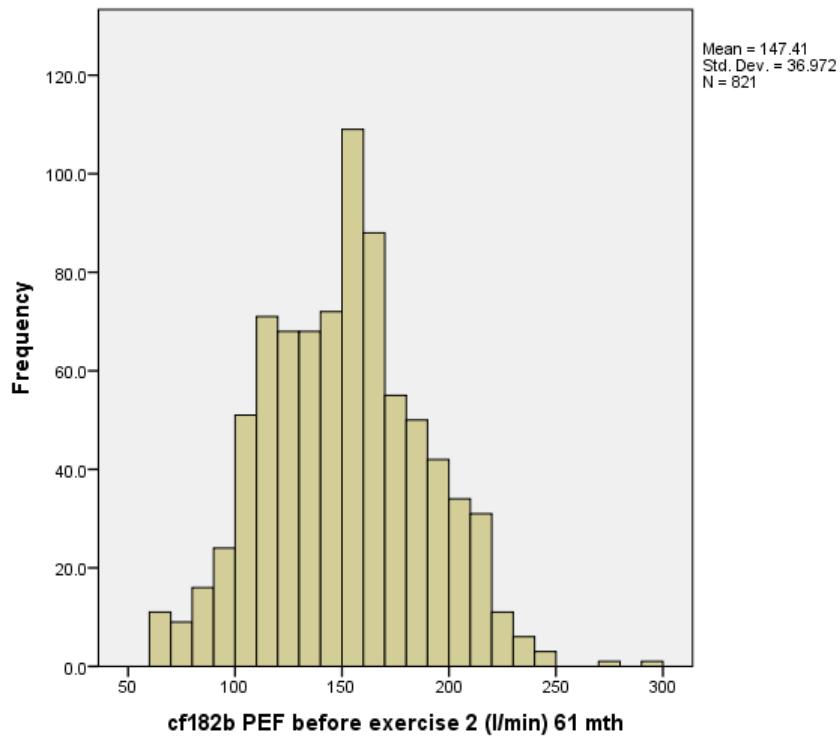
cf180c Exercise done in PEF test 61 mth

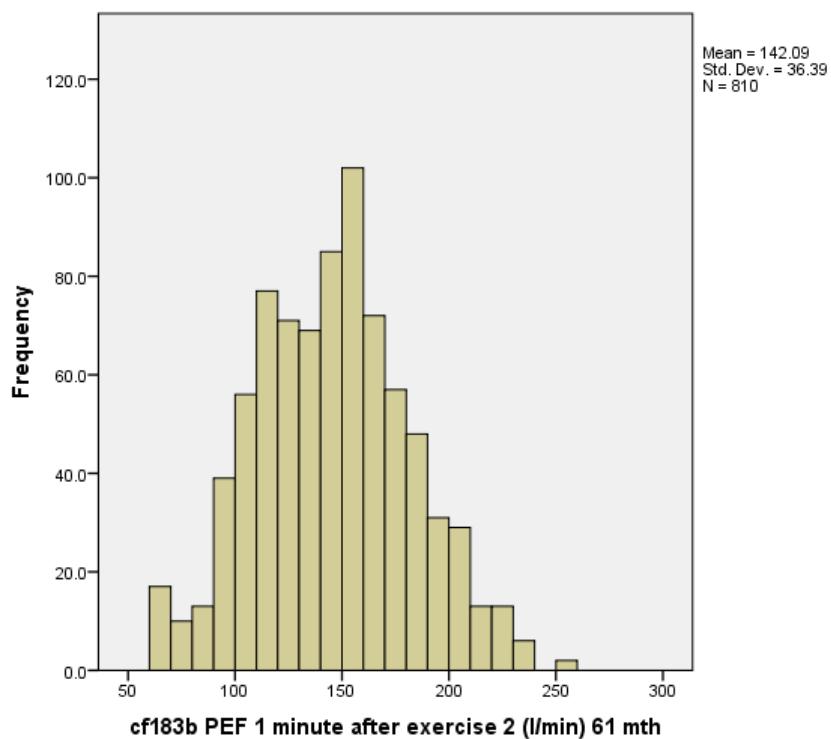
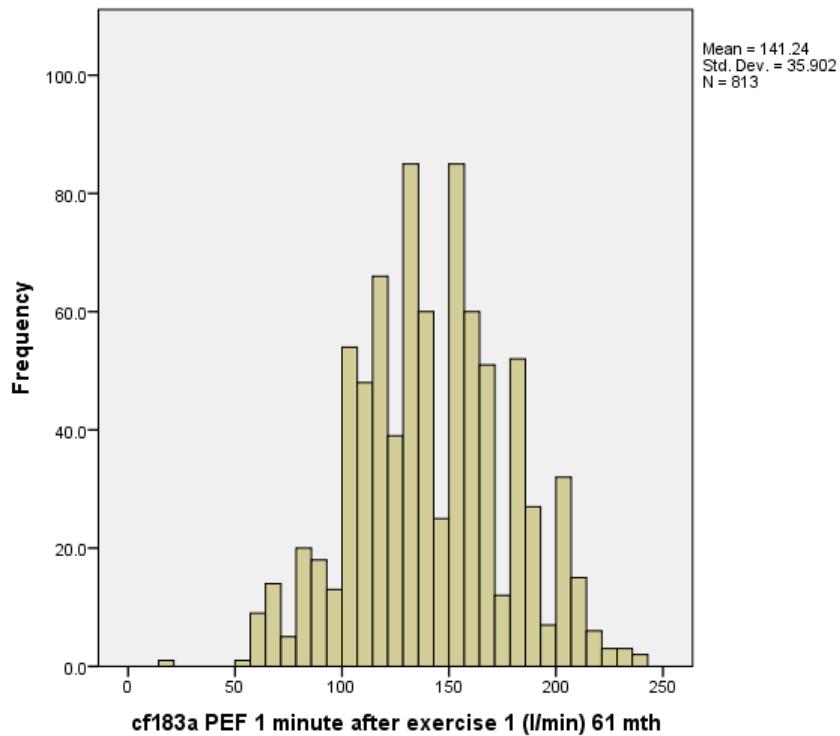
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	820	57.3	96.6	96.6
	2 No	29	2.0	3.4	100.0
	Total	849	59.3	100.0	
Missing	-3 Test not done	144	10.1		
	-2 Did not attend	438	30.6		
	-1 Missing	1	.1		
Total		583	40.7		
Total		1432	100.0		

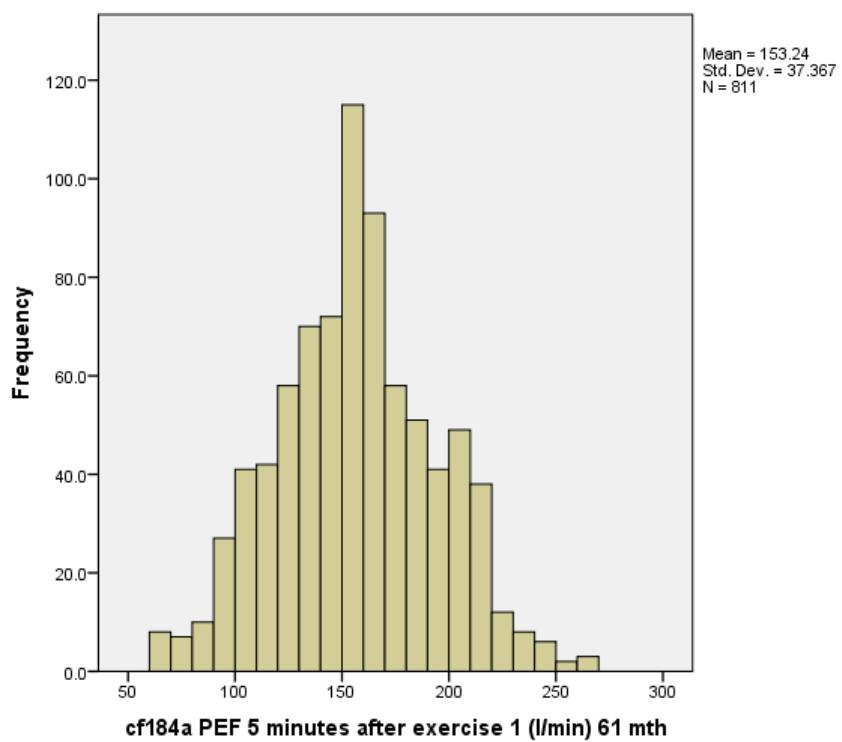
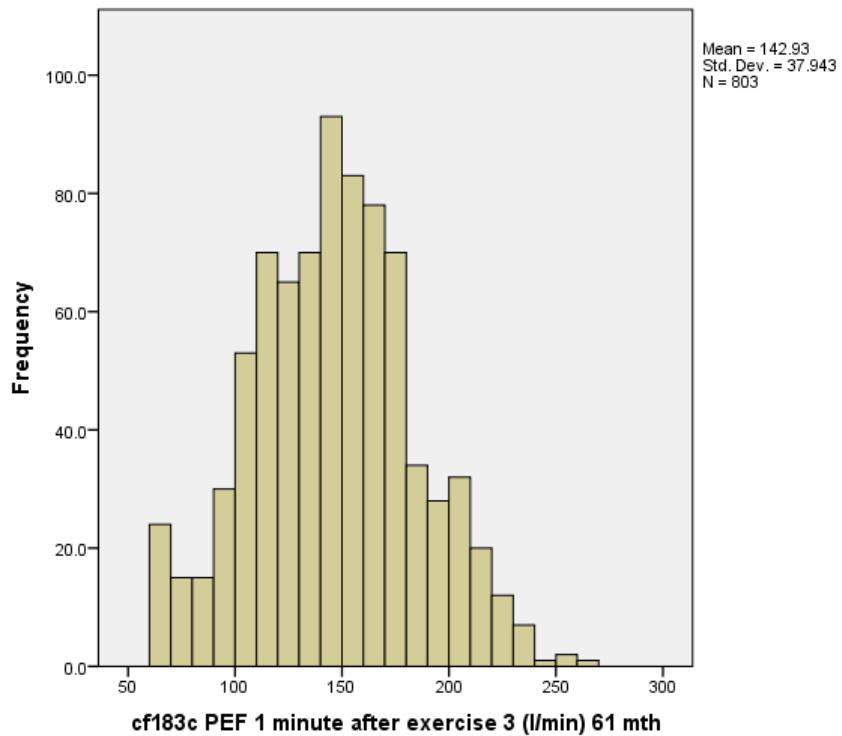
**cf181 Lung function tester 61 mth**

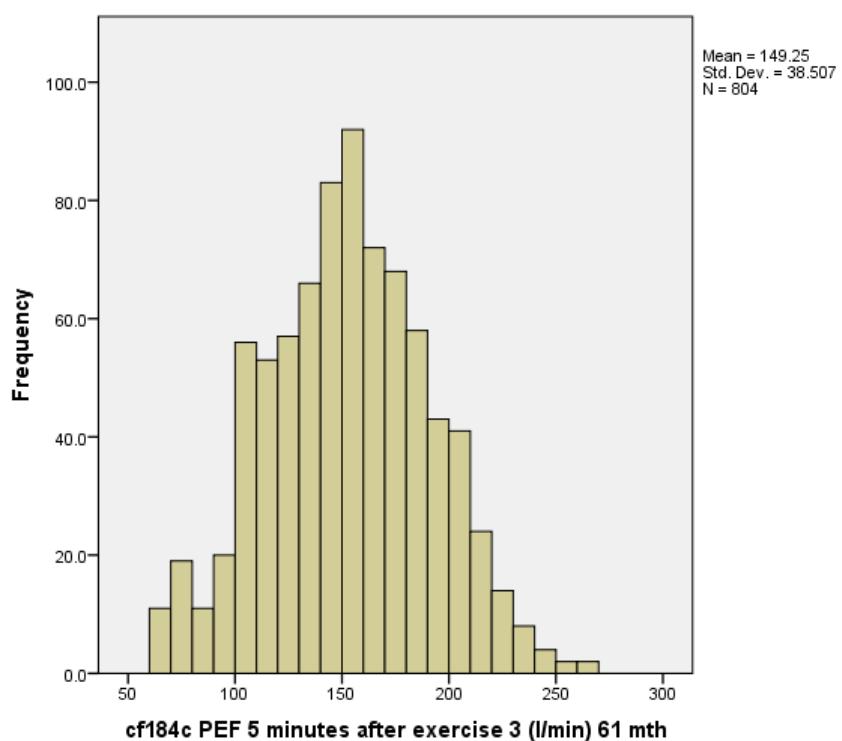
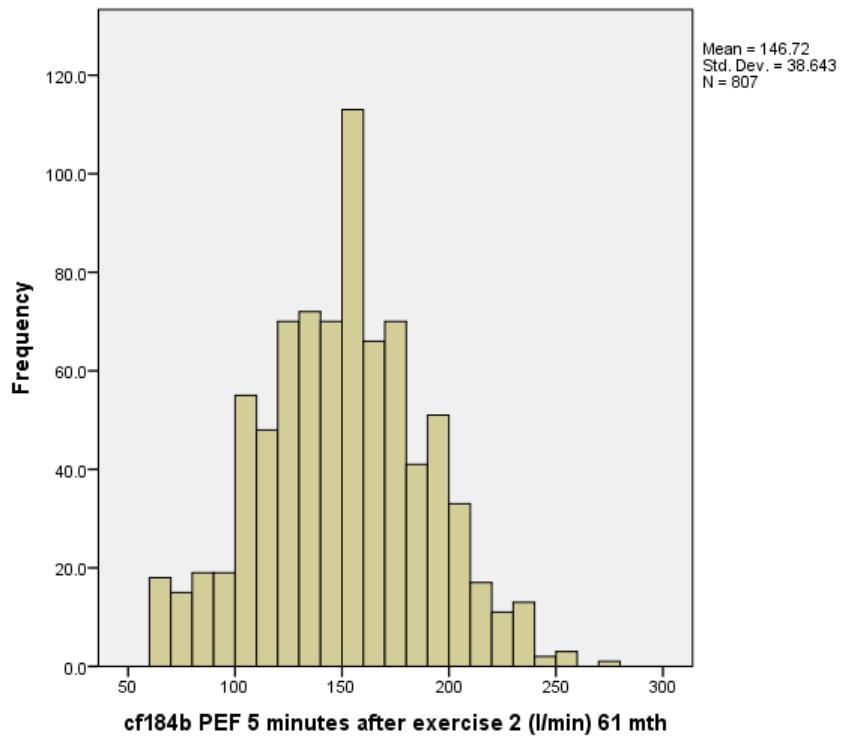
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	225	15.7	22.8	22.8
	2	150	10.5	15.2	38.0
	3	4	.3	.4	38.4
	4	379	26.5	38.4	76.7
	5	35	2.4	3.5	80.3
	6	45	3.1	4.6	84.8
	7	44	3.1	4.5	89.3
	8	47	3.3	4.8	94.0
	9	16	1.1	1.6	95.6
	10	3	.2	.3	96.0
	11	40	2.8	4.0	100.0
	Total	988	69.0	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		

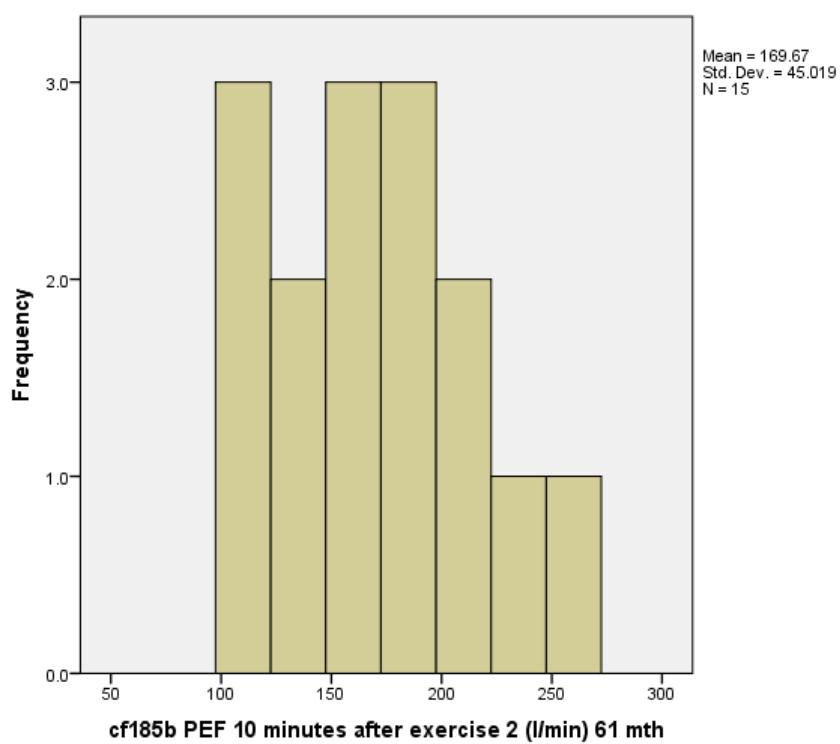
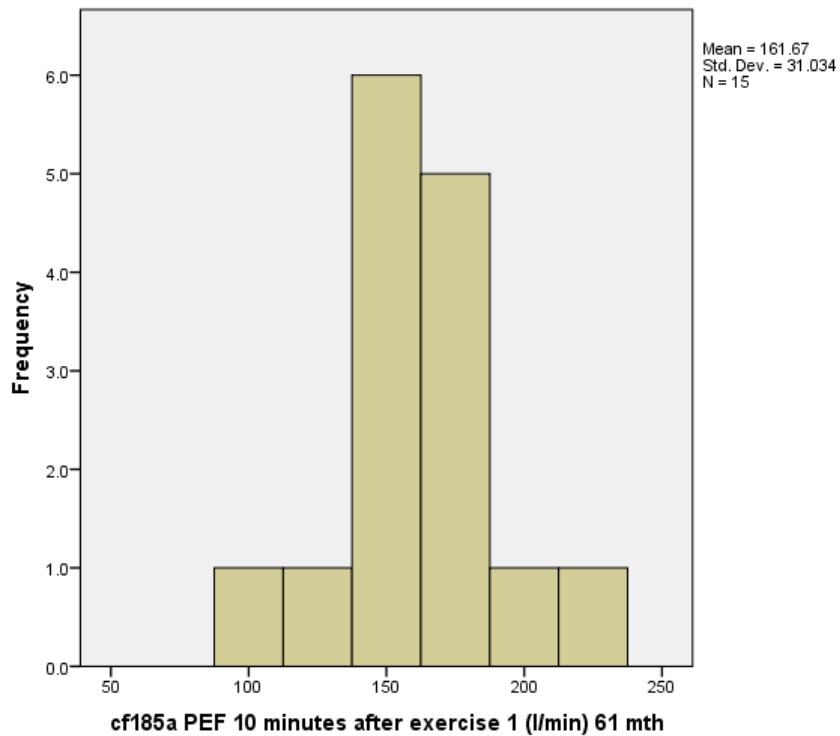


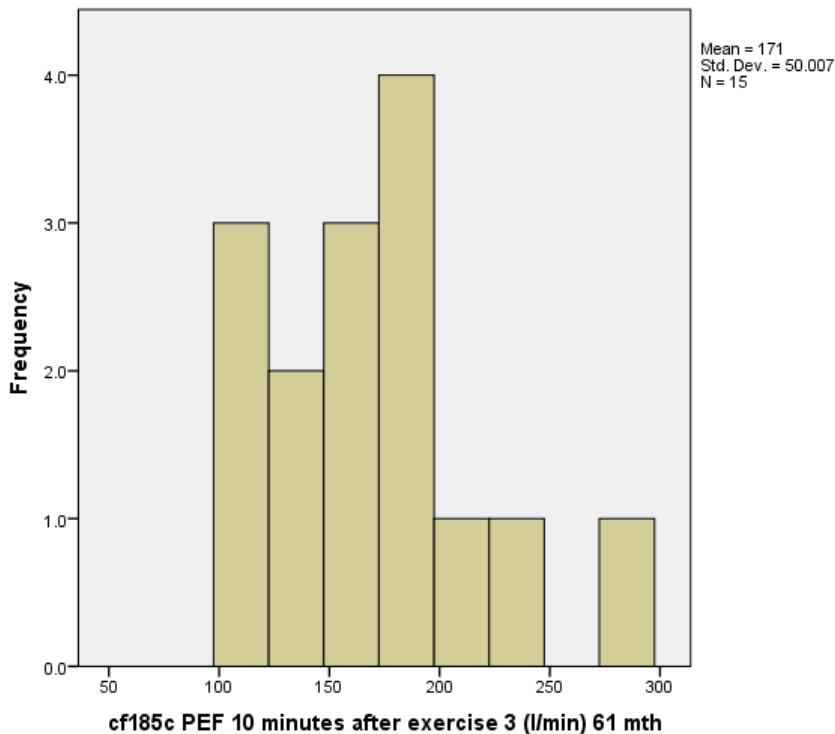












### 2.3.2 Fitness

The children were asked to perform a simple 3-minute stepping exercise using a Reebok step with a height of 25 cm at a speed of 25 steps per minute. This was designed to be submaximal and both comfortable and enjoyable to perform. The child was encouraged to practise stepping a few times to the beat of a metronome. A heart rate monitor was worn on a strap around the chest next to the skin (a t-shirt could be worn over the top), as high as possible under the pectoral muscles. The electrodes were moistened with a little water to ensure good contact. To aid comfort the tester warmed the monitor in their hands prior to fitting. The tester wore a watch which recorded the child's heart rate every 15 seconds. Resting heart rate was measured for 2 minutes (giving 9 initial measurements), while the tester showed the child the certificate they would receive for taking part and coloured stickers that could be attached. They were also shown their heart beating on the watch face. Towards the end of the 2 minutes the tester started the metronome at 100 beats/minute (one beat for each foot movement). The child was encouraged to step bare-footed for 3 minutes. The tester stepped with the child, loosely holding their hand to ensure they stepped in time with the beat but without aiding their performance. After 3 minutes (or when the child chose to stop if before) of exercise the child was sat on the step and heart rate was measured for a further 2 minutes. During this recovery period the child was awarded with their certificate and stickers.

*This data is not currently available*

## 2.4 Observations of skin, hair and eyes

### 2.4.1 Fingerprints

The children's fingerprints were taken in the 43-month clinic using pre-inked strips. The fingertip patterns were then scored for whorls, arches and loops by fingerprint experts.

We are indebted to Mr. Ken Hobbs of the Avon and Somerset Constabulary for his help with training staff and for coding the prints.

cf200 Fingerprints taken 43 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 yes	1040	72.6	98.1	98.1
	2 No	20	1.4	1.9	
	Total	1060	74.0	100.0	
Missing	-3 Unclassifiable	5	.3		
	-2 Did not attend	367	25.6		
	Total	372	26.0		
Total		1432	100.0		

cf201 Fingerprint tester 43 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	1.1	1.5	1.5
	2	431	30.1	41.2	42.8
	3	63	4.4	6.0	48.8
	4	33	2.3	3.2	52.0
	5	10	.7	1.0	52.9
	6	174	12.2	16.7	69.6
	7	177	12.4	16.9	86.5
	8	32	2.2	3.1	89.6
	9	109	7.6	10.4	100.0
	Total	1045	73.0	100.0	
Missing	-2 Did not attend	367	25.6		
	-1 Missing	20	1.4		
	Total	387	27.0		
Total		1432	100.0		

cf202 R thumbprint 43 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	49	3.4	4.7	4.7
	1 Arch	16	1.1	1.5	6.3
	2 Ulnar loop	579	40.4	55.7	61.9
	3 Radial loop	4	.3	.4	62.3
	4 Whorl	392	27.4	37.7	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf203 R fore fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	57	4.0	5.5	5.5
	1 Arch	155	10.8	14.9	20.4
	2 Ulnar loop	333	23.3	32.0	52.4
	3 Radial loop	171	11.9	16.4	68.8
	4 Whorl	324	22.6	31.2	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf204 R middle fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	34	2.4	3.3	3.3
	1 Arch	88	6.1	8.5	11.7
	2 Ulnar loop	732	51.1	70.4	82.1
	3 Radial loop	17	1.2	1.6	83.8
	4 Whorl	169	11.8	16.3	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf205 R ring fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	36	2.5	3.5	3.5
	1 Arch	16	1.1	1.5	5.0
	2 Ulnar loop	529	36.9	50.9	55.9
	3 Radial loop	7	.5	.7	56.5
	4 Whorl	452	31.6	43.5	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf206 R little fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	52	3.6	5.0	5.0
	1 Arch	8	.6	.8	5.8
	2 Ulnar loop	830	58.0	79.8	85.6
	3 Radial loop	5	.3	.5	86.1
	4 Whorl	145	10.1	13.9	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf207 L thumbprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	76	5.3	7.3	7.3
	1 Arch	38	2.7	3.7	11.0
	2 Ulnar loop	4	.3	.4	11.3
	3 Radial loop	626	43.7	60.2	71.5
	4 Whorl	296	20.7	28.5	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf208 L fore fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	57	4.0	5.5	5.5
	1 Arch	142	9.9	13.7	19.1
	2 Ulnar loop	193	13.5	18.6	37.7
	3 Radial loop	362	25.3	34.8	72.5
	4 Whorl	286	20.0	27.5	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf209 L middle fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	28	2.0	2.7	2.7
	1 Arch	118	8.2	11.3	14.0
	2 Ulnar loop	20	1.4	1.9	16.0
	3 Radial loop	706	49.3	67.9	83.8
	4 Whorl	168	11.7	16.2	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf210 L ring fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	29	2.0	2.8	2.8
	1 Arch	32	2.2	3.1	5.9
	2 Ulnar loop	5	.3	.5	6.3
	3 Radial loop	635	44.3	61.1	67.4
	4 Whorl	339	23.7	32.6	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf211 L little fingerprint 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Unclassifiable	56	3.9	5.4	5.4
	1 Arch	18	1.3	1.7	7.1
	2 Ulnar loop	6	.4	.6	7.7
	3 Radial loop	856	59.8	82.3	90.0
	4 Whorl	104	7.3	10.0	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Missing	5	.3		
	Total	392	27.4		
Total		1432	100.0		

**cf212a No. of digits classifiable R hand 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	13	.9	1.2	1.2
	1	7	.5	.7	1.9
	2	11	.8	1.1	3.0
	3	20	1.4	1.9	4.9
	4	87	6.1	8.3	13.2
	5	907	63.3	86.8	100.0
	Total	1045	73.0	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	Total	387	27.0		
Total		1432	100.0		

**cf212b No. of digits classifiable L hand 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11	.8	1.1	1.1
	1	8	.6	.8	1.8
	2	11	.8	1.1	2.9
	3	24	1.7	2.3	5.2
	4	103	7.2	9.9	15.0
	5	888	62.0	85.0	100.0
	Total	1045	73.0	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	Total	387	27.0		
Total		1432	100.0		

**cf213a No. of whorls R hand 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	331	23.1	36.5	36.5
	1	201	14.0	22.2	58.7
	2	147	10.3	16.2	74.9
	3	106	7.4	11.7	86.5
	4	69	4.8	7.6	94.2
	5	53	3.7	5.8	100.0
	Total	907	63.3	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Not all digits classifiable	138	9.6		
	Total	525	36.7		
Total		1432	100.0		

**cf213b No. of whorls L hand 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	422	29.5	46.5	46.5
	1	191	13.3	21.1	67.6
	2	122	8.5	13.5	81.0
	3	73	5.1	8.0	89.1
	4	71	5.0	7.8	96.9
	5	28	2.0	3.1	100.0
	Total	907	63.3	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Not all digits classifiable	138	9.6		
	Total	525	36.7		
Total		1432	100.0		

**cf214a No. of arches R hand 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	737	51.5	81.3	81.3
	1	103	7.2	11.4	92.6
	2	50	3.5	5.5	98.1
	3	12	.8	1.3	99.4
	4	4	.3	.4	99.9
	5	1	.1	.1	100.0
	Total	907	63.3	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Not all digits classifiable	138	9.6		
	Total	525	36.7		
Total		1432	100.0		

**cf214b No. of arches L hand 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	716	50.0	78.9	78.9
	1	103	7.2	11.4	90.3
	2	62	4.3	6.8	97.1
	3	17	1.2	1.9	99.0
	4	8	.6	.9	99.9
	5	1	.1	.1	100.0
	Total	907	63.3	100.0	
Missing	-3 Not taken	20	1.4		
	-2 Did not attend	367	25.6		
	-1 Not all digits classifiable	138	9.6		
	Total	525	36.7		
Total		1432	100.0		

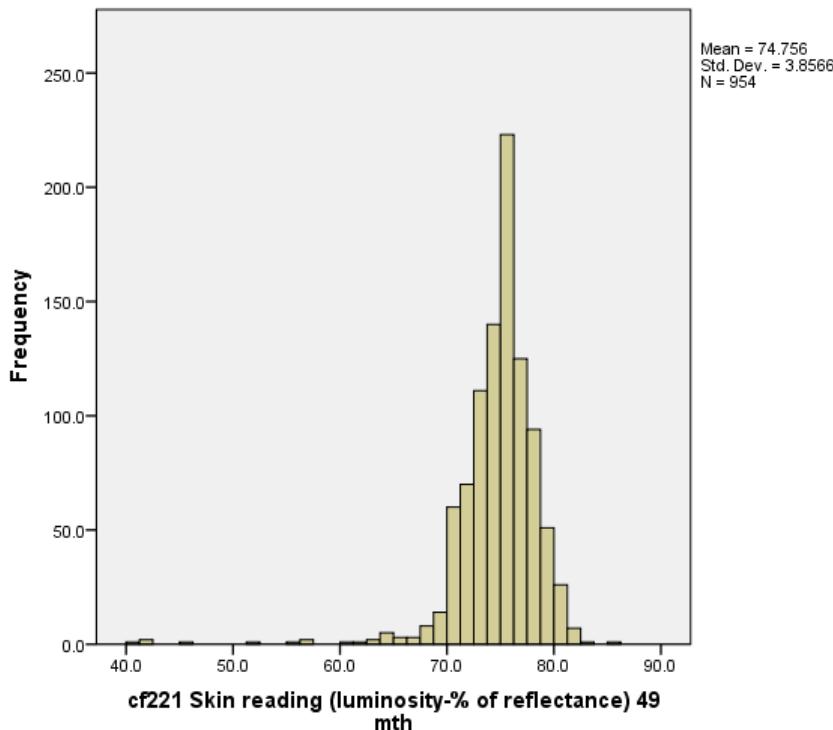
## 2.4.2 Colour of skin

These observations were done at 49 months in a room with no natural light. It was lit from above by four GE Lighting Northlight 55 fluorescent tubes, with another one on the wall, horizontally 2 metres above the ground. The aim was to provide lighting which mimicked natural daylight, the colour co-ordinates of which are  $x = 0.333$ ,  $y = 0.333$ . A piece of white paper placed beneath the wall light gave co-ordinates  $x = 0.333$ ,  $y = 0.330$ , and a luminosity of 112.0.

Skin colour was measured with an EEL (Evans Electroselenium Ltd.) spectrophotometer, generously lent to us by Mr David Jordan of the Biological Anthropology Department of the University of Cambridge. Observers measured the skin reflectance on the inner surface of the arm midway between scapula and elbow. The machine was calibrated daily against a matt white ceramic tile and the interior of a black box to give 100% and 0% reflectances. The reflectance of a yellow melamine surface was then measured and recorded each day.

cf220 Skin colour test done 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	954	66.6	92.4	92.4
	2 No	78	5.4	7.6	100.0
	Total	1032	72.1	100.0	
Missing	-2 Did not attend	400	27.9		
	Total	1432	100.0		



### 2.4.3 Colour of hair

Hair growing at the crown, 0-2 cms from the root, was compared with 11 real hair swatches from Banbury Pastiche Ltd, wig manufacturers. There were one Indian Asian 'black' sample, one bleached blonde, 2 red/auburn, one reddish blond, four other blondes and two browns. Colour co-ordinates (x and y) and luminosities (measurement of light reflected) were taken of each swatch in a position at which white paper gave x.333 y.330 and the luminosity was 112:

	x	y	luminosity
bleached white	.389	.381	76.5
lightest blond	.412	.391	45.0
↓	.423	.393	25.5
↓	.427	.391	15.0
darkest blond	.414	.386	10.8
light auburn	.478	.397	9.3
reddish blond	.439	.395	11.0
dark auburn	.473	.387	6.2
mid brown	.417	.384	5.9
dark brown	.400	.375	3.1
Black brown	.379	.361	2.5

The child was asked to sit next to the wall light. One of the samples was identified to be similar or very neat to the child's hair colour.

cf222a Hair colour 1 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Black brown	40	2.8	3.9	3.9
	2 Dark brown	144	10.1	14.1	18.0
	3 Mid brown	258	18.0	25.3	43.3
	4 Dark auburn	5	.3	.5	43.8
	5 Reddish blond	23	1.6	2.3	46.0
	6 Light auburn	11	.8	1.1	47.1
	7 Darkest blond	320	22.3	31.3	78.5
	8 Medium dark blond	94	6.6	9.2	87.7
	9 Medium light blond	79	5.5	7.7	95.4
	10 Lightest blond	40	2.8	3.9	99.3
	11 Bleached white	7	.5	.7	100.0
	Total	1021	71.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	11	.8		
	Total	411	28.7		
Total		1432	100.0		

**cf222b Hair colour 2 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 Dark brown	12	.8	4.7	4.7
	3 Mid brown	63	4.4	24.4	29.1
	4 Dark auburn	1	.1	.4	29.5
	5 Reddish blond	4	.3	1.6	31.0
	6 Light auburn	12	.8	4.7	35.7
	7 Darkest blond	48	3.4	18.6	54.3
	8 Medium dark blond	31	2.2	12.0	66.3
	9 Medium light blond	45	3.1	17.4	83.7
	10 Lightest blond	34	2.4	13.2	96.9
	11 Bleached white	8	.6	3.1	100.0
	Total	258	18.0	100.0	
Missing	-3 Not applicable	763	53.3		
	-2 Did not attend	400	27.9		
	-1 Missing	11	.8		
	Total	1174	82.0		
Total		1432	100.0		

**cf222c Hair colour 3 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 Reddish blond	1	.1	16.7	16.7
	8 Medium dark blond	1	.1	16.7	33.3
	9 Medium light blond	4	.3	66.7	100.0
	Total	6	.4	100.0	
Missing	-3 Not applicable	1015	70.9		
	-2 Did not attend	400	27.9		
	-1 Missing	11	.8		
	Total	1426	99.6		
Total		1432	100.0		

#### 2.4.4 Colour of eyes

Observers compared the eye colour at 49 months with photographs of 6 real irises. The colour categories were blue, blue/grey or grey, blue and/or grey with green, green, hazel and brown. They also noted whether the colourette (the narrow ring bordering the pupil) was different from the rest of the iris or not, and whether either dark patches or naevi were present. They noted each eye separately.

cf224a R eye colour 1 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Blue (no other colour)	169	11.8	16.6	16.6
	2 Blue/grey or grey (no green)	311	21.7	30.5	47.1
	3 Blue and/or grey with green	135	9.4	13.2	60.3
	4 Green (no blue or grey)	19	1.3	1.9	62.2
	5 hazel (greeny brown)	201	14.0	19.7	81.9
	6 Brown (no green)	185	12.9	18.1	100.0
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

cf224b R eye colour 2 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Blue (no other colour)	1	.1	25.0	25.0
	6 Brown (no green)	3	.2	75.0	100.0
	Total	4	.3	100.0	
Missing	-3 Not applicable	1016	70.9		
	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	1428	99.7		
Total		1432	100.0		

cf225a L eye colour 1 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Blue (no other colour)	168	11.7	16.5	16.5
	2 Blue/grey or grey (no green)	311	21.7	30.5	47.0
	3 Blue and/or grey with green	134	9.4	13.2	60.2
	4 Green (no blue or grey)	19	1.3	1.9	62.0
	5 hazel (greeny brown)	204	14.2	20.0	82.0
	6 Brown (no green)	183	12.8	18.0	100.0
	Total	1019	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	13	.9		
	Total	413	28.8		
Total		1432	100.0		

cf225b L eye colour 2 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Blue (no other colour)	1	.1	20.0	20.0
	5 hazel (greeny brown)	1	.1	20.0	40.0
	6 Brown (no green)	3	.2	60.0	100.0
	Total	5	.3	100.0	
Missing	-3 Not applicable	1014	70.8		
	-2 Did not attend	400	27.9		
	-1 Missing	13	.9		
	Total	1427	99.7		
Total		1432	100.0		

cf226 R eye colour ring 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Blue (no other colour)	159	11.1	15.7	15.7
	2 Blue/grey or grey (no green)	269	18.8	26.6	42.3
	3 Blue and/or grey with green	111	7.8	11.0	53.3
	4 Green (no blue or grey)	34	2.4	3.4	56.7
	5 hazel (greeny brown)	126	8.8	12.5	69.1
	6 Brown (no green)	312	21.8	30.9	100.0
	Total	1011	70.6	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	21	1.5		
	Total	421	29.4		
Total		1432	100.0		

cf227 L eye colour ring 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Blue (no other colour)	158	11.0	15.6	15.6
	2 Blue/grey or grey (no green)	269	18.8	26.6	42.2
	3 Blue and/or grey with green	111	7.8	11.0	53.2
	4 Green (no blue or grey)	34	2.4	3.4	56.6
	5 hazel (greeny brown)	128	8.9	12.7	69.2
	6 Brown (no green)	311	21.7	30.8	100.0
	Total	1011	70.6	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	21	1.5		
	Total	421	29.4		
Total		1432	100.0		

**cf228 Any eye patches 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	74	5.2	7.3	7.3
	2 No	946	66.1	92.7	
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

**cf228a R eye patches 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	1019	71.2	99.9	
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

**cf228b L eye patches 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	74	5.2	7.3	7.3
	2 No	946	66.1	92.7	
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

**cf229 Any eye navei 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	6	.4	.6	.6
	2 No	1014	70.8	99.4	
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

**cf229a R eye navei 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	5	.3	.5	.5
	2 No	1015	70.9	99.5	
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

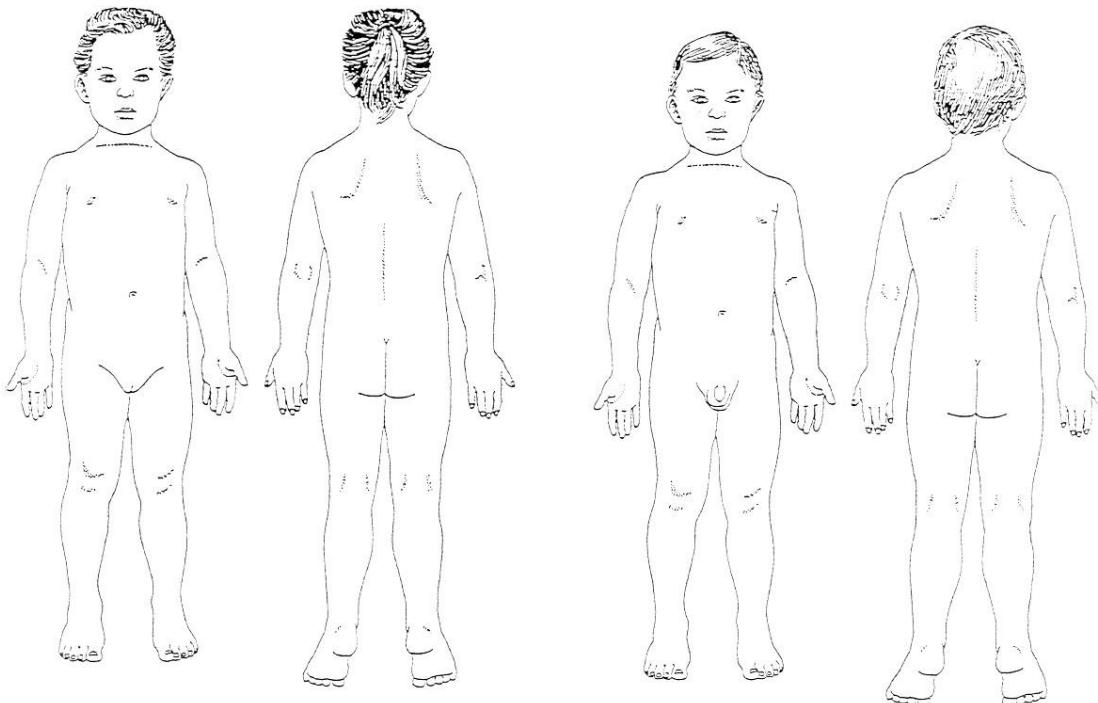
**cf229b L eye navei 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	6	.4	.6	.6
	2 No	1014	70.8	99.4	
	Total	1020	71.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	12	.8		
	Total	412	28.8		
Total		1432	100.0		

#### 2.4.5 Skin observations

The presence of benign melanocytic naevi (moles) is strongly associated with the risk of malignant melanoma. A better understanding of the risk factors associated with such naevi may lead to new ideas concerning the aetiology of skin cancer. Detailed observations of moles and skin, hair and eye colour were carried out at 49 months together with a questionnaire to the parent concerning the sun exposure. The presence of any skin lesions was also noted. The observations of moles and skin lesions were repeated at 61 months. This has enabled us to establish the prevalence of conditions such as salmon patches, warts, eczema etc. in this population and to investigate associated risk factors.

Before coming to the clinic at 49 months parents were invited to complete a short questionnaire about their child's previous exposure to the sun, the skin's reaction, and protective measures taken. They were also given an outline drawing (below) of a child of the same age and sex as their own, and asked to mark on it, with the child's co-operation, any freckles, moles, warts, rashes or other marks on the skin. The children were invited to colour the hair and eyes in the drawing and to put their name on.



At the clinic the observers used this drawing as the focus when examining the child's skin after weighing and measuring. They observed the child in good light, naked if possible, or with underpants (and vest) on if (s)he objected. The number and location of all moles visible to the naked eye was noted on body maps on which face/scalp, neck, trunk and pelvis, and the upper, mid, and lower regions of each limb were shown, in both front and rear view (i.e. 30 areas of the body). Parents were asked if any moles had been present at birth and these were noted separately from the rest.

Observers noted the presence, nature and position of other skin lesions for each of the 30 areas, and if nails were affected, or were bitten, they noted these individually. Parents sometimes offered diagnoses of lesions which had been given by a GP or dermatologist. Observers recorded these comments.

Any hair or nail abnormalities were also noted. The hair abnormalities included sparse hair (thin in overall coverage of the scalp, thin or absent at certain parts of the scalp or have an abnormal margin, so it only starts to grow very high on the forehead), stiff hair (tends to stick up and be difficult to lie flat even when wet), fragile hair (usually short and can be almost completely lost in some areas, coverage is usually normal) and bald patches. Nail abnormalities included colourations: white marks, purple/black marks due to trauma, green or yellow discolouration due to nail thickening or infection or brown streaks due to moles in the nail root. Pits and flaking at the tip of the nail were noted as were abnormal shapes and paronychia where the skin around the nail is sore and inflamed.

Included on the Children in Focus built file are variables denoting only the number of each skin observation occurring on the whole body and variables denoting whether each type of skin observation was observed. The more detailed data on each region of the body is held on file elsewhere. Only frequencies for the presence of moles etc are presented here (not the number of each).

**cf238 Any Spider naevus 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	42	2.9	4.1	4.1
	2 No	971	67.8	95.9	
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf230 Skin observations at 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1013	70.7	98.2	98.2
	2 No	19	1.3	1.8	
	Total	1032	72.1	100.0	
Missing	-2 Did not attend	400	27.9		
	Total	1432	100.0		

**cf232 Any congenital melanocytic naevus 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	191	13.3	18.9	18.9
	2 No	822	57.4	81.1	
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf232z Total no of congenital melanocytic naevus 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	822	57.4	81.1	81.1
	1	142	9.9	14.0	95.2
	2	27	1.9	2.7	97.8
	3	13	.9	1.3	99.1
	4	5	.3	.5	99.6
	9	1	.1	.1	99.7
	11	2	.1	.2	99.9
	18	1	.1	.1	100.0
	Total	1013	70.7	100.0	
	Missing				
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf233 Any Acquired melanocytic naevus 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	992	69.3	97.9	97.9
	2 No	21	1.5	2.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**Descriptive Statistics**

		N	Minimum	Maximum	Mean	Std. Deviation
cf233z Total no of Acquired melanocytic naevus 49m		1013	0	71	10.82	8.189

**cf234 Any freckles 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	261	18.2	25.8	25.8
	2 No	752	52.5	74.2	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf234z Total no of freckles 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	752	52.5	74.2	74.2
	1	250	17.5	24.7	98.9
	2	6	.4	.6	99.5
	3	2	.1	.2	99.7
	4	1	.1	.1	99.8
	5	2	.1	.2	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf235z Total no of Epid. naevi 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1011	70.6	99.8	99.8
	1	2	.1	.2	100.0
	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf235 Any Epid. naevi 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	2	.1	.2	.2
	2 No	1011	70.6	99.8	100.0
	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf236 Any Cafe au lait macule 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	223	15.6	22.0	22.0
	2 No	790	55.2	78.0	100.0
	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf236z Total no of Cafe au lait macule 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	790	55.2	78.0	78.0
	1	169	11.8	16.7	94.7
	2	40	2.8	3.9	98.6
	3	8	.6	.8	99.4
	4	2	.1	.2	99.6
	5	1	.1	.1	99.7
	6	1	.1	.1	99.8
	11	1	.1	.1	99.9
	36	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf237 Any Salmon patches 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	170	11.9	16.8	16.8
	2 No	843	58.9	83.2	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf237z Total no of Salmon patches 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	843	58.9	83.2	83.2
	1	140	9.8	13.8	97.0
	2	25	1.7	2.5	99.5
	3	4	.3	.4	99.9
	4	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf238z Total no of Spider naevus 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	971	67.8	95.9	95.9
	1	41	2.9	4.0	99.9
	4	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf239 Any Port wine stains 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	8	.6	.8	.8
	2 No	1005	70.2	99.2	
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf239z Total no of Port wine stains 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1005	70.2	99.2	99.2
	1	7	.5	.7	
	2	1	.1	.1	
Missing	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
Total		419	29.3		
Total		1432	100.0		

**cf240 Any Eczema 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	140	9.8	13.8	13.8
	2 No	873	61.0	86.2	
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf240z Total no of Eczema patches 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	873	61.0	86.2	86.2
	1	37	2.6	3.7	89.8
	2	26	1.8	2.6	92.4
	3	16	1.1	1.6	94.0
	4	16	1.1	1.6	95.6
	5	5	.3	.5	96.1
	6	12	.8	1.2	97.2
	7	5	.3	.5	97.7
	8	3	.2	.3	98.0
	9	3	.2	.3	98.3
	10	2	.1	.2	98.5
	11	1	.1	.1	98.6
	12	3	.2	.3	98.9
	13	1	.1	.1	99.0
	14	4	.3	.4	99.4
	16	1	.1	.1	99.5
	17	1	.1	.1	99.6
	22	1	.1	.1	99.7
	26	1	.1	.1	99.8
	29	2	.1	.2	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf241 Any Pityriasis alba 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	7	.5	.7	.7
	2 No	1006	70.3	99.3	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf241z Total no of Pityriasis alba 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1006	70.3	99.3	99.3
	1	2	.1	.2	99.5
	2	3	.2	.3	99.8
	13	1	.1	.1	99.9
	16	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf242 Any Ichthyosis 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	12	.8	1.2	1.2
	2 No	1001	69.9	98.8	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf242z Total no of Ichthyosis 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1001	69.9	98.8	98.8
	1	2	.1	.2	99.0
	2	6	.4	.6	99.6
	4	2	.1	.2	99.8
	6	1	.1	.1	99.9
	11	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf243 Any Keratosis pilaris 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	139	9.7	13.7	13.7
	2 No	874	61.0	86.3	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf243z Total no of Keratosis pilaris 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	874	61.0	86.3	86.3
	1	21	1.5	2.1	88.4
	2	66	4.6	6.5	94.9
	3	10	.7	1.0	95.9
	4	19	1.3	1.9	97.7
	5	2	.1	.2	97.9
	6	9	.6	.9	98.8
	7	4	.3	.4	99.2
	10	4	.3	.4	99.6
	12	1	.1	.1	99.7
	16	2	.1	.2	99.9
	20	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf244 Any psoriasis 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	3	.2	.3	.3
	2 No	1010	70.5	99.7	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf244z Total no of psoriasis patches 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1010	70.5	99.7	99.7
	1	2	.1	.2	99.9
	2	1	.1	.1	100.0
Missing	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
Total		419	29.3		
Total		1432	100.0		

**cf245 Any Strawberry naevi 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	30	2.1	3.0	3.0
	2 No	983	68.6	97.0	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf245z Total no of Strawberry naevi 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	983	68.6	97.0	97.0
	1	27	1.9	2.7	99.7
	2	3	.2	.3	100.0
Missing	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
Total		419	29.3		
Total		1432	100.0		

**cf246 Any milia 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	7	.5	.7	.7
	2 No	1006	70.3	99.3	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf246z Total no of milia 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1006	70.3	99.3	99.3
	1	6	.4	.6	99.9
	4	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf247 Any Genital warts 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	1013	70.7	100.0	100.0
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf247z Total no of Genital warts 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1013	70.7	100.0	100.0
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf248 Any Viral warts-common 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	42	2.9	4.1	4.1
	2 No	971	67.8	95.9	100.0
	Total	1013	70.7	100.0	
	-3 Test not done	19	1.3		
Missing	-2 Did not attend	400	27.9		
	Total	419	29.3		
	Total	1432	100.0		

**cf248z Total no of Viral warts-common 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	971	67.8	95.9	95.9
	1	31	2.2	3.1	98.9
	2	5	.3	.5	99.4
	3	2	.1	.2	99.6
	4	1	.1	.1	99.7
	5	1	.1	.1	99.8
	7	1	.1	.1	99.9
	8	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf249 Any Viral warts-plane 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	5	.3	.5	100.0
	2 No	1008	70.4	99.5	
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf249z Total no of Viral warts-plane 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1008	70.4	99.5	99.5
	1	3	.2	.3	
	3	2	.1	.2	
Missing	Total	1013	70.7	100.0	100.0
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
Total		419	29.3		
Total		1432	100.0		

**cf250 Any Scabies 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	1013	70.7	100.0	100.0
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
Total		419	29.3		
Total		1432	100.0		

**cf250z Total no of scabies 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1013	70.7	100.0	100.0
	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
Total		419	29.3		
Total		1432	100.0		

**cf251 Any Molluscum 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	18	1.3	1.8	1.8
	2 No	995	69.5	98.2	
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf251z Total no of Molluscum 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	995	69.5	98.2	98.2
	1	10	.7	1.0	99.2
	2	4	.3	.4	99.6
	4	1	.1	.1	99.7
	5	1	.1	.1	99.8
	7	1	.1	.1	99.9
	10	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf252 Any Hair abnormalities 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	3	.2	.3	.3
	2 No	1010	70.5	99.7	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf253 Any Nail abnormalities 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	53	3.7	5.2	5.2
	2 No	960	67.0	94.8	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf253z Total no of Nail abnormalities 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	960	67.0	94.8	94.8
	1	14	1.0	1.4	96.2
	2	29	2.0	2.9	99.0
	4	4	.3	.4	99.4
	6	1	.1	.1	99.5
	10	5	.3	.5	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf254 Any Nails bitten 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	132	9.2	13.0	13.0
	2 No	881	61.5	87.0	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf254z Total no of Nails bitten 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	881	61.5	87.0	87.0
	1	5	.3	.5	87.5
	2	9	.6	.9	88.4
	3	1	.1	.1	88.5
	4	2	.1	.2	88.6
	5	1	.1	.1	88.7
	7	1	.1	.1	88.8
	8	1	.1	.1	88.9
	9	2	.1	.2	89.1
	10	91	6.4	9.0	98.1
	12	6	.4	.6	98.7
	14	1	.1	.1	98.8
	20	11	.8	1.1	99.9
	30	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf255 Any Paronychia 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	1012	70.7	99.9	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf255z Total no of Paronychia 49m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1012	70.7	99.9	99.9
	1	1	.1	.1	100.0
	Total	1013	70.7	100.0	
Missing	-3 Test not done	19	1.3		
	-2 Did not attend	400	27.9		
	Total	419	29.3		
Total		1432	100.0		

**cf260 Skin observations at 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	976	68.2	98.5	98.5
	2 No	15	1.0	1.5	100.0
	Total	991	69.2	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	441	30.8		
Total		1432	100.0		

**cf272 Any congenital melanocytic naevus 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	197	13.8	20.2	20.2
	2 No	779	54.4	79.8	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
Total		456	31.8		
Total		1432	100.0		

**cf272z Total no of congenital melanocytic naevus 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	779	54.4	79.8	79.8
	1	140	9.8	14.3	94.2
	2	44	3.1	4.5	98.7
	3	9	.6	.9	99.6
	4	1	.1	.1	99.7
	6	2	.1	.2	99.9
	11	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf273 Any Acquired melanocytic naevus 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	968	67.6	99.2	99.2
	2 No	8	.6	.8	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf273z Total no of Acquired melanocytic naevus 61m	976	0	86	18.24	11.927

cf274 Any freckles 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	340	23.7	34.8	34.8
	2 No	636	44.4	65.2	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

cf274z Total no of freckles 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	636	44.4	65.2	65.2
	1	323	22.6	33.1	98.3
	2	3	.2	.3	98.6
	3	6	.4	.6	99.2
	4	2	.1	.2	99.4
	5	2	.1	.2	99.6
	6	1	.1	.1	99.7
	7	1	.1	.1	99.8
	9	1	.1	.1	99.9
	17	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

cf275 Any Epid. navei 61m

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	3	.2	.3	.3
	2 No	973	67.9	99.7	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

cf275z Total no of Epid. navei 61m

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	973	67.9	99.7	99.7
	1	3	.2	.3	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf276 Any Cafe au lait macule 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	266	18.6	27.3	27.3
	2 No	710	49.6	72.7	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf276z Total no of Cafe au lait macule 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	710	49.6	72.7	72.7
	1	180	12.6	18.4	91.2
	2	59	4.1	6.0	97.2
	3	15	1.0	1.5	98.8
	4	6	.4	.6	99.4
	5	1	.1	.1	99.5
	6	1	.1	.1	99.6
	8	1	.1	.1	99.7
	13	1	.1	.1	99.8
	23	1	.1	.1	99.9
	24	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf277 Any Salmon patches 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	235	16.4	24.1	24.1
	2 No	741	51.7	75.9	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf277z Total no of Salmon patches 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	741	51.7	75.9	75.9
	1	205	14.3	21.0	96.9
	2	28	2.0	2.9	99.8
	3	1	.1	.1	99.9
	4	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf278 Any Spider naevus 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	156	10.9	16.0	16.0
	2 No	820	57.3	84.0	100.0
	Total	976	68.2	100.0	
	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
Total		456	31.8		
Total		1432	100.0		

**cf278z Total no of Spider naevus 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	820	57.3	84.0	84.0
	1	111	7.8	11.4	95.4
	2	32	2.2	3.3	98.7
	3	10	.7	1.0	99.7
	4	3	.2	.3	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf279 Any Port wine stains 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	13	.9	1.3	1.3
	2 No	963	67.2	98.7	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf279z Total no of Port wine stains 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	963	67.2	98.7	98.7
	1	13	.9	1.3	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
Total		456	31.8		
Total		1432	100.0		

**cf280 Any Eczema 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	119	8.3	12.2	12.2
	2 No	857	59.8	87.8	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
Total		456	31.8		
Total		1432	100.0		

**cf280z Total no of Eczema patches 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	857	59.8	87.8	87.8
	1	32	2.2	3.3	91.1
	2	24	1.7	2.5	93.5
	3	6	.4	.6	94.2
	4	12	.8	1.2	95.4
	5	7	.5	.7	96.1
	6	5	.3	.5	96.6
	7	7	.5	.7	97.3
	8	4	.3	.4	97.7
	9	2	.1	.2	98.0
	10	2	.1	.2	98.2
	11	4	.3	.4	98.6
	12	6	.4	.6	99.2
	13	1	.1	.1	99.3
	14	3	.2	.3	99.6
	15	1	.1	.1	99.7
	16	1	.1	.1	99.8
	20	1	.1	.1	99.9
	26	1	.1	.1	100.0
Total		976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
Total		456	31.8		
Total		1432	100.0		

**cf281 Any Pityriasis alba 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	15	1.0	1.5	1.5
	2 No	961	67.1	98.5	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf281z Total no of Pityriasis alba 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	961	67.1	98.5	98.5
	1	9	.6	.9	99.4
	2	5	.3	.5	99.9
	4	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf282 Any Ichthyosis 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	4	.3	.4	.4
	2 No	972	67.9	99.6	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf282z Total no of Ichthyosis 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	972	67.9	99.6	99.6
	1	2	.1	.2	99.8
	10	1	.1	.1	99.9
	13	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf283 Any Keratosis pilaris 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	167	11.7	17.1	17.1
	2 No	809	56.5	82.9	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf283z Total no of Keratosis pilaris 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	809	56.5	82.9	82.9
	1	10	.7	1.0	83.9
	2	106	7.4	10.9	94.8
	3	14	1.0	1.4	96.2
	4	22	1.5	2.3	98.5
	5	5	.3	.5	99.0
	6	3	.2	.3	99.3
	7	2	.1	.2	99.5
	10	3	.2	.3	99.8
	13	1	.1	.1	99.9
	19	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf284 Any psoriasis 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	3	.2	.3	.3
	2 No	973	67.9	99.7	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf284z Total no of psoriasis patches 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	973	67.9	99.7	99.7
	2	1	.1	.1	99.8
	3	1	.1	.1	99.9
	14	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf285 Any Strawberry naevi 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	19	1.3	1.9	1.9
	2 No	957	66.8	98.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf285z Total no of Strawberry naevi 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	957	66.8	98.1	98.1
	1	19	1.3	1.9	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf286 Any milia 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	4	.3	.4	.4
	2 No	972	67.9	99.6	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf286z Total no of milia 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	972	67.9	99.6	99.6
	1	3	.2	.3	99.9
	2	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf287 Any Genital warts 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	975	68.1	99.9	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf287z Total no of Genital warts 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	975	68.1	99.9	99.9
	3	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf288 Any Viral warts-common 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	35	2.4	3.6	3.6
	2 No	941	65.7	96.4	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf288z Total no of Viral warts-common 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	941	65.7	96.4	96.4
	1	27	1.9	2.8	99.2
	2	4	.3	.4	99.6
	3	2	.1	.2	99.8
	4	1	.1	.1	99.9
	16	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf289 Any Viral warts-plane 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	4	.3	.4	.4
	2 No	972	67.9	99.6	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf289z Total no of Viral warts-plane 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	972	67.9	99.6	99.6
	2	3	.2	.3	99.9
	6	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf290 Any scabies 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	976	68.2	100.0	100.0
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf291 Any Molluscum 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	16	1.1	1.6	1.6
	2 No	960	67.0	98.4	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf291z Total no of Molluscum 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	960	67.0	98.4	98.4
	1	3	.2	.3	98.7
	2	2	.1	.2	98.9
	3	3	.2	.3	99.2
	4	1	.1	.1	99.3
	5	2	.1	.2	99.5
	6	2	.1	.2	99.7
	8	1	.1	.1	99.8
	10	1	.1	.1	99.9
	12	1	.1	.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf292 Any Hair abnormalities 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	976	68.2	100.0	100.0
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf293 Any Nail abnormalities 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	10	.7	1.0	1.0
	2 No	966	67.5	99.0	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf293z Total no of Nail abnormalities 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	966	67.5	99.0	99.0
	1	2	.1	.2	99.2
	2	6	.4	.6	99.8
	4	2	.1	.2	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf294 Any Nails bitten 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	214	14.9	21.9	21.9
	2 No	762	53.2	78.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf294z Total no of Nails bitten 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	762	53.2	78.1	78.1
	1	5	.3	.5	78.6
	2	6	.4	.6	79.2
	3	1	.1	.1	79.3
	4	8	.6	.8	80.1
	5	2	.1	.2	80.3
	6	3	.2	.3	80.6
	8	1	.1	.1	80.7
	10	174	12.2	17.8	98.6
	12	3	.2	.3	98.9
	20	11	.8	1.1	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

**cf295 Any Paronychia 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	8	.6	.8	.8 100.0
	2 No	968	67.6	99.2	
	Total	976	68.2	100.0	
Missing	-3 Test not done	15	1.0		
	-2 Did not attend	438	30.6		
	-1 Missing	3	.2		
	Total	456	31.8		
Total		1432	100.0		

## 2.4.6 Skin questionnaires

**cf300 Skin Q completed & returned 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	982	68.6	95.2	95.2 100.0
	2 No	50	3.5	4.8	
	Total	1032	72.1	100.0	
Missing	-2 Did not attend	400	27.9		
	Total	1432	100.0		

**cf330 Skin envelope given 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	7	.5	77.8	77.8 100.0
	2 No	2	.1	22.2	
	Total	9	.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	985	68.8		
	Total	1423	99.4		
	Total	1432	100.0		

**cf330a Skin Q given 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	981	68.5	99.7	99.7 100.0
	2 No	3	.2	.3	
	Total	984	68.7	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	10	.7		
	Total	448	31.3		
	Total	1432	100.0		

**cf330b Skin Q received 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	972	67.9	100.0	100.0
Missing	-2 Did not attend	438	30.6		
	-1 Missing	22	1.5		
	Total	460	32.1		
Total		1432	100.0		

## 2.5 Allergy testing

At 61 months the children were tested for 14 common allergens. In advance of the visit parents were informed of the allergy testing procedure. They were also sent a series of questions designed to screen out high risk cases. These children were not tested at the clinic but were invited to attend the Bristol Children's Hospital at a later date. For children who were not high risk but who were currently taking antihistamines regularly, parents were asked to stop these drugs 48 hours before the visit. Once at the clinic, parents were shown a list of antihistamines to check that none had been overlooked. If any had been recently taken, the date, time and name of any drugs were noted.

The team of allergy testers were all nurses who had been specifically trained in allergy testing, the use of IM adrenaline and paediatric resuscitation. 14 allergens: cat, dog, peanut, milk, egg, fish (cod), mixed grasses (6), 4 moulds (alternaria, penicillin, cladosporium and aspergillus) and 2 house dust mites (dermatophagoides pternyssius and dermatophagoides farinae) were used together with a positive (histamine) and a negative (saline) control. (\*need details on concentrations and manufacturer\*). Drops of each allergen solution were placed at least 1cm apart on the forearm not above a visible vein. A small prick was made to the skin beneath each drop, without drawing blood using flanged lancets, a separate sterile lancet was used for each allergen. After 4 minutes each allergen solution was wiped off the arm with a separate tissue to avoid cross-contamination. The child was asked not to scratch their arm and was moved to a comfortable sofa with their parent.

After a further 10 minutes the arm was checked for a reaction to any of the allergens. The diameter of each weal (raised area) and/or flare (redness) was measured. It was also noted whether any weal had pseudopods, that is they were irregular in shape.

Children recorded in their booklet which allergens they reacted to. The parents and child were given a note explaining that a reaction does not necessarily mean that an allergy to that substance is present and if there is no physical reaction to exposure then no action need be taken. However, if the child was for example asthmatic and had a cat or dog at home and had a positive skin test to cat or dog allergen, they were advised to contact their GP.

Unfortunately, a tester was not always available at the clinic to perform the skin prick tests. On these rare occasions, children were invited to attend at a later date. The variable *CF600* denotes whether they were tested at the original visit, came back (or attended Bristol Children's Hospital for high risk cases) at a later date, or did not have the skin pricks done. An 'age at testing' variable has therefore been created (*CF606*) to identify the date at allergy testing (rather than the age of attending the original clinic). Variables denoting a positive reaction to an allergen were created if the weal or flare was at least 1 mm in diameter.

Note, that only these frequencies are presented here. A few children became upset during testing and as a result not all of the allergens were tested on the child. This is clearly denoted in the frequencies.

**cf600 Allergy test attended 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No permission	24	1.7	2.4	2.4
	1 No, at neither	195	13.6	19.6	22.0
	2 Yes, at 1st visit	666	46.5	67.0	89.0
	3 Yes, at 2nd visit	9	.6	.9	89.9
	4 Yes, at both visits	100	7.0	10.1	100.0
	Total	994	69.4	100.0	
Missing	-2 did not attend	438	30.6		
Total		1432	100.0		

**cf600b Allergy tester 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	31	2.2	4.1	4.1
	2	229	16.0	30.5	34.6
	3	37	2.6	4.9	39.5
	4	39	2.7	5.2	44.7
	5	231	16.1	30.7	75.4
	6	185	12.9	24.6	100.0
Missing	Total	752	52.5	100.0	
	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
Total	Total	680	47.5		
		1432	100.0		

**cf601 Allergy test code**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 A1	21	1.5	31.8	31.8
	2 A2	4	.3	6.1	37.9
	4 A4	1	.1	1.5	39.4
	6 A6	23	1.6	34.8	74.2
	12	8	.6	12.1	86.4
	16	3	.2	4.5	90.9
	19	1	.1	1.5	92.4
	36	1	.1	1.5	93.9
	56	1	.1	1.5	95.5
	68	1	.1	1.5	97.0
	89	1	.1	1.5	98.5
	125	1	.1	1.5	100.0
Missing	Total	66	4.6	100.0	
	-4 No permission	24	1.7		
	-3 test not done	195	13.6		
	-2 did not attend	438	30.6		
	-1 Missing	709	49.5		
Total	Total	1366	95.4		
		1432	100.0		

**cf602 Allergy permission given**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	803	56.1	97.1	97.1
	2 No	24	1.7	2.9	100.0
	Total	827	57.8	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	167	11.7		
	Total	605	42.2		
Total		1432	100.0		

**cf603 High risk case**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	155	10.8	17.8	17.8
	2 No	714	49.9	82.2	100.0
	Total	869	60.7	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	125	8.7		
	Total	563	39.3		
Total		1432	100.0		

**cf604 Antihistamines in use**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	16	1.1	2.0	2.0
	2 No	785	54.8	98.0	100.0
	Total	801	55.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	193	13.5		
	Total	631	44.1		
Total		1432	100.0		

**cf605 Date of last histamine usage (days) 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	1	.1	12.5	12.5
	7	3	.2	37.5	50.0
	9	1	.1	12.5	62.5
	11	1	.1	12.5	75.0
	12	2	.1	25.0	100.0
	Total	8	.6	100.0	
Missing	-2 did not attend	438	30.6		
	-1 Missing	986	68.9		
	Total	1424	99.4		
Total		1432	100.0		

**cf606 Time of last antihistamine usage (hours)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8	2	.1	50.0	50.0
	18	1	.1	25.0	75.0
	20	1	.1	25.0	100.0
	Total	4	.3	100.0	
Missing	-2 did not attend	438	30.6		
	-1 Missing	990	69.1		
	Total	1428	99.7		
Total		1432	100.0		

**cf608 Reaction to positive 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	693	48.4	90.1	90.1
	2 No	76	5.3	9.9	100.0
	Total	769	53.7	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf608a Positive weal (mm) 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	88	6.1	11.4	11.4
	.1	1	.1	.1	11.6
	.5	4	.3	.5	12.1
	1.0	63	4.4	8.2	20.3
	1.5	4	.3	.5	20.8
	2.0	87	6.1	11.3	32.1
	3.0	203	14.2	26.4	58.5
	4.0	197	13.8	25.6	84.1
	5.0	86	6.0	11.2	95.3
	6.0	20	1.4	2.6	97.9
	7.0	7	.5	.9	98.8
	8.0	3	.2	.4	99.2
	9.0	2	.1	.3	99.5
	14.0	1	.1	.1	99.6
	15.0	1	.1	.1	99.7
	16.0	1	.1	.1	99.9
	18.0	1	.1	.1	100.0
Missing	Total	769	53.7	100.0	
	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
Total		663	46.3		
		1432	100.0		

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf608b Positive flare (mm) 61 mth	769	.0	43.0	12.637	9.4941

**cf608c Positive pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	12	.8	1.6	1.6
	2 No	757	52.9	98.4	
	Total	769	53.7	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf609 Reaction to negative 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	768	53.6	99.9	
	Total	769	53.7	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf609a Negative weals (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	768	53.6	99.9	99.9
	6.0	1	.1	.1	
	Total	769	53.7	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf609b Negative flares (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	768	53.6	99.9	99.9
	20.0	1	.1	.1	
	Total	769	53.7	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf609c Negative pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.0 No	768	53.6	100.0	
Missing	-4.0 No permission	24	1.7		100.0
	-3.0 Not tested	195	13.6		
	-2.0 Did not attend	438	30.6		
	-1.0 Missing	7	.5		
	Total	664	46.4		
Total		1432	100.0		

**cf610 Cat allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	43	3.0	5.6	5.6
	2 No	728	50.8	94.4	100.0
	Total	771	53.8	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	4	.3		
	Total	661	46.2		
Total		1432	100.0		

**cf610a Cat weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	727	50.8	94.3	94.3
	.1	1	.1	.1	94.4
	.5	3	.2	.4	94.8
	1.0	4	.3	.5	95.3
	2.0	8	.6	1.0	96.4
	3.0	12	.8	1.6	97.9
	4.0	9	.6	1.2	99.1
	5.0	2	.1	.3	99.4
	6.0	2	.1	.3	99.6
	8.0	1	.1	.1	99.7
	10.0	2	.1	.3	100.0
	Total	771	53.8	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	4	.3		
	Total	661	46.2		
Total		1432	100.0		

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
cf610b Cat flare (mm)	771	.0	25.0	.651	3.1485

**cf610c Cat pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.0 No	771	53.8	100.0	100.0
Missing	-4.0 No permission	24	1.7		
	-3.0 Not tested	195	13.6		
	-2.0 Did not attend	438	30.6		
	-1.0 Missing	4	.3		
	Total	661	46.2		
		1432	100.0		

**cf611 Dog allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	21	1.5	2.7	2.7
	2 No	749	52.3	97.3	100.0
	Total	770	53.8	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	5	.3		
	Total	662	46.2		
		1432	100.0		

**cf611a Dog weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	750	52.4	97.4	97.4
	.5	1	.1	.1	97.5
	1.0	5	.3	.6	98.2
	2.0	6	.4	.8	99.0
	3.0	1	.1	.1	99.1
	4.0	4	.3	.5	99.6
	5.0	2	.1	.3	99.9
	7.0	1	.1	.1	100.0
	Total	770	53.8	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	5	.3		
	Total	662	46.2		
		1432	100.0		

**cf611b Dog flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	752	52.5	97.7	97.7
	1.0	1	.1	.1	97.8
	2.0	2	.1	.3	98.1
	5.0	1	.1	.1	98.2
	7.0	1	.1	.1	98.3
	8.0	1	.1	.1	98.4
	10.0	3	.2	.4	98.8
	14.0	2	.1	.3	99.1
	15.0	3	.2	.4	99.5
	16.0	1	.1	.1	99.6
	17.0	2	.1	.3	99.9
	20.0	1	.1	.1	100.0
	Total	770	53.8	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	5	.3		
	Total	662	46.2		
	Total	1432	100.0		

**cf611c Dog pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.0 No	770	53.8	100.0	100.0
Missing	-4.0 No permission	24	1.7		
	-3.0 Not tested	195	13.6		
	-2.0 Did not attend	438	30.6		
	-1.0 Missing	5	.3		
	Total	662	46.2		
	Total	1432	100.0		

**cf612 Horse allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	13	.9	1.7	1.7
	2 No	757	52.9	98.3	100.0
	Total	770	53.8	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	5	.3		
	Total	662	46.2		
	Total	1432	100.0		

**cf612a Horse weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	758	52.9	98.4	98.4
	2	2	.1	.3	98.7
	3	4	.3	.5	99.2
	4	2	.1	.3	99.5
	5	1	.1	.1	99.6
	6	1	.1	.1	99.7
	8	2	.1	.3	100.0
	Total	770	53.8	100.0	
Missing	-4 No permission	24	1.7		
	-3 test not done	195	13.6		
	-2 did not attend	438	30.6		
	-1 allergen not tested	5	.3		
	Total	662	46.2		
Total		1432	100.0		

**cf612b Horse flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	759	53.0	98.6	98.6
	4	1	.1	.1	98.7
	5	2	.1	.3	99.0
	10	1	.1	.1	99.1
	12	2	.1	.3	99.4
	16	2	.1	.3	99.6
	20	1	.1	.1	99.7
	22	1	.1	.1	99.9
	24	1	.1	.1	100.0
	Total	770	53.8	100.0	
Missing	-4 No permission	24	1.7		
	-3 test not done	195	13.6		
	-2 did not attend	438	30.6		
	-1 allergen not tested	5	.3		
	Total	662	46.2		
Total		1432	100.0		

**cf612c Horse pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	770	53.8	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	5	.3		
	Total	662	46.2		
Total		1432	100.0		

**cf613 Milk allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	15	1.0	2.0	2.0
	2 No	754	52.7	98.0	100.0
	Total	769	53.7	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf613a Milk weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	755	52.7	98.2	98.2
	2.0	2	.1	.3	98.4
	3.0	8	.6	1.0	99.5
	4.0	3	.2	.4	99.9
	5.0	1	.1	.1	100.0
	Total	769	53.7	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf613b Milk flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	757	52.9	98.4	98.4
	5.0	1	.1	.1	98.6
	9.0	1	.1	.1	98.7
	11.0	2	.1	.3	99.0
	12.0	1	.1	.1	99.1
	13.0	1	.1	.1	99.2
	19.0	1	.1	.1	99.3
	20.0	1	.1	.1	99.5
	21.0	2	.1	.3	99.7
	22.0	2	.1	.3	100.0
	Total	769	53.7	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf613c Milk pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	768	53.6	99.9	100.0
	Total	769	53.7	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf614 Egg allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	6	.4	.8	.8
	2 No	763	53.3	99.2	100.0
	Total	769	53.7	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf614a Egg weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	764	53.4	99.3	99.3
	2.0	3	.2	.4	99.7
	3.0	1	.1	.1	99.9
	7.0	1	.1	.1	100.0
	Total	769	53.7	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf614b Egg flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	763	53.3	99.2	99.2
	2.0	1	.1	.1	99.3
	4.0	1	.1	.1	99.5
	5.0	1	.1	.1	99.6
	7.0	1	.1	.1	99.7
	15.0	1	.1	.1	99.9
	16.0	1	.1	.1	100.0
	Total	769	53.7	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf614c Egg pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	769	53.7	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	663	46.3		
Total		1432	100.0		

**cf615 Peanut allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	7	.5	.9	.9
	2 No	761	53.1	99.1	100.0
	Total	768	53.6	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	7	.5		
	Total	664	46.4		
Total		1432	100.0		

**cf615a Peanut weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	761	53.1	99.1	99.1
	2.0	3	.2	.4	99.5
	3.0	2	.1	.3	99.7
	4.0	1	.1	.1	99.9
	5.0	1	.1	.1	100.0
	Total	768	53.6	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	7	.5		
	Total	664	46.4		
Total		1432	100.0		

**cf615b Peanut flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	763	53.3	99.3	99.3
	6.0	1	.1	.1	99.5
	10.0	2	.1	.3	99.7
	17.0	1	.1	.1	99.9
	23.0	1	.1	.1	100.0
	Total	768	53.6	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	7	.5		
	Total	664	46.4		
Total		1432	100.0		

**cf615c Peanut pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	768	53.6	100	100
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	7	.5		
	Total	664	46.4		
Total		1432	100		

**cf616 Grass allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	44	3.1	5.9	5.9
	2 No	708	49.4	94.1	100
	Total	752	52.5	100	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
	Total	1432	100		

**cf616a Grass weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	708	49.4	94.1	94.1
	1.0	4	.3	.5	94.7
	2.0	14	1.0	1.9	96.5
	2.5	1	.1	.1	96.7
	3.0	13	.9	1.7	98.4
	4.0	5	.3	.7	99.1
	5.0	3	.2	.4	99.5
	6.0	1	.1	.1	99.6
	8.0	2	.1	.3	99.9
	10.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf616b Grass flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	719	50.2	95.6	95.6
	1.0	1	.1	.1	95.7
	3.0	2	.1	.3	96.0
	4.0	1	.1	.1	96.1
	5.0	1	.1	.1	96.3
	7.0	2	.1	.3	96.5
	10.0	4	.3	.5	97.1
	11.0	1	.1	.1	97.2
	12.0	3	.2	.4	97.6
	14.0	1	.1	.1	97.7
	15.0	4	.3	.5	98.3
	16.0	1	.1	.1	98.4
	17.0	2	.1	.3	98.7
	18.0	4	.3	.5	99.2
	19.0	1	.1	.1	99.3
	20.0	1	.1	.1	99.5
	21.0	2	.1	.3	99.7
	23.0	1	.1	.1	99.9
	50.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf616c Grass pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	2	.1	.3	.3
	2 No	750	52.4	99.7	100
	Total	752	52.5	100	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf617 Dermatophagoides Farnae allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	48	3.4	6.4	6.4
	2 No	705	49.2	93.6	100.0
	Total	753	52.6	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	22	1.5		
	Total	679	47.4		
Total		1432	100.0		

**cf617a Dermatophagoides farnae weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	704	49.2	93.5	93.5
	.5	2	.1	.3	93.8
	1.0	11	.8	1.5	95.2
	2.0	11	.8	1.5	96.7
	3.0	11	.8	1.5	98.1
	4.0	9	.6	1.2	99.3
	5.0	4	.3	.5	99.9
	6.0	1	.1	.1	100.0
	Total	753	52.6	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	22	1.5		
	Total	679	47.4		
Total		1432	100.0		

**cf617b Dermatophagoides farnae flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	722	50.4	95.9	95.9
	1.0	1	.1	.1	96.0
	2.0	1	.1	.1	96.1
	3.0	2	.1	.3	96.4
	4.0	1	.1	.1	96.5
	5.0	1	.1	.1	96.7
	6.0	2	.1	.3	96.9
	7.0	1	.1	.1	97.1
	8.0	1	.1	.1	97.2
	9.0	1	.1	.1	97.3
	10.0	5	.3	.7	98.0
	12.0	7	.5	.9	98.9
	14.0	1	.1	.1	99.1
	15.0	4	.3	.5	99.6
	16.0	1	.1	.1	99.7
	20.0	1	.1	.1	99.9
	22.0	1	.1	.1	100.0
	Total	753	52.6	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	22	1.5		
	Total	679	47.4		
	Total	1432	100.0		

**cf617c Dermatophagoides farnae pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	753	52.6	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	22	1.5		
	Total	679	47.4		
	Total	1432	100.0		

**cf618 Dermatophagoides Pteronyssinus allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	65	4.5	8.6	8.6
	2 No	687	48.0	91.4	100.0
	Total	752	52.5	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
	Total	1432	100.0		

**cf618a Dermatophagoides pteronyssinus weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	689	48.1	91.6	91.6
	.5	1	.1	.1	91.8
	1.0	11	.8	1.5	93.2
	1.5	1	.1	.1	93.4
	2.0	13	.9	1.7	95.1
	3.0	18	1.3	2.4	97.5
	4.0	9	.6	1.2	98.7
	5.0	2	.1	.3	98.9
	6.0	3	.2	.4	99.3
	7.0	1	.1	.1	99.5
	8.0	3	.2	.4	99.9
	11.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf618b Dermatophagoides pteronyssinus flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	701	49.0	93.2	93.2
	1.0	2	.1	.3	93.5
	2.0	1	.1	.1	93.6
	3.0	3	.2	.4	94.0
	4.0	1	.1	.1	94.1
	5.0	3	.2	.4	94.5
	6.0	2	.1	.3	94.8
	8.0	3	.2	.4	95.2
	9.0	1	.1	.1	95.3
	10.0	2	.1	.3	95.6
	11.0	6	.4	.8	96.4
	12.0	2	.1	.3	96.7
	13.0	3	.2	.4	97.1
	15.0	7	.5	.9	98.0
	16.0	3	.2	.4	98.4
	17.0	1	.1	.1	98.5
	20.0	6	.4	.8	99.3
	21.0	1	.1	.1	99.5
	22.0	1	.1	.1	99.6
	23.0	1	.1	.1	99.7
	24.0	1	.1	.1	99.9
	30.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf618c Dermatophagoides pteronyssinus pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	2	.1	.3	.3
	2 No	750	52.4	99.7	100.0
	Total	752	52.5	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf619 Alternaria allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	9	.6	1.2	1.2
	2 No	743	51.9	98.8	100.0
	Total	752	52.5	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf619a alternaria weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	744	52.0	98.9	98.9
	10.0	2	.1	.3	99.2
	12.0	2	.1	.3	99.5
	15.0	2	.1	.3	99.7
	17.0	1	.1	.1	99.9
	19.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf619b alternaria flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	743	51.9	98.8	98.8
	2.0	1	.1	.1	98.9
	3.0	2	.1	.3	99.2
	4.0	3	.2	.4	99.6
	5.0	1	.1	.1	99.7
	7.0	1	.1	.1	99.9
	10.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf619c Alternaria pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	751	52.4	99.9	
	Total	752	52.5	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf620 Cladosporum allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	8	.6	1.1	1.1
	2 No	743	51.9	98.9	
	Total	751	52.4	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	24	1.7		
	Total	681	47.6		
Total		1432	100.0		

**cf620a Cladosporum weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	744	52.0	99.1	99.1
	3.0	1	.1	.1	99.2
	5.0	2	.1	.3	99.5
	10.0	2	.1	.3	99.7
	12.0	1	.1	.1	99.9
	13.0	1	.1	.1	100.0
	Total	751	52.4	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	24	1.7		
	Total	681	47.6		
	Total	1432	100.0		

**cf620b Cladosporum flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	743	51.9	98.9	98.9
	2.0	5	.3	.7	99.6
	3.0	1	.1	.1	99.7
	4.0	2	.1	.3	100.0
	Total	751	52.4	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	24	1.7		
	Total	681	47.6		
	Total	1432	100.0		

**cf620c Cladosporum pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	751	52.4	100	100
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	24	1.7		
	Total	681	47.6		
	Total	1432	100.0		

**cf621 Aspergillus allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	6	.4	.8	.8
	2 No	746	52.1	99.2	
	Total	752	52.5	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
	Total	1432	100.0		

**cf621a Aspergillus weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	749	52.3	99.6	99.6
	2.0	1	.1	.1	99.7
	9.0	1	.1	.1	99.9
	11.0	1	.1	.1	100.0
	Total	752	52.5	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf621b Aspergillus flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	746	52.1	99.2	99.2
	1.0	2	.1	.3	99.5
	2.0	2	.1	.3	99.7
	3.0	1	.1	.1	99.9
	7.0	1	.1	.1	100.0
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf621c Aspergillus pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	752	52.5	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	23	1.6		
	Total	680	47.5		
Total		1432	100.0		

**cf622 Fish allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1	.1	.1	.1
	2 No	750	52.4	99.9	100.0
	Total	751	52.4	100.0	
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	24	1.7		
	Total	681	47.6		
Total		1432	100.0		

**cf622a Fish weal (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	751	52.4	100.0	100.0
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	24	1.7		
	Total	681	47.6		
Total		1432	100.0		

**cf622b Fish flare (mm)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	750	52.4	99.9	99.9
	1.0	1	.1	.1	100.0
	Total	751	52.4	100.0	
Missing	-4.0 No permission	24	1.7		
	-3.0 test not done	195	13.6		
	-2.0 did not attend	438	30.6		
	-1.0 allergen not tested	24	1.7		
	Total	681	47.6		
Total		1432	100.0		

**cf622c Fish pseudopod 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	751	52.4	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	24	1.7		
	Total	681	47.6		
Total		1432	100.0		

**cf623 Penicillium allergy 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 No	751	52.4	100.0	100.0
Missing	-4 No permission	24	1.7		
	-3 Not tested	195	13.6		
	-2 Did not attend	438	30.6		
	-1 Missing	24	1.7		
	Total	681	47.6		
Total		1432	100.0		

## 2.6 Dental observations

The WHO goal for the year 2003 is 70% of 5 year olds to be caries free. Although there has been much progress towards this goal in the Western world, there are areas throughout the world where the caries rate remains high. Indeed, the 1993 OPCS Child Dental Health Survey of the United Kingdom showed that only 43% of 5 year olds were caries free (O'Brien M. Children's dental health survey in the United Kingdom 1993. London: Office of Population Censuses and Surveys, 1994).

The aim of the dental project is to assess the prevalence of oral and dental disease and variations in general dental development in the pre-school child. It also aims to identify those factors, such as dietary and socio-economic influences, which predispose to the development of dental disease or to the perceived variations in general dental development. It should also identify communities in which the dental caries is at a level, which would make early screening, and the instigation of oral health programmes essential.

We are indebted to our collaborators Peter Crawford, Senior Lecturer, Division of Children's Dentistry, for the initiation of the project, and to Karen Duncan of the same department for implementation, training, supervision and validation.

It is worthy of note that many of the children attending the Children in Focus clinic would have had no previous experience of visiting the dentist and so the observer would have had the added problems of introducing the child to dental examination. One observation that caused some problems was for the child to poke out his/her tongue. Many of the children appeared to refuse, as they would normally be rebuked for doing so.

### 2.6.1 Method at 31 months

A detailed examination was carried out at the 31 month clinic by non-dental staff (observers). The observers were trained by Karen Duncan, a qualified dentist (trainer), to identify the teeth, certain dental diseases and aspects of dental development.

All observations were recorded in coded form onto audiotape and were transcribed at a later date. A record was made of teeth present, caries activity, treatment already obtained, occlusal anomalies (the alignment and spacing of upper and lower teeth and relationship when the teeth were in occlusion) and the incidence of dental trauma. In all, 1102 children were examined which yielded 1073 complete records. 15% of the sample (n=164) were examined twice for reproducibility and validation purposes.

As with all our clinic observations, the dental observers were asked to ensure that the children did not become upset and that the time spent on the actual observation was kept to a minimum.

### 2.6.2 Method at 43 months

A detailed examination was carried out on 1063 children at the 43-month clinic. Of these 195 were re-examined for validation purposes. The method was the same as that for the 31-month clinic, with 6 non-dental observers collecting the data. Three of the observers were new to the study and had to be trained. The same trainer, using the programme devised for the original observers, carried out the training. The three previously trained observers were given a short revision course.

The validation exercise was carried out as in the 31-month clinic with the dentist re-examining the children following the initial observation. It was found that the children were far more receptive than at the last clinic with fewer children refusing to be examined.

### 2.6.3 Method at 61 months

This study continued when the children were 61 months old. As well as identifying caries, restorations and occlusal development in the deciduous dentition, the observers looked for signs of erosion in the teeth at this time point.

### 2.6.4 Data collected

Testers are recorded as CFT001, CFT101 and CFT201 for the 31, 43 and 61 month dental observations respectively.

cft001 Dental observer 31 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	254	17.7	23.0	23.0
	2	264	18.4	24.0	47.0
	3	250	17.5	22.7	69.7
	4	112	7.8	10.2	79.9
	5	101	7.1	9.2	89.0
	6	96	6.7	8.7	97.7
	7	25	1.7	2.3	100.0
	Total	1102	77.0	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	Total	330	23.0		
Total		1432	100.0		

cft101 Dental Observer 43 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	145	10.1	13.6	13.6
	2	91	6.4	8.6	22.2
	3	195	13.6	18.3	40.5
	4	216	15.1	20.3	60.9
	5	230	16.1	21.6	82.5
	6	183	12.8	17.2	99.7
	7	3	.2	.3	100.0
	Total	1063	74.2	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	Total	369	25.8		
Total		1432	100.0		

cft201 Dental Observer 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	311	21.7	31.4	31.4
	2	571	39.9	57.6	88.9
	3	110	7.7	11.1	100.0
	Total	992	69.3	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	Total	440	30.7		
Total		1432	100.0		

At each time point, the state of each tooth was recorded. The observer recorded whether the tooth was present. If so, whether it was sound, whether there was caries (if so, how many tooth surfaces were affected) or whether there were any restorations (if so, how many surfaces were affected). They also noted whether the tooth was discoloured. If the tooth was absent, the reason was noted – partially or unerupted, lost to trauma or extracted due to caries.

The tables below (2.6.1 & 2.6.2) indicate the variable names for the variables described above.

	31 months	43 months	61 months
Upper right first permanent molar	-	-	CFT210
Upper right 2nd molar	CFT011	CFT111	CFT211
Upper right 1st molar	CFT012	CFT112	CFT212
Upper right canine	CFT013	CFT113	CFT213
Upper right lateral incisor	CFT014	CFT114	CFT214
Upper right central incisor	CFT015	CFT115	CFT215
Upper left central incisor	CFT016	CFT116	CFT216
Upper left lateral incisor	CFT017	CFT117	CFT217
Upper left canine	CFT018	CFT118	CFT218
Upper left 1st molar	CFT019	CFT119	CFT219
Upper left 2nd molar	CFT020	CFT120	CFT220
Upper left first permanent molar	CFT021	CFT121	CFT221
Extra upper tooth	CFT022	CFT122	CFT222
Lower right first permanent molar	CFT030	CFT130	CFT230
Lower right 2nd molar	CFT031	CFT131	CFT231
Lower right 1st molar	CFT032	CFT132	CFT232
Lower right canine	CFT033	CFT133	CFT233
Lower right lateral incisor	CFT034	CFT134	CFT234
Lower right central incisor	CFT035	CFT135	CFT235
Lower left central incisor	CFT036	CFT136	CFT236
Lower left lateral incisor	CFT037	CFT137	CFT237
Lower left canine	CFT038	CFT138	CFT238
Lower left 1st molar	CFT039	CFT139	CFT239
Lower left 2nd molar	CFT040	CFT140	CFT240
Lower right first permanent molar	CFT041	CFT141	CFT241
Extra lower tooth	-	-	CFT242

**Table 2.6.1 Variables indicating the state of each individual tooth at each time point**

	31 months	43 months	61 months
Upper right first permanent molar	-	-	CFT210a
Upper right 2nd molar	CFT011a	CFT111a	CFT211a
Upper right 1st molar	CFT012a	CFT112a	CFT212a
Upper right canine	CFT013a	CFT113a	CFT213a
Upper right lateral incisor	CFT014a	CFT114a	CFT214a
Upper right central incisor	CFT015a	CFT115a	CFT215a
Upper left central incisor	CFT016a	CFT116a	CFT216a
Upper left lateral incisor	CFT017a	CFT117a	CFT217a
Upper left canine	CFT018a	CFT118a	CFT218a
Upper left 1st molar	CFT019a	CFT119a	CFT219a
Upper left 2nd molar	CFT020a	CFT120a	CFT220a
Upper left first permanent molar	CFT021a	CFT121a	CFT221a
Extra upper tooth	CFT022a	CFT122a	CFT222a
Lower right first permanent molar	CFT030a	CFT130a	CFT230a
Lower right 2nd molar	CFT031a	CFT131a	CFT231a
Lower right 1st molar	CFT032a	CFT132a	CFT232a
Lower right canine	CFT033a	CFT133a	CFT233a
Lower right lateral incisor	CFT034a	CFT134a	CFT234a
Lower right central incisor	CFT035a	CFT135a	CFT235a
Lower left central incisor	CFT036a	CFT136a	CFT236a
Lower left lateral incisor	CFT037a	CFT137a	CFT237a
Lower left canine	CFT038a	CFT138a	CFT238a
Lower left 1st molar	CFT039a	CFT139a	CFT239a
Lower left 2nd molar	CFT040a	CFT140a	CFT240a
Lower right first permanent molar	CFT041a	CFT141a	CFT241a
Extra lower tooth	-	-	CFT242a

**Table 2.6.2: Variables indicating reason for absence of each individual tooth at each time point**

The dental disease present in the children is represented by the caries experience called dmft, which is the total number of decayed, missing and filled primary teeth. Erupted permanent molar teeth were excluded in this calculation, as were cases in which tooth variables were not determined (missing variables). Summary variables were also calculated representing any caries experience.

cft045 Caries experience (dmft), 31 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1003	70.0	97.2	97.2
	1	16	1.1	1.6	98.7
	2	11	.8	1.1	99.8
	4	1	.1	.1	99.9
	5	1	.1	.1	100.0
	Total	1032	72.1	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Missing	70	4.9		
	Total	400	27.9		
Total		1432	100.0		

cft045a Any caries experience, 31 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	29	2.0	2.8	2.8
	2 No	1003	70.0	97.2	100.0
	Total	1032	72.1	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Missing	70	4.9		
	Total	400	27.9		
Total		1432	100.0		

**cft145 Caries experience (dmft), 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	880	61.5	85.6	85.6
	1	82	5.7	8.0	93.6
	2	33	2.3	3.2	96.8
	3	14	1.0	1.4	98.2
	4	6	.4	.6	98.7
	5	2	.1	.2	98.9
	6	5	.3	.5	99.4
	7	2	.1	.2	99.6
	8	1	.1	.1	99.7
	9	1	.1	.1	99.8
	11	1	.1	.1	99.9
	12	1	.1	.1	100.0
Total		1028	71.8	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Missing	35	2.4		
	Total	404	28.2		
Total		1432	100.0		

**cft145a Any caries experience, 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	148	10.3	14.4	14.4
	2 No	880	61.5	85.6	100.0
	Total	1028	71.8	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Missing	35	2.4		
	Total	404	28.2		
Total		1432	100.0		

**cft245 Caries experience (dmft), 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	683	47.7	74.4	74.4
	1	89	6.2	9.7	84.1
	2	52	3.6	5.7	89.8
	3	29	2.0	3.2	92.9
	4	28	2.0	3.1	96.0
	5	16	1.1	1.7	97.7
	6	4	.3	.4	98.1
	7	1	.1	.1	98.3
	8	9	.6	1.0	99.2
	9	2	.1	.2	99.5
	10	3	.2	.3	99.8
	12	1	.1	.1	99.9
	13	1	.1	.1	100.0
Total		918	64.1	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Missing	74	5.2		
	Total	514	35.9		
Total		1432	100.0		

**cft245a Any caries experience, 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	235	16.4	25.6	25.6
	2 No	683	47.7	74.4	100.0
	Total	918	64.1	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Missing	74	5.2		
	Total	514	35.9		
Total		1432	100.0		

Variables have been created at all time points showing the distribution of the decayed (*dt*), missing (*mt*) and filled (*ft*) components of *dmft*. The restorative index (*mft*) has also been calculated as the sum of the missing and filled components and is therefore a record of treatment received by the children. Table II.6.3 overleaf indicates the variable names for these derived variables.

	31 months	43 months	61 months
Decayed ( <i>dt</i> )	CFT047	CFT147	CFT247
Missing ( <i>mt</i> )	CFT048	CFT148	CFT248
Filled ( <i>ft</i> )	CFT049	CFT149	CFT249
Restorative Index ( <i>mft</i> )	CFT046	CFT146	CFT246

**Table 2.6.3: Variables indicating the components of the *dmft***

The alignments of the upper and lower segments were assessed (occlusion) at each time point. The observers noted whether the teeth were well aligned, crowded or had spaces between them. If the teeth were spaced, the observers noted whether the spacing was exaggerated between the two front teeth (51 and 61) which indicated the presence of a median diastema.

**cft060 Upper labial segment alignment (52, 51, 61, 62) 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Well aligned	691	48.3	65.1	65.1
	2 Crowded	36	2.5	3.4	68.5
	3 Spaced	334	23.3	31.5	100.0
	Total	1061	74.1	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	41	2.9		
	Total	371	25.9		
Total		1432	100.0		

**cft061 Upper median diastema 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	178	12.4	16.8	16.8
	2 No	883	61.7	83.2	100.0
	Total	1061	74.1	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	41	2.9		
	Total	371	25.9		
Total		1432	100.0		

**cft062 Lower labial segment alignment (82, 81 ,71 ,72) 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Well aligned	533	37.2	50.6	50.6
	2 Crowded	94	6.6	8.9	59.5
	3 Spaced	427	29.8	40.5	100.0
	Total	1054	73.6	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	48	3.4		
	Total	378	26.4		
Total		1432	100.0		

**cft063 Lower median diastema 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	37	2.6	3.5	3.5
	2 No	1016	70.9	96.5	100.0
	Total	1053	73.5	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	49	3.4		
	Total	379	26.5		
Total		1432	100.0		

**cft160 Upper labial segment alignment (52, 51, 61, 62) 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Well aligned	604	42.2	58.2	58.2
	2 Crowded	68	4.7	6.6	64.8
	3 Spaced	365	25.5	35.2	100.0
	Total	1037	72.4	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	26	1.8		
	Total	395	27.6		
Total		1432	100.0		

**cft161 Upper median diastema 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	210	14.7	20.2	20.2
	2 No	830	58.0	79.8	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	23	1.6		
	Total	392	27.4		
Total		1432	100.0		

**cft162 Lower labial segment alignment (82, 81 ,71 ,72) 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Well aligned	439	30.7	42.3	42.3
	2 Crowded	102	7.1	9.8	52.2
	3 Spaced	496	34.6	47.8	100.0
	Total	1037	72.4	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	26	1.8		
	Total	395	27.6		
Total		1432	100.0		

**cft163 Lower median diastema 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	60	4.2	5.8	5.8
	2 No	980	68.4	94.2	100.0
	Total	1040	72.6	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	23	1.6		
	Total	392	27.4		
Total		1432	100.0		

**cft260 Upper labial segment alignment (52, 51, 61, 62) 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Well aligned	471	32.9	48.8	48.8
	2 Crowded	51	3.6	5.3	54.1
	3 Spaced	443	30.9	45.9	100.0
	Total	965	67.4	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	27	1.9		
	Total	467	32.6		
Total		1432	100.0		

**cft261 Upper median diastema 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	135	9.4	13.7	13.7
	2 No	851	59.4	86.3	100.0
	Total	986	68.9	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	6	.4		
	Total	446	31.1		
Total		1432	100.0		

**cft262 Lower labial segment alignment (82, 81 ,71 ,72) 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Well aligned	330	23.0	33.9	33.9
	2 Crowded	129	9.0	13.2	47.1
	3 Spaced	515	36.0	52.9	100.0
	Total	974	68.0	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	18	1.3		
	Total	458	32.0		
Total		1432	100.0		

**cft263 Lower median diastema 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	56	3.9	5.7	5.7
	2 No	931	65.0	94.3	100.0
	Total	987	68.9	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	5	.3		
	Total	445	31.1		
Total		1432	100.0		

Finally, at all time points, the presence of open bite (where the teeth do not close or come together at the front of the mouth), reverse overjet (where the lower teeth project beyond the upper teeth), right or left posterior crossbite (where some of the upper teeth are inside the lower teeth when biting down) and presence of tongue-tie were recorded.

**cft070 Anterior open bite 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 None	816	57.0	79.2	79.2
	2 Right anterior open bite	35	2.4	3.4	82.6
	3 Left anterior open bite	20	1.4	1.9	84.6
	4 Symmetrical anterior open bite	159	11.1	15.4	100.0
	Total	1030	71.9	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	72	5.0		
	Total	402	28.1		
Total		1432	100.0		

**cft071 Reverse overjet 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	15	1.0	1.4	1.4
	2 No	1022	71.4	98.6	100.0
	Total	1037	72.4	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	65	4.5		
	Total	395	27.6		
Total		1432	100.0		

**cft075 Right posterior crossbite 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	74	5.2	7.7	7.7
	2 No	892	62.3	92.3	100.0
	Total	966	67.5	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	136	9.5		
	Total	466	32.5		
Total		1432	100.0		

**cft076 Left posterior crossbite 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	67	4.7	6.9	6.9
	2 No	899	62.8	93.1	100.0
	Total	966	67.5	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	136	9.5		
	Total	466	32.5		
Total		1432	100.0		

**cft078 Tongue tie 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	6	.4	.6	.6
	2 No	978	68.3	99.4	100.0
	Total	984	68.7	100.0	
Missing	-3 Not examined	297	20.7		
	-2 Did not attend this clinic	33	2.3		
	-1 Unable to determine	118	8.2		
	Total	448	31.3		
Total		1432	100.0		

**cft170 Anterior open bite 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 None	817	57.1	79.6	79.6
	2 Right anterior open bite	19	1.3	1.9	81.5
	3 Left anterior open bite	11	.8	1.1	82.6
	4 Symmetrical anterior open bite	179	12.5	17.4	100.0
	Total	1026	71.6	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	37	2.6		
	Total	406	28.4		
Total		1432	100.0		

**cft171 Reverse overjet 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	22	1.5	2.1	2.1
	2 No	1016	70.9	97.9	100.0
	Total	1038	72.5	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	25	1.7		
	Total	394	27.5		
Total		1432	100.0		

**cft175 Right posterior crossbite 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	82	5.7	8.1	8.1
	2 No	932	65.1	91.9	100.0
	Total	1014	70.8	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	49	3.4		
	Total	418	29.2		
Total		1432	100.0		

**cft176 Left posterior crossbite 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	60	4.2	6.0	6.0
	2 No	948	66.2	94.0	100.0
	Total	1008	70.4	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	55	3.8		
	Total	424	29.6		
Total		1432	100.0		

**cft178 Tongue tie 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	4	.3	.4	.4
	2 No	1022	71.4	99.6	100.0
	Total	1026	71.6	100.0	
Missing	-3 Not examined	367	25.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	37	2.6		
	Total	406	28.4		
Total		1432	100.0		

**cft270 Anterior open bite 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 None	875	61.1	89.6	89.6
	2 Right anterior open bite	2	.1	.2	89.8
	3 Left anterior open bite	3	.2	.3	90.1
	4 Symmetrical anterior open bite	97	6.8	9.9	100.0
	Total	977	68.2	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	15	1.0		
	Total	455	31.8		
Total		1432	100.0		

**cft271 Reverse overjet 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	17	1.2	1.7	1.7
	2 No	969	67.7	98.3	100.0
	Total	986	68.9	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	6	.4		
	Total	446	31.1		
	Total	1432	100.0		

**cft275 Right posterior crossbite 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	65	4.5	6.7	6.7
	2 No	906	63.3	93.3	100.0
	Total	971	67.8	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	21	1.5		
	Total	461	32.2		
	Total	1432	100.0		

**cft276 Left posterior crossbite 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	58	4.1	6.0	6.0
	2 No	912	63.7	94.0	100.0
	Total	970	67.7	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	22	1.5		
	Total	462	32.3		
	Total	1432	100.0		

cft278 Tongue tie 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	9	.6	.9	.9
	2 No	975	68.1	99.1	100.0
	Total	984	68.7	100.0	
Missing	-3 Not examined	438	30.6		
	-2 Did not attend this clinic	2	.1		
	-1 Unable to determine	8	.6		
	Total	448	31.3		
Total		1432	100.0		

At 61 months, erosion of the four incisors and the lower first molars was recorded. For the incisors, the observers noted whether the erosion was present on the labial (tooth surface next to the lips) or palatal (the side of the teeth inside of the mouth) sides of the tooth and the depth of the erosion (enamel loss, dentine loss, pulp loss). For the molars, only the occlusal (biting) side of the tooth was examined. Table 2.6.4 below indicates the variable names for these erosion variables.

		61 months
Upper right lateral incisor - labial		
Erosion depth		CFT280a
Erosion area		CFT280b
Upper right central incisor - labial		
Erosion depth		CFT281a
Erosion area		CFT281b
Upper left central incisor - labial		
Erosion depth		CFT282a
Erosion area		CFT282b
Upper left lateral incisor - labial		
Erosion depth		CFT283a
Erosion area		CFT283b
Upper right lateral incisor - palatal		
Erosion depth		CFT290a
Erosion area		CFT290b
Upper right central incisor - palatal		
Erosion depth		CFT291a
Erosion area		CFT291b
Upper left central incisor - palatal		
Erosion depth		CFT292a
Erosion area		CFT292b
Upper left lateral incisor - palatal		
Erosion depth		CFT293a
Erosion area		CFT293b
Lower right first molar – occlusal		
Erosion depth		CFT294a
Erosion area		CFT294b
Lower left first molar – occlusal		
Erosion depth		CFT294a
Erosion area		CFT294b

Table 2.6.4: Variables indicating erosion at 61 months

### 3. Seeing, hearing and speaking

#### 3.1 Vision

##### 3.1.1 Method

This was designed as a randomised controlled trial in which the randomly selected group (Children in Focus) received regular orthoptic screening for visual defects, with referrals to Bristol Eye Hospital where necessary. They received vision screening at the ages of 4 months, 8 months and 12 months and then 6 monthly until 49 months.

The control group was a similarly selected group of 1461 ALSPAC singletons who had received the usual screening provided in Avon. Both groups were examined at 3 years of age in a 'Gold Standard' evaluation. This has enabled us to compare the costs and effectiveness of the two different screening programmes.

##### Summary of tests used at different ages in the Intervention Programme.

Test	4 months	8 months	12 months	18 months	25 months	31 months
History	✓	✓		✓	✓	✓
External eye inspection	✓	✓		✓	✓	✓
Eye colour	✓	✓		✓	✓	✓
Corneal reflexes	✓	✓		✓	✓	✓
Pursuit eye movements	✓	✓		✓	✓	✓
Convergence	✓	✓		✓	✓	✓
Cover test: 30cm	✓	✓		✓	✓	✓
Cover test: 6m				✓	✓	✓
Alternate cover test: 30cm				✓	✓	✓
Alternate cover test: 6m				✓	✓	✓
20 Dioptre prism	✓		✓	✓	✓	✓
2 Dioptre prism					✓	✓
Stereopsis: Frisby	✓		✓	✓	✓	✓
Lang I and II				✓	✓	✓
Visual Acuity: Fixation	✓	✓		✓	✓	✓
Preference						
Cardiff Cards at 1m			✓	✓	✓	✓
Kay pictures				✓	✓	✓
Topcon Refractometer	✓	✓	✓	✓	✓	✓

The clinical side of the 'Gold Standard' examination was fairly intensive and designed to give us as accurate a picture as possible of each child's visual function. Orthoptists carrying out the tests were blind as to which group each child was in and various steps were taken to preserve this until after the end of the eye examination. Children of this age have very varying abilities and none are yet able to be tested as accurately as one would test an adult or even a school age child. In addition to being tested for a squint, the children carried out 3 different tests of their stereopsis (depth perception) and 3 different tests of their visual acuity. These tests were graded in difficulty such that each child could do at least one test, with more accurate tests available if their abilities allowed. Finally, the children's refractive error was measured with a paediatric autorefractor. Our validation studies have shown that this device can reliably detect significant refractive errors. Any child with a visual problem was referred to an Eye clinic.

Referral criteria:

- Any manifest squint in the primary position.
- Any latent convergent squint
- Any latent divergent squint  $> 10$  pd or poorly controlled
- Reduced visual acuity below the recommended level for Cardiff cards or empirically set levels for Kays pictures or a fixation preference.

### **3.1.2 The tests**

#### ***Cover/Uncover test***

The Hospital Eye Service are used to test ocular alignment. Each eye is covered in turn, whilst the uncovered eye is observed. Any movement of the uncovered eye to take up fixation illustrates that it was misaligned prior to the cover being imposed i.e. a manifest squint was present.

#### ***20 Dioptrē Prism Test***

Tests the ability of the eyes to fuse the images received from each eye. By placing a prism in front of one eye, the image perceived by that eye is displaced. If there is poor ability to fuse images or if one eye does not see the target clearly, there may be abnormal or no compensatory eye movement. In the 20 Dioptrē test a base-out prism (which displaces the image nasally) was used with the targets being brightly coloured, detailed pictures on strips of white plastic (Kay's fixation sticks). Most normally sighted infants will make compensatory movements consisting of converging both eyes, the one behind the prism to the greater extent.

#### ***4 Dioptrē Prism Test***

As above, but a much smaller deviation can be elicited.

#### ***Frisby test***

A measure of stereopsis, this test consists of three transparent test plates, each divided into four quadrants with small blue irregular dots printed on one surface. In one quadrant there is also a circular patch of dots printed on the other surface of the plate which are at a different depth. Depending on how the plate is held, a disc either appears to project outwards from the test plate or to be sunken within it. The three different plates have circular patches with different degrees of displacement from the main patterns. The test was held at a set length from the child (30cm at 8 months and 40cm subsequently) and the square containing the circular patch was shown to the child who was encouraged to 'pick up the ball' after the first plate was rotated. The plate was always presented to show an outward presenting target unless there was no response, then the inward target was presented. Two consecutive positive gestures towards the quadrant containing the circular patch was arbitrarily set as the pass criterion.

#### ***Randot Preschool test***

Another measure of stereopsis which is more quantitative than the Frisby. It comprises a set of stereograms viewed through dissociating polarising goggles.

#### ***Lang I and Lang II stereotests***

The Lang I and Lang II are both test cards manufactured with superimposed cylindrical screens that present different images to each eye. Two pictures, each consisting of fine stripes, are seen separately by each eye, through the cylindrical screen. Disparities between the relative positions of some of the corresponding stripes seen by each eye, creates the impression of three pictures raised above the card when the images are fused. If the observer has stereopsis, they will perceive pictures apparently raised by varying amounts above the surface of the card. In the Lang I test the pictures are a cat, a star and a car. The Lang II is similar, but also has a test image of a star that can be

perceived without stereopsis, so all children can see something if they are looking at the card. Each of the cards was held 40cm away from the child who was encouraged to point to specific pictures. The pass criterion for each picture was a definite pointing gesture towards it.

### ***Fixation Preference***

Used to measure the ability of a child to maintain fixation of a light (4 months), a small illuminated toy (8 and 12 months) or a detailed picture (18 months onwards) held 33 cm away. The child's eyes were covered alternately and observation of the child's ability to maintain fixation of the target equally well with each eye was made.

### ***Preferential looking***

A test of visual acuity which relies on a child's preference for looking at a (black and white) pattern rather than a matched (grey) blank card. This test was used only at 12 months.

### ***Cardiff cards***

This is a test of visual acuity suitable for children aged approximately 1-3. The cards are designed, according to PL principles, with simple pictures at the top or bottom of each card. The tester presents the cards to the child without a screen and observes the child's eye movements, judging whether the picture is at the top or bottom of each card. The figures are designed such that detection and recognition thresholds are very close together and therefore the picture vanishes at the same time as it ceases to be recognisable. There are three different cards at each spatial frequency (with jumps of 0.1 logMAR from one level to the next). The cards are shuffled before each presentation and each time the child successfully locates pictures from two of the cards, the test proceeds to the next spatial frequency. If the child fails to indicate correctly the location of two of the pictures the next lowest level is tested again. The tester sat 1m from the child (or 0.5m if the child could not see any pictures).

### ***Kays Pictures***

This acuity test was carried out at a distance of 6m. Pictures are displayed on a chart, designed according to the same principles as the Snellen chart used for adults. The child was asked to name each picture or point to a matching card held by the mother. Correct identification of two out of three pictures at one level meant that the tester proceeded to the pictures at the next higher level of visual acuity.

### ***Refractive Error***

The VPR I used at 4 months is a prototype photorefractor.

From 8 months onward, a commercially available device, the Topcon PR2000 Paediatric Refractometer was used to estimate the refractive error for both eyes simultaneously. It is a video enhanced, infrared, photorefractor. Infrared light illuminates the subject's retina. Half of the reflected light from the retina is cut off by a 'knife edge' within the device. The other half is examined to determine the light intensity distribution of the pupil image. The gradient of the light intensity distribution across the image is proportional to the refractive power of the eye.

### ***BVAT***

This is a monitor and computer visual acuity testing kit, which is capable of displaying a range of optotypes, scaled for whatever viewing distance is appropriate. We used isolated, single HTOV letters and the same letters with crowding bars. The test distance was 6m.

Two scoring systems were used, one where identifying 3 out of 5 letters of any one size meant 'passing' that acuity level and one where credit was given for each letter seen.

### **3.1.3 The Data**

The vision data follows a slightly different format to the rest of the CIF data. All variables have the prefix CFV, followed by 3 digits. The first digit is unique to each clinic (e.g. variable CFV010 was collected at 4 months, CFV102 at 8 months, CFV202 at 12 months etc.). Throughout variables that have been collected at more than one clinic have the same two final digits. Also, where tests were performed on each eye separately, variables pertaining to the right eye have the suffix –a and those on the left eye the suffix –b.

Due to the volume of data, no frequencies will be shown in this document for the vision data. However, Table 3.1.1 overleaf shows all the variables collected at each time point together with their variable labels and Table 2 shows the variable labels for the data collected from the questionnaire administered at the 37 month clinic.

Data collected	4 month	8 month	12 month	18 month	25 month	31 month	37 month	43 month
Family history of squint/amblyopia	CFV000							
Eye colour at birth	CFV001						CFV601	
Eye colour now	CFV002	CFV102	CFV202	CFV302	CFV402	CFV502	CFV602	CFV702
Change in eye colour since birth							CFV603	
Change in eye colour since last visit		CFV104	CFV204	CFV304	CFV404	CFV504		CFV704
Any worries about child's eyes	CFV005	CFV105	CFV205	CFV305	CFV405	CFV505	CFV605	CFV705
Details of any worries about child's eyes	CFV006	CFV106	CFV206	CFV306	CFV406	CFV506	CFV606	CFV706
Abnormal appearance of eyes or adnexae	CFV007	CFV107	CFV207	CFV307	CFV407	CFV507	CFV607	CFV707
Details of any abnormality	CFV008	CFV108	CFV208	CFV308	CFV408	CFV508	CFV608	CFV708
Ability to follow a light	CFV009							
Behaviour of each eye when looking at small target	CFV010	CFV110	CFV210	CFV310	CFV410	CFV510	CFV610	CFV710
Alignment of corneal reflections	CFV011	CFV111	CFV211			CFV511		
Results of cover/uncover test at 6m						CFV512	CFV612	CFV712
Results of cover/uncover test at 33cm		CFV113	CFV213	CFV313	CFV413	CFV513	CFV613	CFV713
Details of cover test abnormality		CFV114	CFV214	CFV314	CFV414	CFV514	CFV614	CFV714
Results of alternate cover test at 6m						CFV515	CFV615	CFV715
Results of alternate cover test at 33cm				CFV316	CFV416	CFV516	CFV616	CFV716
Details of alternate cover test abnormality				CFV317	CFV417	CFV517	CFV617	CFV717
Convergence	CFV018	CFV118	CFV218	CFV318	CFV418	CFV518	CFV618	CFV718
Constancy of convergence abnormality	CFV018a							
Pursuit eye movements	CFV019	CFV119	CFV219	CFV319	CFV419	CFV519	CFV619	CFV719
Details of abnormal eye movement	CFV020	CFV120	CFV220	CFV320	CFV420	CFV520	CFV620	CFV720
20 Dioptre Prism test-raw data		CFV121	CFV221	CFV321	CFV421	CFV521	CFV621	CFV721
20 Dioptre Prism test-R eye		CFV121a	CFV221a	CFV321a	CFV421a	CFV521a	CFV621a	CFV721a
20 Dioptre Prism test-L eye		CFV121b	CFV221b	CFV321b	CFV421b	CFV521b	CFV621b	CFV721b

Table 3.1.1: Data collected at each clinic with variable labels

Data collected	4 month	8 month	12 month	18 month	25 month	31 month	37 month	43 month
4 Dioptrē Prism test-raw data					CFV422	CFV522	CFV622	CFV722
4 Dioptrē Prism test-R eye					CFV422a	CFV522a	CFV622a	CFV722a
4 Dioptrē Prism test-L eye					CFV422b	CFV522b	CFV622b	CFV722b
Randot Preschool test							CFV623	CFV723
Frisby test at 40cm		CFV124	CFV224	CFV324	CFV424	CFV524	CFV624	CFV724
Preferential looking acuity R eye		CFV125a						
Preferential looking acuity L eye		CFV125b						
Difference in acuity between 2 eyes		CFV125						
Lang 1 at 40cm					CFV426	CFV526	CFV626	CFV726
Lang 2 at 40cm					CFV427	CFV527	CFV627	CFV727
Cardiff cards - both eyes - raw data			CFV228	CFV328	CFV428	CFV528	CFV628	
Cardiff cards - both eyes - logMAR			CFV229	CFV329	CFV429	CFV529	CFV629	
Confidence for Cardiff cards - both eyes			CFV230	CFV330	CFV430	CFV530	CFV630	
Cardiff cards - R eye - raw data			CFV228a	CFV328a	CFV428a	CFV528a	CFV628a	
Cardiff cards - R eye - logMAR			CFV229a	CFV329a	CFV429a	CFV529a	CFV629a	
Confidence for Cardiff cards - R eye			CFV230a	CFV330a	CFV430a	CFV530a	CFV630a	
Cardiff cards - L eye - raw data			CFV228b	CFV328b	CFV428b	CFV528b	CFV628b	
Cardiff cards - L eye - logMAR			CFV229b	CFV329b	CFV429b	CFV529b	CFV629b	
Confidence for Cardiff cards - L eye			CFV230b	CFV330b	CFV430b	CFV530b	CFV630b	
Difference in acuity between 2 eyes - Cardiff cards			CFV231	CFV331	CFV431	CFV531	CFV631	
BVAT isolated singles - both eyes - raw data							CFV632	CFV732
BVAT isolated singles - both eyes - no credit							CFV633	CFV733
BVAT isolated singles - both eyes - extra credit							CFV634	CFV734

Data collected	4 month	8 month	12 month	18 month	25 month	31 month	37 month	43 month
Confidence for BVAT isolated singles – both eyes							CFV635	CFV735
Order both eyes tested - BVAT isolated singles							CFV636	CFV736
BVAT crowded singles – both eyes – raw data							CFV637	CFV737
BVAT crowded singles – both eyes – no credit							CFV638	CFV738
BVAT crowded singles – both eyes – extra credit							CFV639	CFV739
Confidence for BVAT crowded singles – both eyes							CFV640	CFV740
Order both eyes tested - BVAT crowded singles							CFV641	CFV741
BVAT isolated singles – R eye – raw data							CFV632a	CFV732a
BVAT isolated singles – R eye – no credit							CFV633a	CFV733a
BVAT isolated singles – R eye – extra credit							CFV634a	CFV734a
Confidence for BVAT isolated singles – R eye							CFV635a	CFV735a
Order R eye tested - BVAT isolated singles							CFV636a	CFV736a
BVAT crowded singles – R eye – raw data							CFV637a	CFV737a
BVAT crowded singles – R eye – no credit							CFV638a	CFV738a
BVAT crowded singles – R eye – extra credit							CFV639a	CFV739a
Confidence for BVAT crowded singles – R eye							CFV640a	CFV740a
Order R eye tested - BVAT crowded singles							CFV641a	CFV741a
BVAT isolated singles – L eye – raw data							CFV632b	CFV732b
BVAT isolated singles – L eye – no credit							CFV633b	CFV733b
BVAT isolated singles – L eye – extra credit							CFV634b	CFV734b
Confidence for BVAT isolated singles – L eye							CFV635b	CFV735b
Order L eye tested - BVAT isolated singles							CFV636b	CFV736b
BVAT crowded singles – L eye – raw data							CFV637b	CFV737b
BVAT crowded singles – L eye – no credit							CFV638b	CFV738b
BVAT crowded singles – L eye – extra credit							CFV639b	CFV739b
Confidence for BVAT crowded singles – L eye							CFV640b	CFV740b

Data collected	4 month	8 month	12 month	18 month	25 month	31 month	37 month	43 month
Order L eye tested - BVAT crowded singles							CFV641b	CFV741b
Difference in acuity between 2 eyes – BVAT isolated							CFV633c	CFV733c
Difference in acuity between 2 eyes – BVAT crowded							CFV638c	CFV738c
BVAT linear letters – both eyes – raw data							CFV645	CFV745
BVAT linear letters – both eyes – no credit							CFV646	CFV746
BVAT linear letters – both eyes – extra credit							CFV647	CFV747
Confidence for BVAT linear letters - both eyes							CFV648	CFV748
Order both eyes tested – BVAT linear letters							CFV649	CFV749
BVAT linear letters – R eye – raw data							CFV645a	CFV745a
BVAT linear letters – R eye – no credit							CFV646a	CFV746a
BVAT linear letters – R eye – extra credit							CFV647a	CFV747a
Confidence for BVAT linear letters - R eye							CFV648a	CFV748a
Order R eye tested – BVAT linear letters							CFV649a	CFV749a
BVAT linear letters – L eye – raw data							CFV645b	CFV745a
BVAT linear letters – L eye – no credit							CFV646b	CFV746a
BVAT linear letters – L eye – extra credit							CFV647b	CFV747a
Confidence for BVAT linear letters - L eye							CFV648b	CFV748a
Order L eye tested – BVAT linear letters							CFV649b	CFV749a
1 <sup>st</sup> reading of spherical refractive error R eye	CFV050a							
2 <sup>nd</sup> reading of spherical refractive error R eye	CFV051a							
Max value of 1 <sup>st</sup> /2 <sup>nd</sup> reading R eye	CFV052a							
Meridian of 1 <sup>st</sup> measurement R eye	CFV053a							
Meridian of 2 <sup>nd</sup> measurement R eye	CFV054a							
Difference between 2 refractive errors R eye	CFV055a							
1 <sup>st</sup> reading of spherical refractive error L eye	CFV050b							
2 <sup>nd</sup> reading of spherical refractive error L eye	CFV051b							
Max value of 1 <sup>st</sup> /2 <sup>nd</sup> reading L eye	CFV052b							
Meridian of 1 <sup>st</sup> measurement L eye	CFV053b							

Data collected	4 month	8 month	12 month	18 month	25 month	31 month	37 month	43 month
Meridian of 2 <sup>nd</sup> measurement L eye	CFV054b							
Difference between 2 refractive errors L eye	CFV055b							
Spherical refractive error of R eye		CFV157a	CFV257a	CFV357a	CFV457a	CFV557a	CFV657a	CFV757a
Astigmatism in R eye		CFV158a	CFV258a	CFV358a	CFV458a	CFV558a	CFV658a	CFV758a
Direction of -ve component of astigmatism of R eye		CFV159a	CFV259a	CFV359a	CFV459a	CFV559a	CFV659a	CFV759a
Confidence for refraction of R eye		CFV160a	CFV260a	CFV360a	CFV460a	CFV560a	CFV660a	CFV760a
Refractive error, spherical equivalent, R eye		CFV161a	CFV261a	CFV361a	CFV461a	CFV561a	CFV661a	CFV761a
Spherical refractive error of L eye		CFV157b	CFV257b	CFV357b	CFV457b	CFV557b	CFV657b	CFV757b
Astigmatism in L eye		CFV158b	CFV258b	CFV358b	CFV458b	CFV558b	CFV658b	CFV758b
Direction of -ve component of astigmatism of L eye		CFV159b	CFV259b	CFV359b	CFV459b	CFV559b	CFV659b	CFV759b
Confidence for refraction of L eye		CFV160b	CFV260b	CFV360b	CFV460b	CFV560b	CFV660b	CFV760b
Refractive error, spherical equivalent, L eye		CFV161b	CFV261b	CFV361b	CFV461b	CFV561b	CFV661b	CFV761b
Difference in spherical refractive error		CFV162	CFV262	CFV362	CFV462	CFV562	CFV662	CFV762
Difference in spherical equivalent		CFV163	CFV263	CFV363	CFV463	CFV563	CFV663	CFV763
Kays pictures at 6 m – both eyes –raw data					CFV464	CFV564	CFV664	
Kays pictures - both eyes – no credit					CFV465	CFV565	CFV665	
Kays pictures - both eyes - extra credit							CFV666	
Confidence for Kays pictures –both eyes						CFV567	CFV667	
Order both eyes tested – Kays pictures							CFV668	
Kays pictures at 6 m – R eye –raw data					CFV464a	CFV564a	CFV664a	
Kays pictures – R eye – no credit					CFV465a	CFV565a	CFV665a	
Kays pictures – R eye - extra credit							CFV666a	
Confidence for Kays pictures – R eye						CFV567a	CFV667a	
Order R eye tested – Kays pictures							CFV668a	
Kays pictures at 6 m – L eye –raw data					CFV464b	CFV564b	CFV664b	
Kays pictures – L eye – no credit					CFV465b	CFV565b	CFV665b	
Kays pictures – L eye - extra credit							CFV666b	

Data collected	4 month	8 month	12 month	18 month	25 month	31 month	37 month	43 month
Confidence for Kays pictures – L eye						CFV567b	CFV667b	
Order L eye tested – Kays pictures							CFV668b	
Difference in acuity between 2 eyes – Kays pictures					CFV469	CFV569	CFV669	
Questionnaire completed at 37 months							CFV677	
Already referred to HOSPITAL EYE SERVICE		CFV170	CFV270	CFV370	CFV470	CFV570		
Who referred child to HOSPITAL EYE SERVICE		CFV171	CFV271	CFV371	CFV471	CFV571		
Child referred to HOSPITAL EYE SERVICE by orthoptist	CFV072a	CFV172a	CFV272a	CFV372a	CFV472a	CFV572a	CFV672a	CFV772a
Child referred to HOSPITAL EYE SERVICE by other person	CFV072b							CFV772b
Time vision exam started			CFV273	CFV373	CFV473	CFV573	CFV673	
Time vision exam finished			CFV274	CFV374	CFV474	CFV574	CFV674	
Comments on examination	CFV075		CFV275	CFV375	CFV475	CFV575	CFV675	CFV775
Examiner	CFV076	CFV176	CFV276	CFV376	CFV476	CFV576	CFV676	CFV776

<b>Data collected</b>	<b>Variable labels</b>
Family history of strabismus	CFV680
Family history of amblyopia	CFV681
Which relative has strabismus	CFV680a
Parent advised to get child's eyes checked	CFV681
Who advised parent to get child's eyes checked	CFV681a
Parent asked for eye check	CFV682
Child taken to health centre for eye problem	CFV683a
Child taken to Bristol eye hospital for eye problem	CFV683b
Child taken to eye clinic in other hospital for eye problem	CFV683c
Child taken to optician for eye problem	CFV683d
Child taken to private eye doctor for eye problem	CFV683e
Child taken to any other individual for eye problem	CFV683f
Which health centre visited	CFV685
No. visits to health centre	CFV685a
Which hospital visited	CFV686
No. visits to hospital	CFV686a
Which optometrist visited	CFV687
No. visits to optometrist	CFV687a
Which private doctor visited	CFV688
No. visits to private doctor	CFV688a
Which other person visited	CFV689
No. visits to other person	CFV689a
Time off needed to make visits for eye problem	CFV690
Who took time off	CFV690a
How many days off in total	CFV690b
Child ever prescribed and received glasses	CFV691
No. of pairs glasses	CFV691a
Child ever prescribed and received eye patch/Hospital Eye Service	CFV692
No. of eye patches/Hospital Eye Service	CFV692a
Child ever prescribed and received eye drops	CFV693
No. of bottles of eye drops	CFV693a
Child ever prescribed and received eye operation	CFV694
No. of eye operations	CFV694a
Child ever prescribed and received other eye treatment	CFV695
Nature of other treatment	CFV695a
Has treatment cost parent money	CFV696
Cost of eye treatment	CFV696a
Any vouchers received towards cost of treatment	CFV697
How much vouchers covered	CFV697a
Comments	CFV698

**Table 3.1.2: Data collected from the questionnaire administered at the 37 month clinic.**

## 3.2 Tympanometry and hearing

### 3.2.1 Tympanometry measurement of otitis media with effusion

Tympanometry is a quick, non-invasive, objective and effective assessment of the function of the middle ear. It is not a test of hearing but if fluid is present then this is often associated with a mild/moderate hearing loss. By obtaining a tympanometric result at each child's visit, the study was able to document the pattern of otitis media with effusion (OME) in each child.

#### Method

At each visit to a Children in Focus clinic from 8 months onwards, tympanometry was carried out. The probe of a Kamplex AT2 tympanometer placed at the entrance to the ear canal measured the eardrum (tympanic membrane) mobility and middle ear pressure. Although the resultant graph (tympanogram) is visible to the parent, no attempt at interpreting it was made by the staff.

The tympanogram was categorised by Mrs E Midgeley using the British system into four groups:

- Type A*      Normal graph. Middle ear pressure of +100 to -100mm H<sub>2</sub>O.
- Type C<sub>1</sub>*     Middle ear pressure of -100 to -200mm H<sub>2</sub>O. Indicates slight Eustachian tube dysfunction.
- Type C<sub>2</sub>*     Middle ear pressure of -200 to -300mm H<sub>2</sub>O. Indicates eustachian tube dysfunction. Impossible to tell from tympanometry alone whether ear is recovering from OME or fluid is starting to build up.
- Type B*      Flat trace consistent with OME. No middle ear pressure recorded. Eardrum immobile due to fluid in middle ear space.

Variable name	Clinic	Whether tympanometry done	
		No (code 2)	Yes (code 1)
CF500	8m	52	1262
CF501	12m	66	1175
CF502	18m	50	1133
CF503	25m	80	1047
CF504	31m	58	1077
CF505	37m	38	1043
CF506	43m	15	1050
CF507	49m	31	1001
CF508	61m	25	969

LEFT EAR RESULT (code)								
Variable name	Clinic	A (1)	C1 (2)	C2 (3)	B (4)	U* (-1)	Gr* (5)	Pn* (6)
CF510a	8m	550	182	39	402	141	-	-
CF511a	12m	627	105	49	277	183	-	-
CF512a	18m	478	151	72	334	148	-	-
CF513a	25m	692	115	37	158	122	3	-
CF514a	31m	688	128	44	202	69	4	-
CF515a	37m	735	114	30	139	56	6	1
CF516a	43m	618	156	71	193	19	8	-
CF517a	49m	689	107	62	111	50	13	-
CF518a	61m	629	143	68	114	15	12	-

RIGHT EAR RESULT (code)								
Variable name	Clinic	A (1)	C1 (2)	C2 (3)	B (4)	U* (-1)	Gr* (5)	Pn* (6)
CF510b	8m	595	138	37	419	125	-	-
CF511b	12m	669	111	40	280	141	-	-
CF512b	18m	495	151	56	353	128	-	-
CF513b	25m	720	105	33	154	114	1	-
CF514b	31m	694	113	32	226	65	5	-
CF515b	37m	771	89	22	136	55	8	-
CF516b	43m	611	143	74	207	21	9	-
CF517b	49m	680	126	51	103	58	14	-
CF518b	61m	633	147	56	113	17	14	1

\* U = unclassifiable trace or no result; Gr = grommets; Pn = perforation

#### cf520 OME at 8 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	295	20.6	24.9	24.9
	2 AA	444	31.0	37.5	62.5
	3 B	231	16.1	19.5	82.0
	4 other	213	14.9	18.0	100.0
	Total	1183	82.6	100.0	
Missing	-2 Did not attend	118	8.2		
	-1 Not classifiable	131	9.1		
	Total	249	17.4		
Total		1432	100.0		

#### cf521 OME at 12 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	170	11.9	16.0	16.0
	2 AA	513	35.8	48.2	64.1
	3 B	217	15.2	20.4	84.5
	4 other	165	11.5	15.5	100.0
	Total	1065	74.4	100.0	
Missing	-2 Did not attend	191	13.3		
	-1 Not classifiable	176	12.3		
	Total	367	25.6		
Total		1432	100.0		

**cf522 OME at 18 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	248	17.3	23.6	23.6
	2 AA	378	26.4	35.9	59.5
	3 B	191	13.3	18.2	77.7
	4 other	235	16.4	22.3	100.0
	Total	1052	73.5	100.0	
Missing	-2 Did not attend	249	17.4		
	-1 Not classifiable	131	9.1		
	Total	380	26.5		
Total		1432	100.0		

**cf523 OME at 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	95	6.6	9.5	9.5
	2 AA	607	42.4	61.0	70.6
	3 B	122	8.5	12.3	82.8
	4 other	171	11.9	17.2	100.0
	Total	995	69.5	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Not classifiable	132	9.2		
	Total	437	30.5		
Total		1432	100.0		

**cf524 OME at 31 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	141	9.8	13.3	13.3
	2 AA	584	40.8	55.0	68.3
	3 B	146	10.2	13.8	82.1
	4 other	190	13.3	17.9	100.0
	Total	1061	74.1	100.0	
Missing	-2 Did not attend	297	20.7		
	-1 Not classifiable	74	5.2		
	Total	371	25.9		
Total		1432	100.0		

**cf525 OME at 37 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	91	6.4	9.0	9.0
	2 AA	668	46.6	65.7	74.7
	3 B	93	6.5	9.2	83.9
	4 other	164	11.5	16.1	100.0
	Total	1016	70.9	100.0	
Missing	-2 Did not attend	351	24.5		
	-1 Not classifiable	65	4.5		
	Total	416	29.1		
Total		1432	100.0		

**cf526 OME at 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	123	8.6	11.8	11.8
	2 AA	506	35.3	48.7	60.5
	3 B	154	10.8	14.8	75.4
	4 other	256	17.9	24.6	100.0
	Total	1039	72.6	100.0	
Missing	-2 Did not attend	367	25.6		
	-1 Not classifiable	26	1.8		
	Total	393	27.4		
Total		1432	100.0		

**cf527 OME at 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	57	4.0	5.9	5.9
	2 AA	594	41.5	61.8	67.7
	3 B	100	7.0	10.4	78.1
	4 other	210	14.7	21.9	100.0
	Total	961	67.1	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Not classifiable	71	5.0		
	Total	471	32.9		
Total		1432	100.0		

**cf528 OME at 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 BB	68	4.7	7.2	7.2
	2 AA	543	37.9	57.2	64.4
	3 B	91	6.4	9.6	74.0
	4 other	247	17.2	26.0	100.0
	Total	949	66.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Not classifiable	45	3.1		
	Total	483	33.7		
Total		1432	100.0		

**Ear tester**

Variable name	Clinic	1	2	3	4	5	6	7	-1 (missing)
cf530	8m	320	216	170	158	450	-	-	-
cf531	12m	405	340	335	102	59	-	-	-
cf532	18m	352	442	370	6	12	-	-	1
cf533	25m	263	281	302	280	-	-	-	1
cf534	31m	165	503	121	346	-	-	-	-
cf535	37m	157	76	184	251	186	227	-	-
cf536	43m	222	192	148	232	85	186	-	-
cf537	49m	195	203	253	112	95	56	118	-
cf538	61m	430	557	-	-	-	-	-	7

**cf539a Tinnitus identified at 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	76	5.3	9.1	9.1
	2 No	758	52.9	90.9	100.0
	Total	834	58.2	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	160	11.2		
	Total	598	41.8		
Total		1432	100.0		

**cf539b Referred at 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	165	11.5	16.6	16.6
	2 No	828	57.8	83.4	100.0
	Total	993	69.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	1	.1		
	Total	439	30.7		
Total		1432	100.0		

### 3.2.2 Hearing

To assess the child's hearing as well as the impact, if any, of OME, hearing was measured at 31 months, 43 months and at 61 months.

#### Method

Trained staff used the IMATT (Institute of Hearing Research McCormick Automated Toy Test) in a soundproof room to assess the child's hearing down to 35 db.

The IMATT involves the child attempting to identify which out of 14 objects is requested by a pre-recorded message coming from an audio speaker at varying volume levels on a number of successive trials. The objects are in pairs with similar sounds so that error most commonly arises when an item is confused with its pair member, for example 'man' and 'lamb'. Precautions were taken to ensure that the children were familiar with all of the items before the test began. In the event that some were unknown, the pair(s) was removed and the remaining pairs were included in the test. The volume of the instruction decreased and increased 6 times in order to pinpoint the level to which the child could hear. The word discrimination threshold is defined as the minimal level at which the subject responds correctly. A reversal is defined as the transition between an increasing to a decreasing level or vice versa (here a maximum of six).

The percentage of children who were able to complete the test at 31 months (86%) was much higher than was anticipated before the clinic began, and is a tribute to the skill and patience of the staff and to Liz Midgeley who trained them. At 43 months, 98% completed and 99% at 61 months.

## Hearing at 31 months

At 31 and 43 months it was found necessary to distinguish between children who refused to attempt the test and those who seemed willing to try but had not yet reached the stage of psychological development when they can transfer human characteristics onto non-human objects.

cf550 Hearing (McC) tested 31 mth

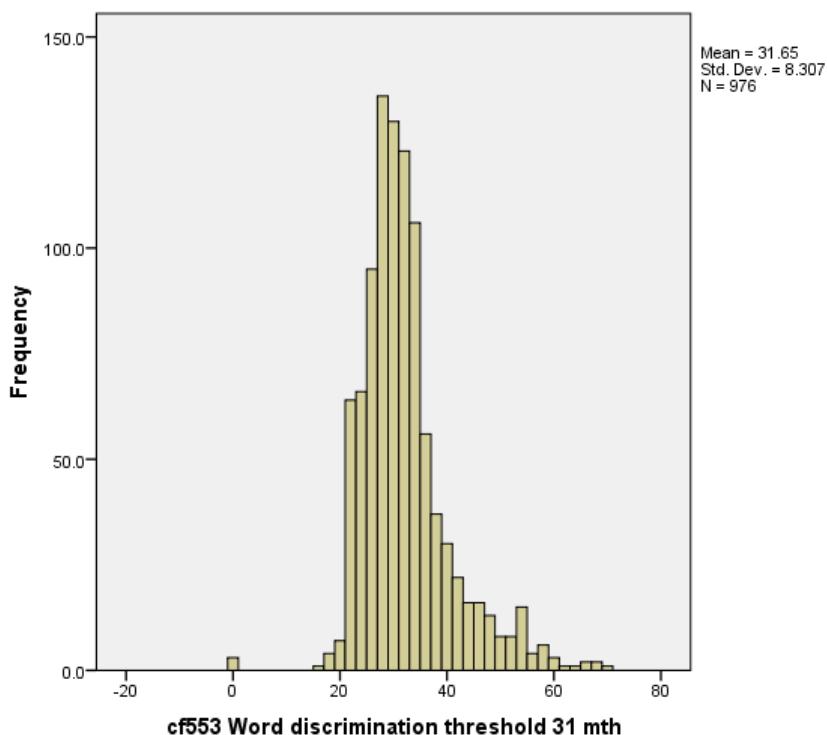
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	974	68.0	85.8	85.8
	2 No	67	4.7	5.9	91.7
	3 Did not co-op/ustand	94	6.6	8.3	100.0
	Total	1135	79.3	100.0	
Missing	-2 Did not attend	297	20.7		
Total		1432	100.0		

cf551 No. pairs recognised 31 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	.2	.3	.3
	3	1	.1	.1	.4
	4	9	.6	.9	1.3
	5	71	5.0	7.3	8.6
	6	338	23.6	34.6	43.2
	7	554	38.7	56.8	100.0
	Total	976	68.2	100.0	
Missing	-3 Test not done	67	4.7		
	-2 Did not attend	297	20.7		
	-1 Missing	92	6.4		
	Total	456	31.8		
Total		1432	100.0		

cf552 No. reversals 31 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	.2	.3	.3
	1	9	.6	.9	1.2
	2	9	.6	.9	2.2
	3	19	1.3	1.9	4.1
	4	2	.1	.2	4.3
	5	19	1.3	1.9	6.3
	6	914	63.8	93.7	100.0
	Total	975	68.1	100.0	
Missing	-3 Test not done	67	4.7		
	-2 Did not attend	297	20.7		
	-1 Missing	93	6.5		
	Total	457	31.9		
Total		1432	100.0		



### Hearing at 43 months

cf560 Hearing (McC) tested 43 mth

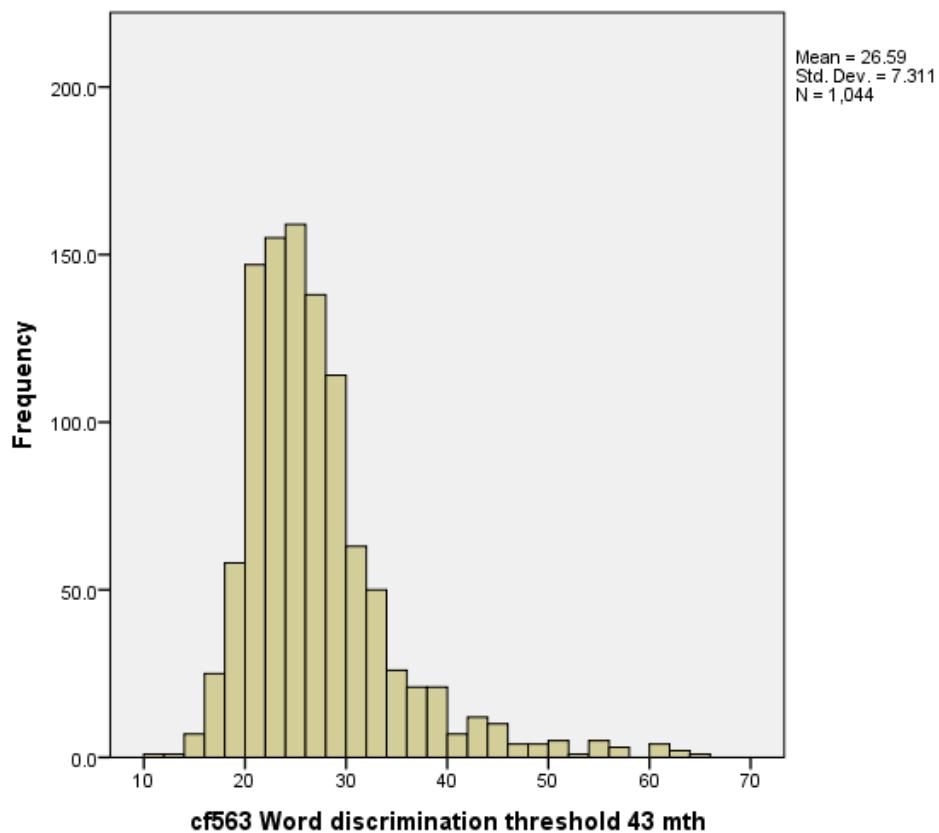
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1044	72.9	98.0	98.0
	2 No	8	.6	.8	98.8
	3 Did not co-op/ustand	13	.9	1.2	100.0
	Total	1065	74.4	100.0	
Missing	-2 Did not attend	367	25.6		
Total		1432	100.0		

cf561 No. pairs recognised 43 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	.1	.1	.1
	5	3	.2	.3	.4
	6	90	6.3	8.6	9.0
	7	947	66.1	91.0	100.0
	Total	1041	72.7	100.0	
Missing	-3 Test not done	8	.6		
	-2 Did not attend	367	25.6		
	-1 Missing	16	1.1		
	Total	391	27.3		
Total		1432	100.0		

**cf562 No. reversals 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.1	.1	.1
	3	4	.3	.4	.5
	5	5	.3	.5	1.0
	6	1032	72.1	99.0	100.0
	Total	1042	72.8	100.0	
Missing	-3 Test not done	8	.6		
	-2 Did not attend	367	25.6		
	-1 Missing	15	1.0		
	Total	390	27.2		
Total		1432	100.0		



**cf564 Hearing tester 43 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	222	15.5	20.8	20.8
	2	192	13.4	18.0	38.9
	3	148	10.3	13.9	52.8
	4	232	16.2	21.8	74.6
	5	85	5.9	8.0	82.5
	6	186	13.0	17.5	100.0
Missing	Total	1065	74.4	100.0	
	-2 Did not attend	367	25.6		
Total		1432	100.0		

## Hearing at 61 months

At this age, pure tone audiometry was carried out using the range 500 Hz to 8000 Hz in 500, 1000, 2000, 4000 and 8000 Hz steps in each ear. The McCormick Automated Toy Test was also administered. Here the test was performed in quiet conditions and in noise conditions.

cf570 Hearing (McC Quiet) tested 61 mth

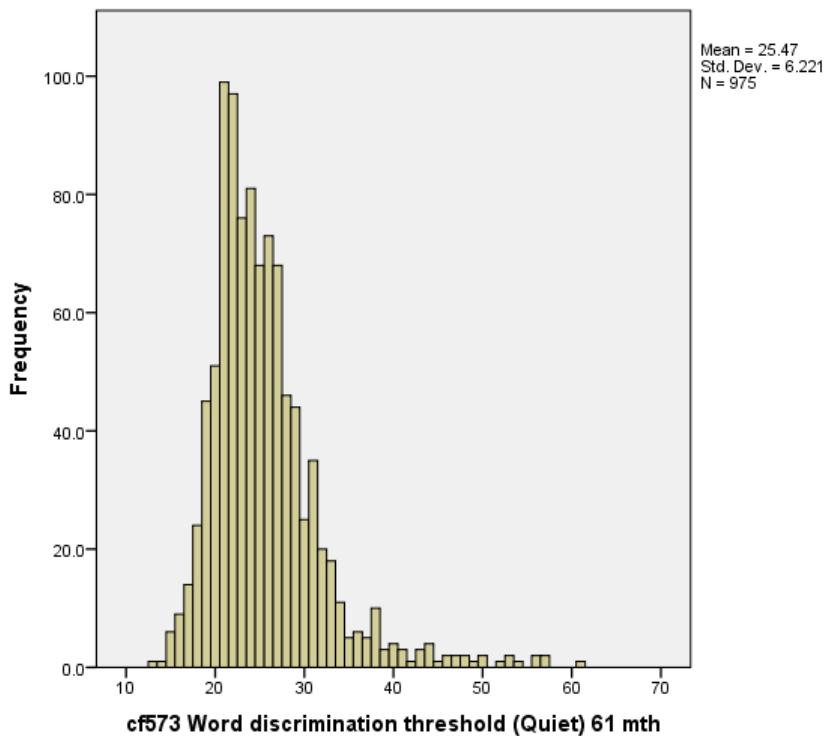
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	981	68.5	98.7	98.7
	2 No	13	.9	1.3	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	438	30.6		
Total		1432	100.0		

cf571 No. pairs recognised (Q) 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	1	.1	.1	.1
	5	3	.2	.3	.4
	6	11	.8	1.1	1.5
	7	960	67.0	98.5	100.0
	Total	975	68.1	100.0	
Missing	-3 Test not done	13	.9		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	457	31.9		
Total		1432	100.0		

cf572 No. reversals (Q) 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	.1	.2	.2
	3	2	.1	.2	.4
	5	1	.1	.1	.5
	6	968	67.6	99.3	99.8
	7	2	.1	.2	100.0
Missing	Total	975	68.1	100.0	
	-3 Test not done	13	.9		
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
Total		457	31.9		
		1432	100.0		



cf574 Hearing (McC Noise) tested 61 mth

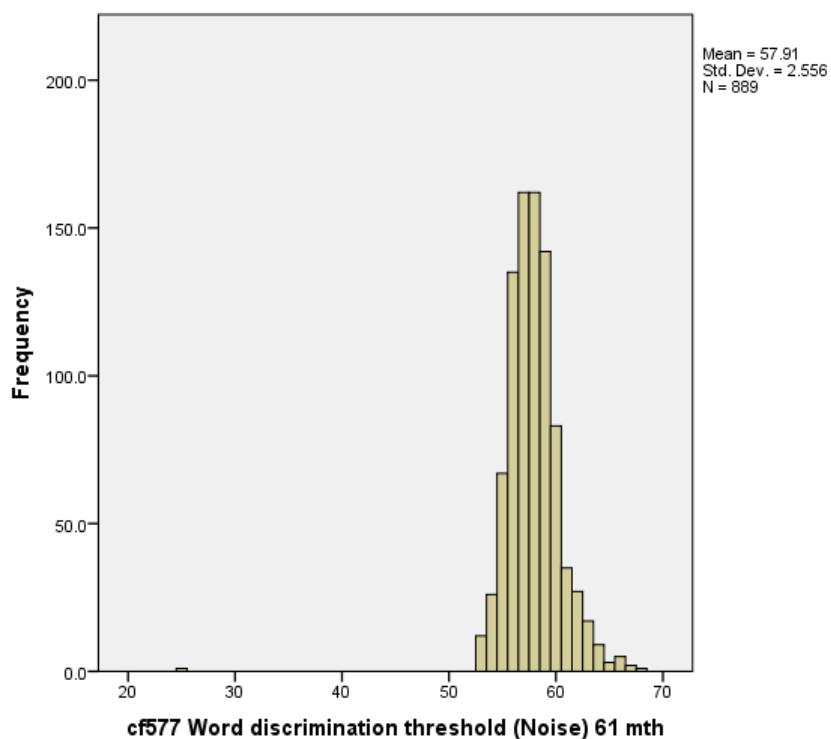
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	981	68.5	98.7	98.7
	2 No	13	.9	1.3	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	438	30.6		
Total		1432	100.0		

cf575 No. pairs recognised (N) 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	2	.1	.2	.2
	6	11	.8	1.2	1.5
	7	876	61.2	98.5	100.0
Missing	Total	889	62.1	100.0	
	-3 Test not done	13	.9		
	-2 Did not attend	438	30.6		
	-1 Missing	92	6.4		
Total		543	37.9		
Total		1432	100.0		

**cf576 No. reversals (N) 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.1	.1	.1
	3	1	.1	.1	.2
	5	2	.1	.2	.4
	6	884	61.7	99.4	99.9
	7	1	.1	.1	100.0
	Total	889	62.1	100.0	
Missing	-3 Test not done	13	.9		
	-2 Did not attend	438	30.6		
	-1 Missing	92	6.4		
	Total	543	37.9		
Total		1432	100.0		



## Audiometry at 61 months

**cf540 Audiometry done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	976	68.2	98.2	98.2
	2 No	18	1.3	1.8	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	438	30.6		
Total		1432	100.0		

**cf541 Bone conduction 500 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	26	1.8	39.4	39.4
	5	15	1.0	22.7	62.1
	10	19	1.3	28.8	90.9
	15	4	.3	6.1	97.0
	20	2	.1	3.0	100.0
	Total	66	4.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	928	64.8		
	Total	1366	95.4		
Total		1432	100.0		

**cf541a Audiometry R ear 500 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	.3	1.5	1.5
	5	16	1.1	5.9	7.3
	10	36	2.5	13.2	20.5
	15	72	5.0	26.4	46.9
	20	62	4.3	22.7	69.6
	25	28	2.0	10.3	79.9
	30	22	1.5	8.1	87.9
	35	12	.8	4.4	92.3
	40	12	.8	4.4	96.7
	45	6	.4	2.2	98.9
	50	3	.2	1.1	100.0
	Total	273	19.1	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	721	50.3		
	Total	1159	80.9		
Total		1432	100.0		

**cf541b Audiometry L ear 500 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	.1	.7	.7
	5	10	.7	3.7	4.4
	10	38	2.7	14.0	18.4
	15	64	4.5	23.5	41.9
	20	67	4.7	24.6	66.5
	25	42	2.9	15.4	82.0
	30	16	1.1	5.9	87.9
	35	12	.8	4.4	92.3
	40	6	.4	2.2	94.5
	45	8	.6	2.9	97.4
	50	5	.3	1.8	99.3
	55	1	.1	.4	99.6
	60	1	.1	.4	100.0
Missing	Total	272	19.0	100.0	
	-2 Did not attend	438	30.6		
	-1 Missing	722	50.4		
Total		1160	81.0		
Total		1432	100.0		

**cf542 Bone conduction 1000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	284	19.8	49.1	49.1
	5	189	13.2	32.7	81.8
	10	79	5.5	13.7	95.5
	15	21	1.5	3.6	99.1
	20	2	.1	.3	99.5
	25	1	.1	.2	99.7
	30	2	.1	.3	100.0
	Total	578	40.4	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	416	29.1		
	Total	854	59.6		
Total		1432	100.0		

**cf542a Audiometry R ear 1000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	39	2.7	4.0	4.0
	5	143	10.0	14.8	18.9
	10	262	18.3	27.2	46.1
	15	282	19.7	29.3	75.3
	20	133	9.3	13.8	89.1
	25	42	2.9	4.4	93.5
	30	17	1.2	1.8	95.2
	35	18	1.3	1.9	97.1
	40	11	.8	1.1	98.2
	45	11	.8	1.1	99.4
	50	4	.3	.4	99.8
	55	2	.1	.2	100.0
	Total	964	67.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	30	2.1		
	Total	468	32.7		
Total		1432	100.0		

**cf542b Audiometry L ear 1000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	66	4.6	6.9	6.9
	5	191	13.3	19.9	26.7
	10	243	17.0	25.3	52.0
	15	251	17.5	26.1	78.1
	20	116	8.1	12.1	90.2
	25	32	2.2	3.3	93.5
	30	22	1.5	2.3	95.8
	35	16	1.1	1.7	97.5
	40	13	.9	1.4	98.9
	45	7	.5	.7	99.6
	50	2	.1	.2	99.8
	55	1	.1	.1	99.9
	65	1	.1	.1	100.0
	Total	961	67.1	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	33	2.3		
	Total	471	32.9		
	Total	1432	100.0		

**cf543 Bone conduction 2000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	.2	30.0	30.0
	5	4	.3	40.0	70.0
	10	2	.1	20.0	90.0
	15	1	.1	10.0	100.0
	Total	10	.7	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	984	68.7		
	Total	1422	99.3		
	Total	1432	100.0		

**cf543a Audiometry R ear 2000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	.3	3.5	3.5
	5	39	2.7	27.5	31.0
	10	34	2.4	23.9	54.9
	15	36	2.5	25.4	80.3
	20	11	.8	7.7	88.0
	25	7	.5	4.9	93.0
	30	1	.1	.7	93.7
	35	5	.3	3.5	97.2
	40	2	.1	1.4	98.6
	50	2	.1	1.4	100.0
	Total	142	9.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	852	59.5		
	Total	1290	90.1		
	Total	1432	100.0		

**cf543b Audiometry L ear 2000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	7	.5	4.9	4.9
	5	32	2.2	22.5	27.5
	10	45	3.1	31.7	59.2
	15	36	2.5	25.4	84.5
	20	6	.4	4.2	88.7
	25	5	.3	3.5	92.3
	30	5	.3	3.5	95.8
	35	1	.1	.7	96.5
	40	5	.3	3.5	100.0
	Total	142	9.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	852	59.5		
	Total	1290	90.1		
Total		1432	100.0		

**cf543c Audiometry check 1000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	51	3.6	5.6	5.6
	5	165	11.5	18.1	23.7
	10	240	16.8	26.3	50.0
	15	231	16.1	25.3	75.3
	20	126	8.8	13.8	89.1
	25	42	2.9	4.6	93.8
	30	20	1.4	2.2	95.9
	35	11	.8	1.2	97.1
	40	8	.6	.9	98.0
	45	11	.8	1.2	99.2
	50	5	.3	.5	99.8
	55	2	.1	.2	100.0
	Total	912	63.7	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	82	5.7		
	Total	520	36.3		
Total		1432	100.0		

**cf544 Bone conduction 4000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	218	15.2	53.3	53.3
	5	138	9.6	33.7	87.0
	10	44	3.1	10.8	97.8
	15	7	.5	1.7	99.5
	20	2	.1	.5	100.0
	Total	409	28.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	585	40.9		
	Total	1023	71.4		
Total		1432	100.0		

**cf544a Audiometry R ear 4000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	129	9.0	13.9	13.9
	5	220	15.4	23.8	37.7
	10	262	18.3	28.3	66.0
	15	156	10.9	16.8	82.8
	20	75	5.2	8.1	90.9
	25	29	2.0	3.1	94.1
	30	16	1.1	1.7	95.8
	35	10	.7	1.1	96.9
	40	11	.8	1.2	98.1
	45	10	.7	1.1	99.1
	50	4	.3	.4	99.6
	55	3	.2	.3	99.9
	65	1	.1	.1	100.0
	Total	926	64.7	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	68	4.7		
	Total	506	35.3		
Total		1432	100.0		

**cf544b Audiometry L ear 4000 Hz 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	87	6.1	9.3	9.3
	5	174	12.2	18.5	27.8
	10	265	18.5	28.2	56.0
	15	220	15.4	23.4	79.4
	20	109	7.6	11.6	91.0
	25	22	1.5	2.3	93.3
	30	18	1.3	1.9	95.2
	35	13	.9	1.4	96.6
	40	11	.8	1.2	97.8
	45	7	.5	.7	98.5
	50	9	.6	1.0	99.5
	55	3	.2	.3	99.8
	60	1	.1	.1	99.9
	65	1	.1	.1	100.0
	Total	940	65.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	54	3.8		
	Total	492	34.4		
Total		1432	100.0		

cf545a Audiometry R ear 8000 Hz 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11	.8	2.0	2.0
	5	52	3.6	9.7	11.7
	10	95	6.6	17.7	29.4
	15	150	10.5	27.9	57.4
	20	124	8.7	23.1	80.4
	25	63	4.4	11.7	92.2
	30	28	2.0	5.2	97.4
	35	5	.3	.9	98.3
	40	7	.5	1.3	99.6
	45	2	.1	.4	100.0
Total		537	37.5	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	457	31.9		
	Total	895	62.5		
Total		1432	100.0		

cf545b Audiometry L ear 8000 Hz 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	7	.5	1.3	1.3
	5	41	2.9	7.7	9.0
	10	105	7.3	19.6	28.6
	15	153	10.7	28.6	57.2
	20	130	9.1	24.3	81.5
	25	60	4.2	11.2	92.7
	30	24	1.7	4.5	97.2
	35	6	.4	1.1	98.3
	40	2	.1	.4	98.7
	45	2	.1	.4	99.1
	55	3	.2	.6	99.6
	60	1	.1	.2	99.8
	65	1	.1	.2	100.0
	Total	535	37.4	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	459	32.1		
	Total	897	62.6		
Total		1432	100.0		

### 3.3 Speech and language assessment

#### Method at 25 months

The aim of the assessment procedures was to gather as much detailed data on each child's communication development using the maximum amount of standardised test material within the very short time constraints of the clinic setting (i.e. 15 minutes maximum per child).

##### 3.3.1 Parental/carer questionnaire at 25 mths

Questions included the parent/carers report of their child's stage of expressive speech-language development, associated features (e.g. pretend play, imitative ability, concentration). The questions were not standardised but were based on indicators of speech-language difficulties as expressed by experienced Speech- Language Therapists (Roulstone 1992) and on the current format of questions addressed to parents in the Bristol Surveillance of Children's Communication procedure (Gale et al 1993).

The Parental/Carer questionnaire was piloted on 20 children of 24 months of age and modified twice to make statements simpler to understand.

The questionnaire was completed by parents/carers in the clinic room whilst the tester settled the child. Completion was within 1-2 minutes and help was offered to parents experiencing difficulty.

**cf400 Speech Q completed 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1125	78.6	99.8	99.8
	2 No	2	.1	.2	100.0
	Total	1127	78.7	100.0	
Missing	-2 Did not attend	305	21.3		
Total		1432	100.0		

**cf401 'Does pretend play' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 often	681	47.6	60.9	60.9
	2 sometimes	406	28.4	36.3	97.2
	3 not at all	31	2.2	2.8	100.0
	Total	1118	78.1	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	9	.6		
	Total	314	21.9		
Total		1432	100.0		

**cf402 'Enjoys picture books' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 very much	964	67.3	86.3	86.3
	2 sometimes	150	10.5	13.4	99.7
	3 not at all	3	.2	.3	100.0
	Total	1117	78.0	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	10	.7		
	Total	315	22.0		
Total		1432	100.0		

**cf403 'Takes turns' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 usually	246	17.2	22.1	22.1
	2 sometimes	789	55.1	70.9	93.0
	3 never	78	5.4	7.0	100.0
	Total	1113	77.7	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	14	1.0		
	Total	319	22.3		
Total		1432	100.0		

**cf404 'Flits from activity to activity' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 yes	608	42.5	55.1	55.1
	2 no	476	33.2	43.2	98.3
	3 sometimes	19	1.3	1.7	100.0
	Total	1103	77.0	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	24	1.7		
	Total	329	23.0		
Total		1432	100.0		

**cf405 'Lives in world of own' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 usually	26	1.8	2.3	2.3
	2 sometimes	752	52.5	67.9	70.2
	3 never	330	23.0	29.8	100.0
	Total	1108	77.4	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	19	1.3		
	Total	324	22.6		
Total		1432	100.0		

**cf406 'Imitates words/sounds' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 usually	862	60.2	77.2	77.2
	2 sometimes	239	16.7	21.4	98.6
	3 never	16	1.1	1.4	100.0
	Total	1117	78.0	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	10	.7		
	Total	315	22.0		
Total		1432	100.0		

**cf407 'Talks to themself' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 not at all	36	2.5	3.2	3.2
	2 sometimes	469	32.8	41.9	45.2
	3 often	491	34.3	43.9	89.1
	4 always	122	8.5	10.9	100.0
	Total	1118	78.1	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	9	.6		
	Total	314	21.9		
Total		1432	100.0		

**cf408 'Talking stages' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 babble noises	41	2.9	3.7	3.7
	3 single words	165	11.5	14.8	18.4
	4 two words together	303	21.2	27.1	45.5
	5 3/4 word sentences	609	42.5	54.5	
	Total	1118	78.1	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	9	.6		
	Total	314	21.9		
Total		1432	100.0		

**cf409 'Enjoys talking' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 most of time	738	51.5	67.1	67.1
	2 sometimes	325	22.7	29.5	96.6
	3 not at all	37	2.6	3.4	
	Total	1100	76.8	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	27	1.9		
	Total	332	23.2		
Total		1432	100.0		

**cf410 'How often silent when awake' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 most of time	18	1.3	1.6	1.6
	2 some of time	423	29.5	37.9	39.5
	3 occasionally	521	36.4	46.7	86.2
	4 never	154	10.8	13.8	
	Total	1116	77.9	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	11	.8		
	Total	316	22.1		
Total		1432	100.0		

**cf411 'Takes turns talking' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 yes, seems to know	832	58.1	75.2	75.2
	2 no, doesn't seem to know	275	19.2	24.8	
	Total	1107	77.3	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	20	1.4		
	Total	325	22.7		
Total		1432	100.0		

**cf412 'How often follows instructions' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 not at all	8	.6	.7	.7
	2 sometimes	134	9.4	12.0	12.7
	3 often	976	68.2	87.3	100.0
	Total	1118	78.1	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	9	.6		
	Total	314	21.9		
Total		1432	100.0		

**cf413 'Points to body parts' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 not at all	6	.4	.5	.5
	2 sometimes	109	7.6	9.7	10.3
	3 often	1003	70.0	89.7	100.0
	Total	1118	78.1	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	9	.6		
	Total	314	21.9		
Total		1432	100.0		

**cf414 'Can carer understand child' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 most of time	920	64.2	82.5	82.5
	2 sometimes	164	11.5	14.7	97.2
	3 rarely	23	1.6	2.1	99.3
	4 doesnt talk at all	8	.6	.7	100.0
	Total	1115	77.9	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	12	.8		
	Total	317	22.1		
Total		1432	100.0		

**cf415 'How describe childs talking' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 very easy to understand	273	19.1	24.7	24.7
	2 fairly easy to understand	675	47.1	61.1	85.8
	3 difficult to understand	140	9.8	12.7	98.5
	4 doesnt talk at all	17	1.2	1.5	100.0
Missing	Total	1105	77.2	100.0	
	-2 Did not attend	305	21.3		
	-1 Missing	22	1.5		
Total	Total	327	22.8		
Total		1432	100.0		

**cf416 'Hoarse/husky voice' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 never	807	56.4	72.7	72.7
	2 sometimes	287	20.0	25.9	98.6
	3 often	16	1.1	1.4	100.0
	Total	1110	77.5	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	17	1.2		
	Total	322	22.5		
Total		1432	100.0		

**cf417 'Stuck/repeat words' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 never	781	54.5	70.2	70.2
	2 sometimes	217	15.2	19.5	89.7
	3 often	16	1.1	1.4	91.2
	4 cant tell	98	6.8	8.8	100.0
Total		1112	77.7	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	15	1.0		
	Total	320	22.3		
Total		1432	100.0		

**cf418 'How many words child has' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 no words	9	.6	.8	.8
	2 1-10 words	89	6.2	8.0	8.8
	3 10-30 words	273	19.1	24.5	33.2
	4 > 30 words	745	52.0	66.8	100.0
Total		1116	77.9	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	11	.8		
	Total	316	22.1		
Total		1432	100.0		

**cf419 'Tries to sing rhymes/tunes' Speech Q 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 often	677	47.3	60.7	60.7
	2 sometimes	326	22.8	29.2	90.0
	3 not really	112	7.8	10.0	100.0
	Total	1115	77.9	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	12	.8		
	Total	317	22.1		
Total		1432	100.0		

### 3.3.2 Clinical assessment at 25 mths

Two psychology graduates who were familiar with the Children in Focus population and the clinical setting were trained to complete the assessment procedures.

The sequence of training was as follows:

1. An experienced Speech-Language Therapist demonstrated the assessments and discussed their rationale and practical considerations.
2. The assessment procedures were demonstrated using two children and a oneway observational mirror.
3. The two testers practised the assessment procedures (a) without children, (b) videoed with 2 children, (c) with 2 children in a playgroup under supervision.
4. The first 2 days of data collection were supervised and discussed using two Speech-Language Therapists.
5. After two weeks data collection, further discussion and observation of the testers took place.
6. After 9 weeks the Inter-Tester Reliability procedure began and continued for 4 weeks at random intervals. An experienced Speech-Language Therapist unknown to both testers was used.
7. Both graduates were retrained and reminded of assessment procedures at 14 weeks.

It should be noted that extra ear-training was needed by the testers initially together with explanation of phonological processes.

cf420 Speech tester 25 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	702	49.0	62.3	62.3
	2	425	29.7	37.7	
	Total	1127	78.7	100.0	
Missing	-2 Did not attend	305	21.3		
	Total	1432	100.0		

There were three forms of assessment: the Verbal Comprehension Sub-Scale of the Reynell Developmental Language Scale (RDLS), the Object Naming Assessment and observations. The description and their data summaries are listed below:

#### **The Reynell Developmental Language Scale (RDLS)**

Verbal Comprehensions Sub-Scale only. Devised by Dr. J. Reynell (1969), published by NFER-Nelson, Windsor. This is a standardised test of the understanding (comprehension) of spoken language in use in the United Kingdom.

Children are asked to carry out instructions of increasing complexity with a series of small toys. At first children have to select a toy on request either by touching, pointing or eye pointing (eg. Where is the horse? Where is the bed?); then the child is asked to manipulate the toys to show their understanding (eg. Put the spoon in the cup; put the brick in the box). The instructions gradually increase in number and complexity of the

concepts involved (eg put the white button underneath the cup; pick up the biggest pink pig and show me his eyes). The age range of the assessment is 1-7 years.

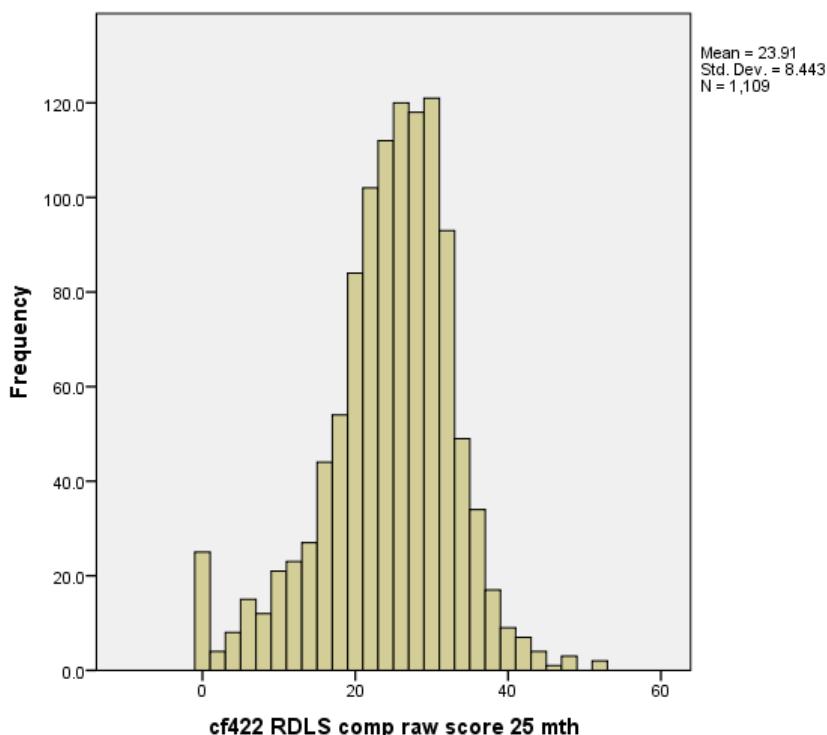
Only the Verbal Comprehension Scales were used for the following reasons:

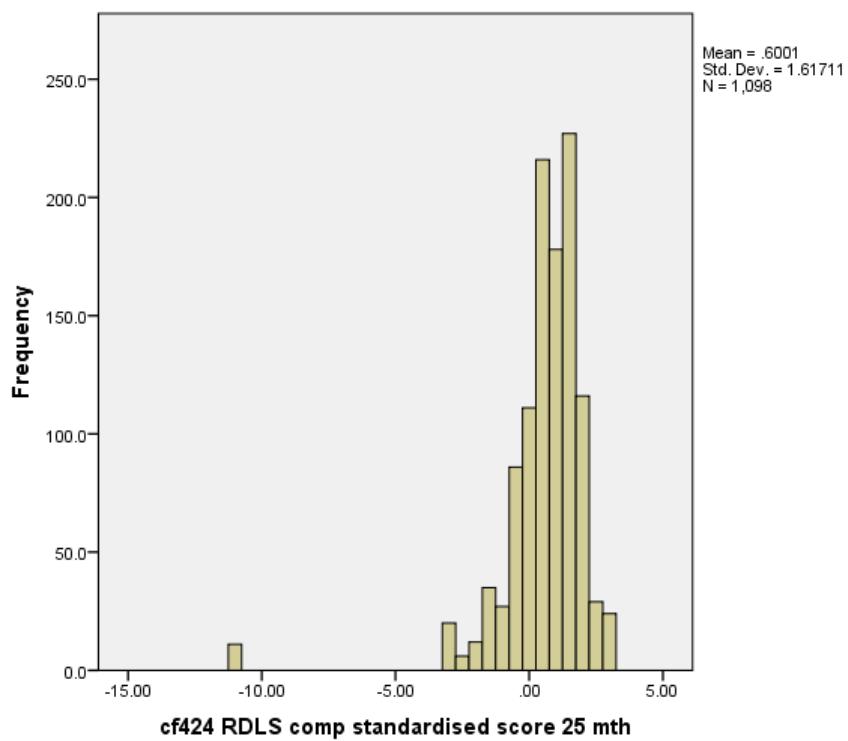
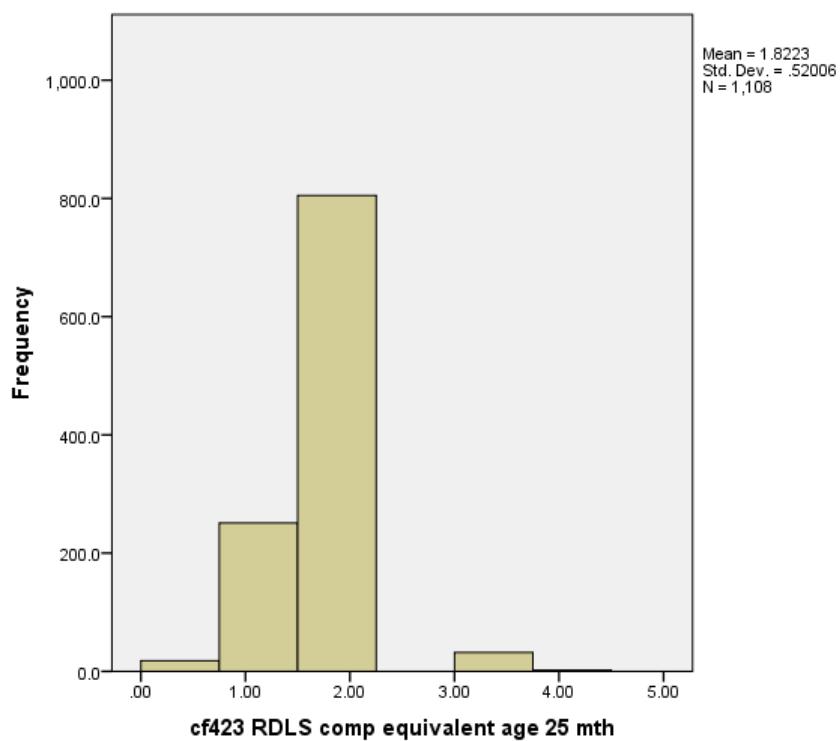
- Aspects of expression covered in the Expressive Scales were covered adequately in questionnaires used at other ages in the main ALSPAC studies.
- It was difficult to elicit the required expressive sample given the time and situational limitations of the clinic setting.
- The Expressive Scales were regarded by many experienced Speech Language Therapists as less reliable than the Comprehension Scale for various reasons (e.g. lack of multicultural items)

**cf421 Whether Reynell Developmental Language Scale (verbal comprehension) done: 25mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1115	77.9	98.9	98.9
	2 No	12	.8	1.1	100.0
	Total	1127	78.7	100.0	
Missing	-2 Did not attend	305	21.3		
	Total	1432	100.0		

The raw score for the RDLS is literally how many points a child got on the assessment and the standardised score provides an indicator of how the child performed compared to the children who were used to standardise the test at two years of age. The standardised score is calculated using the assessment manual's charts from the raw scores and has a mean of 0 with -1 and +1 being 1 standard deviation from the mean on the standardisation of the test.





## Object Naming Assessment (Phonology screening procedure)

This assessment was based upon a similar American procedure devised by Paden, Novak & Beiter (1987). Its purpose was to identify broad patterns of speech sound production. It was not a full phonological assessment of each child.

Standardised assessment procedures were not available for this young age group and would have been inappropriate because of the instability of word production at this age. Also the testers employed were not trained in phonetic transcription and unfortunately audio/video equipment was unavailable to the quality required.

Objects for the assessment were selected on the ground that they were common in the environment and vocabularies of most young British children and that when named they contained the maximum number of large sound patterns in speech production.

An object was either taken from a box by the tester who asked the child to name it or children were allowed to choose objects and name them spontaneously. Much depended on the confidence of the child which procedure was adopted and in most cases a mixture of the two techniques was employed.

If a child failed to name an object after 3 requests the tester named it clearly for the child, and encouraged imitation. Preisser (1983) had shown that there was no statistically significant difference in the target patterns whether words were produced by imitation or spontaneously by the child.

The Object Naming Assessment was piloted on 20 children (20-28 months of age). See section 3.3.3 for explanations of error responses.

cf428 No. of imitations 25 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	289	20.2	26.3	26.3
	1	115	8.0	10.5	36.8
	2	137	9.6	12.5	49.2
	3	149	10.4	13.6	62.8
	4	135	9.4	12.3	75.1
	5	82	5.7	7.5	82.5
	6	76	5.3	6.9	89.4
	7	40	2.8	3.6	93.1
	8	23	1.6	2.1	95.2
	9	21	1.5	1.9	97.1
	10	9	.6	.8	97.9
	11	9	.6	.8	98.7
	12	5	.3	.5	99.2
	13	4	.3	.4	99.5
	14	2	.1	.2	99.7
	15	2	.1	.2	99.9
	16	1	.1	.1	100.0
Missing	Total	1099	76.7	100.0	
	-2 Did not attend	305	21.3		
	-1 Missing	28	2.0		
	Total	333	23.3		
Total		1432	100.0		

**cf429 No. of unitelligible/no responses 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	554	38.7	50.8	50.8
	1	71	5.0	6.5	57.3
	2	36	2.5	3.3	60.6
	3	30	2.1	2.8	63.4
	4	28	2.0	2.6	66.0
	5	23	1.6	2.1	68.1
	6	21	1.5	1.9	70.0
	7	26	1.8	2.4	72.4
	8	14	1.0	1.3	73.7
	9	20	1.4	1.8	75.5
	10	11	.8	1.0	76.5
	11	14	1.0	1.3	77.8
	12	22	1.5	2.0	79.8
	13	15	1.0	1.4	81.2
	14	30	2.1	2.8	83.9
	15	36	2.5	3.3	87.2
	16	139	9.7	12.8	100.0
	Total	1090	76.1	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	37	2.6		
	Total	342	23.9		
Total		1432	100.0		

**cf430a No. of incorrect velars 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	300	20.9	27.7	27.7
	1	212	14.8	19.6	47.3
	2	181	12.6	16.7	64.0
	3	99	6.9	9.1	73.2
	4	66	4.6	6.1	79.3
	5	68	4.7	6.3	85.6
	6	41	2.9	3.8	89.4
	7	40	2.8	3.7	93.1
	8	26	1.8	2.4	95.5
	9	25	1.7	2.3	97.8
	10	13	.9	1.2	99.0
	11	11	.8	1.0	100.0
	Total	1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf430b No. of velars attempted 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	136	9.5	12.6	12.6
	1	33	2.3	3.0	15.6
	2	30	2.1	2.8	18.4
	3	23	1.6	2.1	20.5
	4	27	1.9	2.5	23.0
	5	26	1.8	2.4	25.4
	6	26	1.8	2.4	27.8
	7	27	1.9	2.5	30.3
	8	32	2.2	3.0	33.3
	9	51	3.6	4.7	38.0
	10	59	4.1	5.5	43.4
	11	612	42.7	56.6	100.0
Total		1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf431a No. of incorrect consonant clusters 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	159	11.1	14.7	14.7
	1	58	4.1	5.4	20.1
	2	52	3.6	4.8	24.9
	3	81	5.7	7.5	32.3
	4	83	5.8	7.7	40.0
	5	73	5.1	6.7	46.8
	6	71	5.0	6.6	53.3
	7	94	6.6	8.7	62.0
	8	103	7.2	9.5	71.5
	9	100	7.0	9.2	80.8
	10	107	7.5	9.9	90.7
	11	101	7.1	9.3	100.0
Total		1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf431b No. of consonants clusters attempted 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	130	9.1	12.0	12.0
	1	38	2.7	3.5	15.5
	2	29	2.0	2.7	18.2
	3	29	2.0	2.7	20.9
	4	31	2.2	2.9	23.8
	5	21	1.5	1.9	25.7
	6	31	2.2	2.9	28.6
	7	28	2.0	2.6	31.1
	8	39	2.7	3.6	34.8
	9	44	3.1	4.1	38.8
	10	70	4.9	6.5	45.3
	11	592	41.3	54.7	100.0
Total		1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf432a No. of incorrect liquids 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	210	14.7	19.4	19.4
	1	106	7.4	9.8	29.2
	2	100	7.0	9.2	38.4
	3	121	8.4	11.2	49.6
	4	83	5.8	7.7	57.3
	5	84	5.9	7.8	65.1
	6	98	6.8	9.1	74.1
	7	112	7.8	10.4	84.5
	8	88	6.1	8.1	92.6
	9	59	4.1	5.5	98.1
	10	21	1.5	1.9	100.0
	Total	1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf432b No. of liquids attempted 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	141	9.8	13.0	13.0
	1	48	3.4	4.4	17.5
	2	37	2.6	3.4	20.9
	3	23	1.6	2.1	23.0
	4	32	2.2	3.0	26.0
	5	35	2.4	3.2	29.2
	6	26	1.8	2.4	31.6
	7	38	2.7	3.5	35.1
	8	49	3.4	4.5	39.6
	9	69	4.8	6.4	46.0
	10	584	40.8	54.0	100.0
	Total	1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf433a No. of incorrect fricatives 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	236	16.5	21.8	21.8
	1	160	11.2	14.8	36.6
	2	167	11.7	15.4	52.1
	3	130	9.1	12.0	64.1
	4	87	6.1	8.0	72.2
	5	84	5.9	7.8	79.9
	6	73	5.1	6.8	86.7
	7	42	2.9	3.9	90.6
	8	37	2.6	3.4	94.0
	9	31	2.2	2.9	96.9
	10	16	1.1	1.5	98.3
	11	10	.7	.9	99.3
	12	8	.6	.7	100.0
	Total	1081	75.5	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	46	3.2		
	Total	351	24.5		
Total		1432	100.0		

**cf433b No. of fricatives attempted 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	132	9.2	12.2	12.2
	1	26	1.8	2.4	14.6
	2	40	2.8	3.7	18.3
	3	23	1.6	2.1	20.4
	4	12	.8	1.1	21.5
	5	25	1.7	2.3	23.8
	6	22	1.5	2.0	25.9
	7	27	1.9	2.5	28.4
	8	36	2.5	3.3	31.7
	9	43	3.0	4.0	35.7
	10	39	2.7	3.6	39.3
	11	53	3.7	4.9	44.2
	12	604	42.2	55.8	100.0
Total		1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf434a No. of incorrect postvocalics 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	406	28.4	37.5	37.5
	1	246	17.2	22.7	60.3
	2	120	8.4	11.1	71.3
	3	74	5.2	6.8	78.2
	4	53	3.7	4.9	83.1
	5	32	2.2	3.0	86.0
	6	29	2.0	2.7	88.7
	7	24	1.7	2.2	90.9
	8	15	1.0	1.4	92.3
	9	23	1.6	2.1	94.5
	10	10	.7	.9	95.4
	11	13	.9	1.2	96.6
	12	9	.6	.8	97.4
	13	16	1.1	1.5	98.9
	14	6	.4	.6	99.4
	15	6	.4	.6	100.0
Total		1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf434b No. of postvocalics attempted 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	114	8.0	10.5	10.5
	1	37	2.6	3.4	14.0
	2	30	2.1	2.8	16.7
	3	19	1.3	1.8	18.5
	4	18	1.3	1.7	20.1
	5	24	1.7	2.2	22.4
	6	14	1.0	1.3	23.7
	7	16	1.1	1.5	25.1
	8	26	1.8	2.4	27.5
	9	17	1.2	1.6	29.1
	10	25	1.7	2.3	31.4
	11	27	1.9	2.5	33.9
	12	30	2.1	2.8	36.7
	13	36	2.5	3.3	40.0
	14	76	5.3	7.0	47.0
	15	573	40.0	53.0	100.0
Total		1082	75.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	45	3.1		
	Total	350	24.4		
Total		1432	100.0		

**cf435 Version of speech test used 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	156	10.9	13.9	13.9
	2	969	67.7	86.1	100.0
	Total	1125	78.6	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	2	.1		
	Total	307	21.4		
Total		1432	100.0		

## Observations

Observations of the child's activity level, interest in test materials, willingness to participate, intelligibility to an unknown adult were noted.

The parent/carer was also asked if the child's performance in clinic was typical/untypical of the child, and also whether other languages were used in the home and which language was used mainly by the child.

**cf437 Childs performance according to carer -speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 fairly typical	950	66.3	85.0	85.0
	2 untypical	167	11.7	15.0	100.0
	Total	1117	78.0	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	10	.7		
	Total	315	22.0		
Total		1432	100.0		

**cf438 Childs activity level - speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 appropriate for age	998	69.7	90.6	90.6
	2 not active enough	91	6.4	8.3	98.8
	3 too active	13	.9	1.2	100.0
	Total	1102	77.0	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	25	1.7		
	Total	330	23.0		
Total		1432	100.0		

**cf439 Childs participation - speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 willingly most of time	834	58.2	75.8	75.8
	2 with much coaxing	190	13.3	17.3	93.1
	3 refused to cooperate	76	5.3	6.9	100.0
	Total	1100	76.8	100.0	
Missing	-2 Did not attend	305	21.3		
	-1 Missing	27	1.9		
	Total	332	23.2		
Total		1432	100.0		

**cf440 Child maintained interest - speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 most of time	669	46.7	74.9	74.9
	2 some of time	159	11.1	17.8	92.7
	3 rarely/fleeting interest	65	4.5	7.3	100.0
	Total	893	62.4	100.0	
Missing	-2 Did not attend	515	36.0		
	-1 Missing	24	1.7		
	Total	539	37.6		
Total		1432	100.0		

**cf441 Understanding child - speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 easy to understand	512	35.8	57.1	57.1
	2 difficult to understand	226	15.8	25.2	82.4
	3 mainly silent	158	11.0	17.6	100.0
	Total	896	62.6	100.0	
Missing	-2 Did not attend	515	36.0		
	-1 Missing	21	1.5		
	Total	536	37.4		
Total		1432	100.0		

**cf442 English is childs mother tongue -speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	881	61.5	97.5	97.5
	2 No	23	1.6	2.5	100.0
	Total	904	63.1	100.0	
Missing	-2 Did not attend	515	36.0		
	-1 Missing	13	.9		
	Total	528	36.9		
Total		1432	100.0		

**cf443 Number of languages spoken in home - speech 25 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	855	59.7	95.2	95.2
	2	42	2.9	4.7	99.9
	3	1	.1	.1	100.0
Missing	Total	898	62.7	100.0	
	-2 Did not attend	515	36.0		
	-1 Missing	19	1.3		
Total		534	37.3		
Total		1432	100.0		

## References

- Gale M, Holloway K, Roulstone S (1998). 'Identifying the need: the Bristol Surveillance of Children's Communication (BRISC)' *RCSLT Bulletin*: 491 (March 13).
- Paden EP, Novak MA & Beiter AL (1987). 'Predictors of phonologic inadequacy in young children prone to otitis media'. *Journal of Speech & Hearing Disorders*. 52: 232-242.
- Reynell J (1969). *The Reynell Developmental Language Scales - Revised Edition*. 1977, NFER: Nelson Windsor.
- Roulstone S (1992). 'Does the child need your help? Prioritising paediatric caseloads' *Human Communication*. 2 (1): 6-8.

### 3.3.3 Clinical assessment at 61 mths

Language and speech skills were assessed again at 61 months. The data will be used to investigate the consequences of otitis media with effusion ('glue ear') on later language and memory development.

All testing was undertaken by a trained speech and language therapist

#### Phonological Production

This was an adaption of the assessment performed at 25 months. As the children were 5 years of age, their phonology would be closer to that of the adult system and words were selected which produced a high proportion of clusters and polysyllabic contexts in order to increase difficulty. 20 words were presented to the child in pictorial form and they were asked to name them.

Responses were transcribed by the tester and frequencies of the following categories of error response were recorded:

- a) Additional syllables: The child fails to use the appropriate number of syllables in a polysyllabic word.
- b) Metathesis: Syllables or sounds within a word are transposed.
- c) Velars: Errors are made in sounds produced at the back of the mouth, raising the back of the tongue to the palate.
- d) Alveolars: Errors made on sounds in which the tongue tip is elevated to the alveolar ridge.
- e) Liquids: An error is made in producing the sounds l and r.
- f) Consonant clusters: The phonological structure of a consonant cluster is simplified.
- g) Post-vocalic: Consonants located after the vowel in a word are deleted.
- h) Fricatives: Errors made in producing certain target sounds.

cf450 Phonolgy done 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	981	68.5	99.3	99.3
	2 No	7	.5	.7	100.0
	Total	988	69.0	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		

**cf451 No. of imitations 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	28	2.0	2.9	2.9
	1	58	4.1	5.9	8.8
	2	133	9.3	13.5	22.3
	3	204	14.2	20.8	43.1
	4	162	11.3	16.5	59.6
	5	156	10.9	15.9	75.5
	6	117	8.2	11.9	87.4
	7	60	4.2	6.1	93.5
	8	35	2.4	3.6	97.0
	9	13	.9	1.3	98.4
	10	12	.8	1.2	99.6
	12	2	.1	.2	99.8
	18	1	.1	.1	99.9
	20	1	.1	.1	100.0
Total		982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf452 No. of unintelligible/no responses 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	941	65.7	96.0	96.0
	1	23	1.6	2.3	98.4
	2	5	.3	.5	98.9
	3	5	.3	.5	99.4
	5	3	.2	.3	99.7
	6	2	.1	.2	99.9
	13	1	.1	.1	100.0
	Total	980	68.4	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	14	1.0		
	Total	452	31.6		
Total		1432	100.0		

**cf453a No. of incorrect additional syllables 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	745	52.0	75.9	75.9
	1	181	12.6	18.4	94.3
	2	43	3.0	4.4	98.7
	3	11	.8	1.1	99.8
	4	2	.1	.2	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf453b No. of additional syllables attempted 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8	1	.1	.1	.1
	15	1	.1	.1	.2
	17	2	.1	.2	.4
	18	1	.1	.1	.5
	20	1	.1	.1	.6
	21	2	.1	.2	.8
	22	3	.2	.3	1.1
	23	2	.1	.2	1.3
	24	1	.1	.1	1.4
	25	10	.7	1.0	2.4
	26	9	.6	.9	3.4
	27	4	.3	.4	3.8
	28	2	.1	.2	4.0
	29	943	65.9	96.0	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
	Total	1432	100.0		

**cf454a No. of incorrect velars 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	667	46.6	67.9	67.9
	1	231	16.1	23.5	91.4
	2	37	2.6	3.8	95.2
	3	17	1.2	1.7	96.9
	4	13	.9	1.3	98.3
	5	4	.3	.4	98.7
	6	4	.3	.4	99.1
	7	2	.1	.2	99.3
	8	2	.1	.2	99.5
	9	3	.2	.3	99.8
	10	1	.1	.1	99.9
	11	1	.1	.1	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
	Total	1432	100.0		

**cf454b No. of velars attempted 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	1	.1	.1	.1
	6	2	.1	.2	.3
	8	5	.3	.5	.8
	9	12	.8	1.2	2.0
	10	10	.7	1.0	3.1
	11	952	66.5	96.9	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
	Total	1432	100.0		

**cf455a No. of incorrect alveolars 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	547	38.2	55.7	55.7
	1	216	15.1	22.0	77.7
	2	134	9.4	13.6	91.3
	3	42	2.9	4.3	95.6
	4	14	1.0	1.4	97.0
	5	9	.6	.9	98.0
	6	13	.9	1.3	99.3
	7	2	.1	.2	99.5
	8	2	.1	.2	99.7
	10	1	.1	.1	99.8
	12	1	.1	.1	99.9
	13	1	.1	.1	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf455b No. of alveolars attempted 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	.1	.1	.1
	7	1	.1	.1	.2
	8	3	.2	.3	.5
	10	1	.1	.1	.6
	11	9	.6	.9	1.5
	12	25	1.7	2.5	4.1
	13	942	65.8	95.9	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf456a No. of incorrect liquids 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	497	34.7	50.6	50.6
	1	167	11.7	17.0	67.6
	2	88	6.1	9.0	76.6
	3	63	4.4	6.4	83.0
	4	46	3.2	4.7	87.7
	5	40	2.8	4.1	91.8
	6	52	3.6	5.3	97.0
	7	12	.8	1.2	98.3
	8	3	.2	.3	98.6
	9	2	.1	.2	98.8
	10	2	.1	.2	99.0
	11	4	.3	.4	99.4
	12	2	.1	.2	99.6
	14	1	.1	.1	99.7
	15	1	.1	.1	99.8
	16	2	.1	.2	100.0
Total		982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf456b No. of liquids attempted 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7	1	.1	.1	.1
	10	1	.1	.1	.2
	11	3	.2	.3	.5
	12	2	.1	.2	.7
	13	1	.1	.1	.8
	14	13	.9	1.3	2.1
	15	5	.3	.5	2.6
	16	955	66.7	97.3	99.9
	22	1	.1	.1	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf457a No. of incorrect consonant clusters 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	491	34.3	50.0	50.0
	1	319	22.3	32.5	82.5
	2	104	7.3	10.6	93.1
	3	22	1.5	2.2	95.3
	4	11	.8	1.1	96.4
	5	10	.7	1.0	97.5
	6	9	.6	.9	98.4
	7	3	.2	.3	98.7
	8	2	.1	.2	98.9
	9	1	.1	.1	99.0
	11	4	.3	.4	99.4
	12	1	.1	.1	99.5
	14	3	.2	.3	99.8
	15	2	.1	.2	100.0
Total		982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf457b No. of consonant clusters attempted 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7	1	.1	.1	.1
	11	1	.1	.1	.2
	12	1	.1	.1	.3
	13	2	.1	.2	.5
	14	17	1.2	1.7	2.2
	15	960	67.0	97.8	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf458a No. of incorrect postvocalics 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	379	26.5	38.6	38.6
	1	409	28.6	41.6	80.2
	2	165	11.5	16.8	97.0
	3	21	1.5	2.1	99.2
	4	4	.3	.4	99.6
	5	1	.1	.1	99.7
	6	1	.1	.1	99.8
	8	1	.1	.1	99.9
	12	1	.1	.1	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf458b No. of postvocalics attempted**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	.1	.1	.1
	8	1	.1	.1	.2
	9	1	.1	.1	.3
	10	5	.3	.5	.8
	11	5	.3	.5	1.3
	12	30	2.1	3.1	4.4
	13	939	65.6	95.6	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf459a No. of incorrect fricatives 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		692	48.3	70.5	70.5
	1	224	15.6	22.8	93.3
	2	33	2.3	3.4	96.6
	3	8	.6	.8	97.5
	4	4	.3	.4	97.9
	5	5	.3	.5	98.4
	6	2	.1	.2	98.6
	7	2	.1	.2	98.8
	8	2	.1	.2	99.0
	9	4	.3	.4	99.4
	10	2	.1	.2	99.6
	12	2	.1	.2	99.8
	19	2	.1	.2	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf459b No. of fricatives attempted 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9	1	.1	.1	.1
	12	1	.1	.1	.2
	17	1	.1	.1	.3
	18	3	.2	.3	.6
	19	2	.1	.2	.8
	20	5	.3	.5	1.3
	21	19	1.3	1.9	3.3
	22	950	66.3	96.7	100.0
	Total	982	68.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	450	31.4		
Total		1432	100.0		

**cf460a No. of incorrect metathesis 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	852	59.5	86.9	86.9
	1	129	9.0	13.1	
	Total	981	68.5	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	13	.9		
	Total	451	31.5		
Total		1432	100.0		

**cf460b No. of metathesis attempted 61 mth**

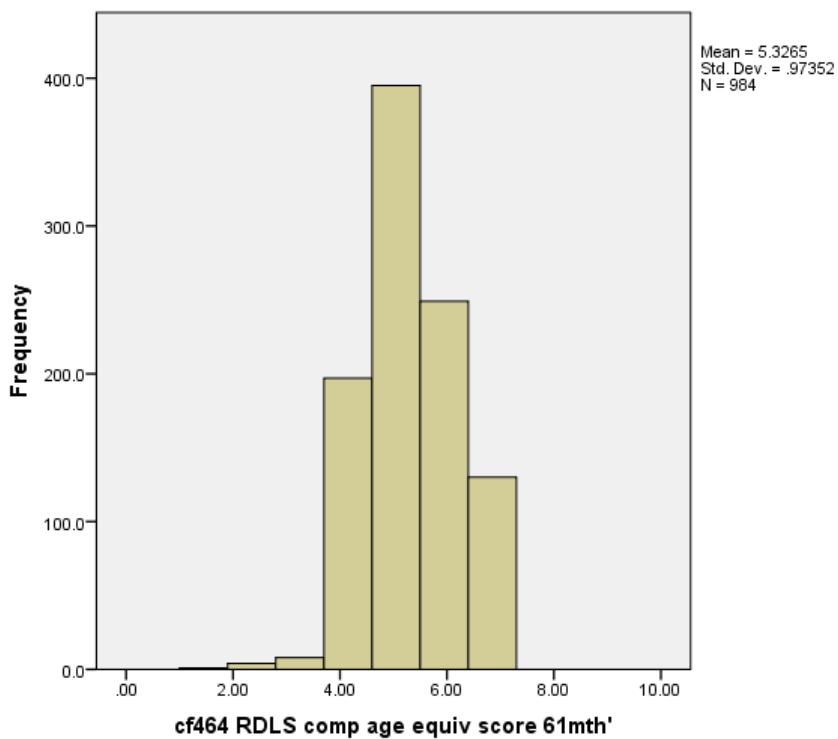
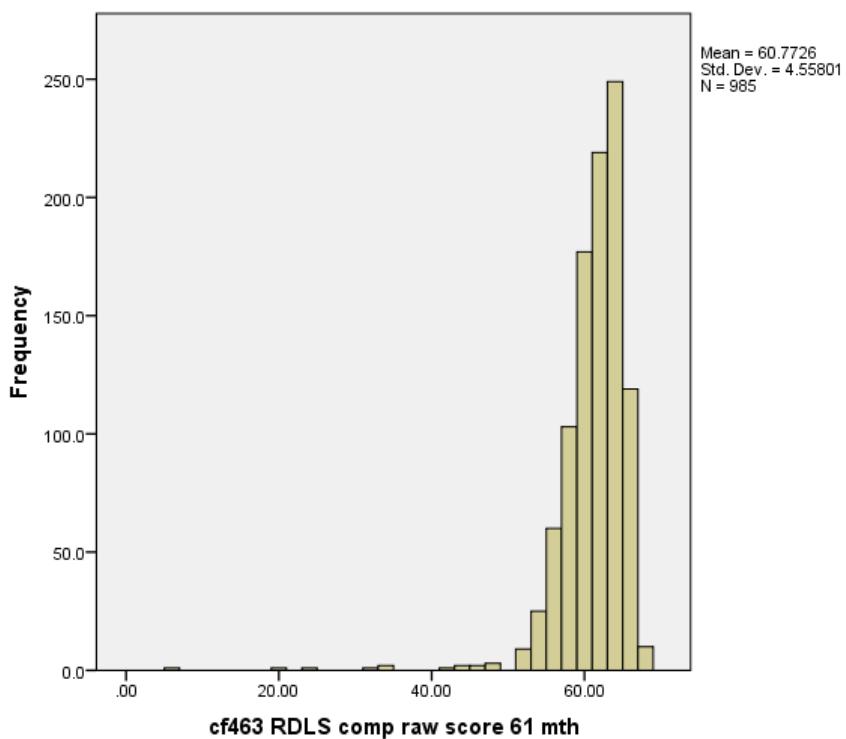
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	.3	100.0	100.0
	-2 Did not attend	438	30.6		
	-1 Missing	990	69.1		
Total		1428	99.7		
Total		1432	100.0		

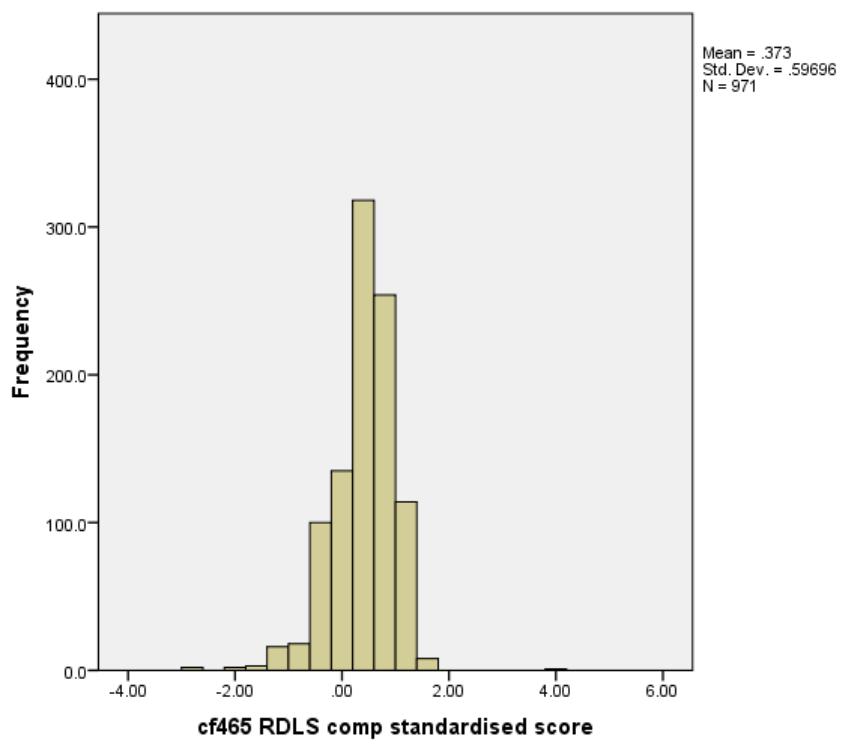
**Verbal comprehension subscale of the Reynell Developmental Language Scale**

A repeat of the test performed at 25 months. The child was required to select a target object in an array following verbal commands which increased in complexity.

**cf462 RDLS comp done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	984	68.7	99.6	99.6
	2 No	4	.3	.4	
	Total	988	69.0	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		





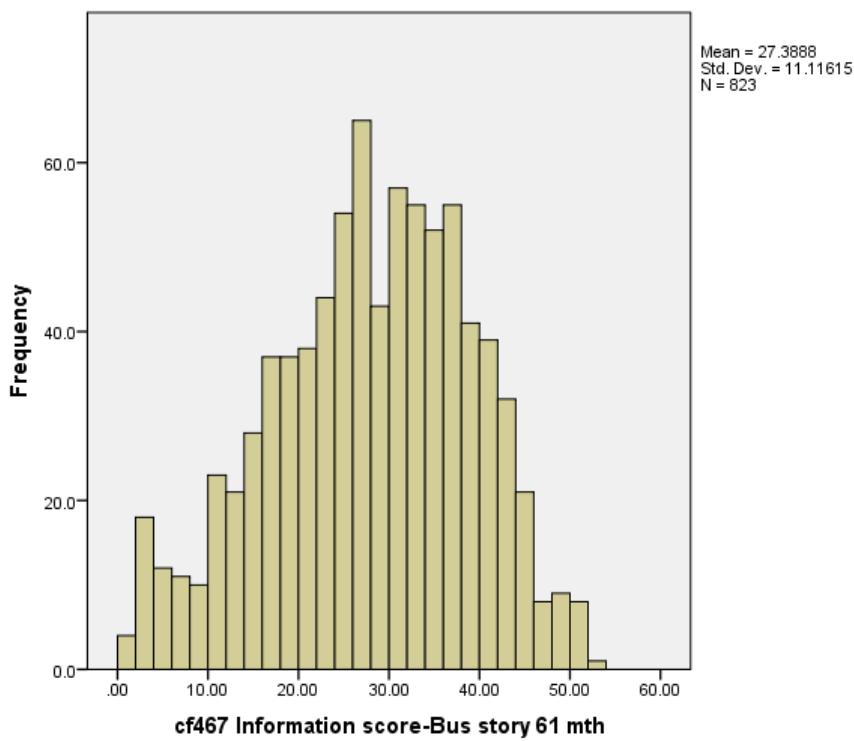
## Bus Story

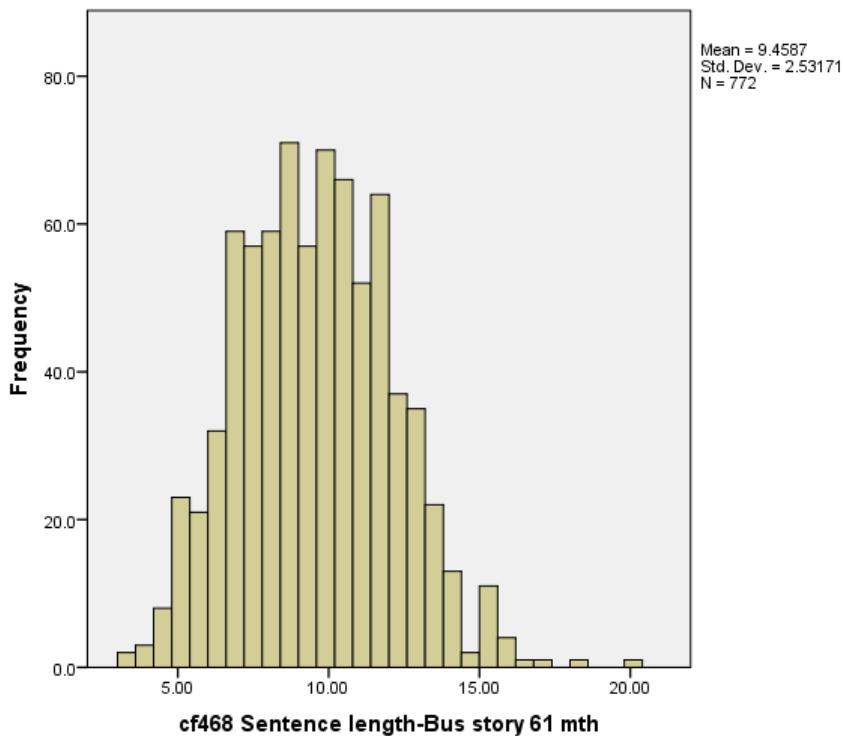
This test is aimed at children between the ages of 3 and 8 years and was designed as a screening test of verbal expression. It involves children listening to a story about a naughty bus told with pictures. Children are then required to retell the story with the picture support. The child's narrative is recorded orthographically and following the assessment, scored for information content and sentence length. The children's stories were also audio taped so that the accuracy of the orthographic record could be checked during the scoring process. The test has been found to be a useful predictor of children's language development in follow up studies of children with speech and language difficulties.

Renfrew C.E. (1997) *Bus Story Test: A test of narrative speech*. 4th edition. Winslow Press Ltd: UK.

cf466 Bus story done 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	779	54.4	78.8	78.8
	2 No	162	11.3	16.4	95.2
	3 Part completed	47	3.3	4.8	
	Total	988	69.0	100.0	100.0
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		





### Initial Consonants Detection Test

Children were asked to identify which two of three words illustrated by line drawings began with the same initial consonants. A total of ten trials were given and the number of correct responses made was recorded.

Byrne B, Fielding-Barnsley R. (1993) 'Recognition of phoneme invariance by beginning readers: confounding effects of global similarity'. *Reading and Writing*. 5 (3): 315-324.

Further observations of the child were noted throughout the language session. The parent/main carer was asked to comment on the child's performance and whether other languages were spoken in the home.

cf445 Initial consonants attempted 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	989	69.1	99.9	99.9
	2 No	1	.1	.1	100.0
	Total	990	69.1	100.0	
Missing	-2 Did not attend	442	30.9		
	Total	1432	100.0		

cf446a Initial consonants test completed 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	994	69.4	100.0	100.0
Missing	-2 Did not attend	438	30.6		
Total		1432	100.0		

**cf446b Last initial consonants done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	989	69.1	99.6	99.6
	2 No	4	.3	.4	100.0
	Total	993	69.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	1	.1		
	Total	439	30.7		
Total		1432	100.0		

**cf447 Initial consonants total 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.1	.1	.1
	1	1	.1	.1	.2
	2	2	.1	.2	.4
	3	14	1.0	1.4	1.8
	4	40	2.8	4.1	5.9
	5	72	5.0	7.3	13.2
	6	94	6.6	9.6	22.8
	7	83	5.8	8.4	31.2
	8	103	7.2	10.5	41.7
	9	127	8.9	12.9	54.6
	10	446	31.1	45.4	100.0
	Total	983	68.6	100.0	
Missing	-2 Did not attend	442	30.9		
	-1 Missing	7	.5		
	Total	449	31.4		
Total		1432	100.0		

**cf448a Initial consonant code 1 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	954	66.6	96.7	96.7
	2	17	1.2	1.7	98.4
	3	16	1.1	1.6	100.0
	Total	987	68.9	100.0	
Missing	-2 Did not attend	442	30.9		
	-1 Missing	3	.2		
	Total	445	31.1		
Total		1432	100.0		

**cf448b Initial consonant code 2 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	955	66.7	96.8	96.8
	2	31	2.2	3.1	99.9
	3	1	.1	.1	100.0
	Total	987	68.9	100.0	
Missing	-2 Did not attend	442	30.9		
	-1 Missing	3	.2		
	Total	445	31.1		
Total		1432	100.0		

**cf448c Initial consonant code 3 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	910	63.5	92.2	92.2
	2	69	4.8	7.0	99.2
	3	8	.6	.8	100.0
	Total	987	68.9	100.0	
Missing	-2 Did not attend	442	30.9		
	-1 Missing	3	.2		
	Total	445	31.1		
Total		1432	100.0		

**cf449 IC speech tester**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	565	39.5	57.2	57.2
	2	112	7.8	11.3	68.6
	3	310	21.6	31.4	100.0
	Total	987	68.9	100.0	
Missing	-2 Did not attend	4	.3		
	-1 Missing	3	.2		
	System	438	30.6		
	Total	445	31.1		
Total		1432	100.0		

### Multisyllabic Word Repetition

The child was asked to say five successive repetitions of '*buttercup*' and again for '*dinosaur*' as quickly as they could. These repetitions were scored as '0' (no error) and '1' (error).

Syllables, substitution or metathesis were also recorded. The score equals 2 when more than 1 error occurs within the same repetition.

The child's responses were recorded on audiotape.

**cf480 Multisyllabic word repetition done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	903	63.1	91.4	91.4
	2 No	72	5.0	7.3	98.7
	3 Part completed	13	.9	1.3	100.0
	Total	988	69.0	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		

**cf481 Syllables mword rep 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	852	59.5	93.2	93.2
	1	49	3.4	5.4	98.6
	2	10	.7	1.1	99.7
	3	3	.2	.3	100.0
	Total	914	63.8	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	80	5.6		
	Total	518	36.2		
Total		1432	100.0		

**cf482 Metathesis mword rep 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	892	62.3	97.5	97.5
	1	15	1.0	1.6	99.1
	2	2	.1	.2	99.3
	3	3	.2	.3	99.7
	4	2	.1	.2	99.9
Missing	5	1	.1	.1	100.0
	Total	915	63.9	100.0	
	-2 Did not attend	438	30.6		
-1 Missing		79	5.5		
Total		517	36.1		
Total		1432	100.0		

**cf483 Substitutions mword rep 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	687	48.0	75.1	75.1
	1	76	5.3	8.3	83.4
	2	30	2.1	3.3	86.7
	3	26	1.8	2.8	89.5
	4	19	1.3	2.1	91.6
Missing	5	65	4.5	7.1	98.7
	6	6	.4	.7	99.3
	7	1	.1	.1	99.5
	9	2	.1	.2	99.7
	10	3	.2	.3	100.0
Total		915	63.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	79	5.5		
	Total	517	36.1		
Total		1432	100.0		

**cf484a Buttercup attempt 1: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	831	58.0	91.8	91.8
	1 Yes error	73	5.1	8.1	99.9
	2 >1 error	1	.1	.1	100.0
	Total	905	63.2	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	89	6.2		
	Total	527	36.8		
Total		1432	100.0		

**cf484b Buttercup attempt 2 : Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	794	55.4	87.7	87.7
	1 Yes error	109	7.6	12.0	99.8
	2 >1 error	2	.1	.2	100.0
	Total	905	63.2	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	89	6.2		
	Total	527	36.8		
Total		1432	100.0		

**cf484c Buttercup attempt 3: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	779	54.4	86.1	86.1
	1 Yes error	122	8.5	13.5	99.6
	2 >1 error	4	.3	.4	100.0
	Total	905	63.2	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	89	6.2		
	Total	527	36.8		
Total		1432	100.0		

**cf484d Buttercup attempt 4: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	743	51.9	82.3	82.3
	1 Yes error	153	10.7	16.9	99.2
	2 >1 error	7	.5	.8	100.0
	Total	903	63.1	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	91	6.4		
	Total	529	36.9		
Total		1432	100.0		

**cf484e Buttercup attempt 5: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	765	53.4	85.0	85.0
	1 Yes error	129	9.0	14.3	99.3
	2 >1 error	6	.4	.7	100.0
	Total	900	62.8	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	94	6.6		
	Total	532	37.2		
Total		1432	100.0		

**cf485a Dinosaur attempt 1: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	885	61.8	96.8	96.8
	1 Yes error	29	2.0	3.2	100.0
	Total	914	63.8	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	80	5.6		
	Total	518	36.2		
Total		1432	100.0		

**cf485b Dinosaur attempt 2: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	886	61.9	96.9	96.9
	1 Yes error	28	2.0	3.1	100.0
	Total	914	63.8	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	80	5.6		
	Total	518	36.2		
Total		1432	100.0		

**cf485c Dinoosaur attempt 3: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	875	61.1	95.7	95.7
	1 Yes error	39	2.7	4.3	100.0
	Total	914	63.8	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	80	5.6		
	Total	518	36.2		
Total		1432	100.0		

**cf485d Dinosaur attempt 4: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	862	60.2	94.6	94.6
	1 Yes error	48	3.4	5.3	99.9
	2 >1 error	1	.1	.1	100.0
	Total	911	63.6	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	83	5.8		
	Total	521	36.4		
Total		1432	100.0		

**cf485e Dinosaur attempt 5: Multisyllabic word repetition: Speech & Language: 61m**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 No error	859	60.0	94.8	94.8
	1 Yes error	45	3.1	5.0	99.8
	2 >1 error	2	.1	.2	100.0
	Total	906	63.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	88	6.1		
	Total	526	36.7		
Total		1432	100.0		

## 4. Cognitive measures

### 4.1 Habituation Task at 4 months

Habituation refers to the way in which attention to a stimulus lessens over time.

Habituation research works on the assumption that the amount of time an infant spends looking at a (non-threatening) stimulus before apparently losing interest reflects information processing efficiency in that infant. Thus an infant who “habituates” to a stimulus quickly may be assumed to be more efficient at processing information than one who takes a long time looking at this stimulus before losing interest. Recent research using the habituation paradigm has pointed towards some degree of continuity in development from early infancy to later childhood, with habituation measures in early infancy correlating with later developmental assessments such as IQ tests. On the basis of this research, the habituation task was included in the clinics as:

- i) a possible early predictor of later development;
- ii) a potential outcome measure of prenatal development, and
- iii) a baseline for the study of a number of factors on later child development.

#### Methodology

During the habituation task at the four month clinic, the infant sat on a researcher’s lap eighteen inches away from a screen onto which a geometric pattern (four diamonds) was projected. Throughout the task, the infant’s eye movements were monitored. The criterion for habituation was reached when the duration of two successive trials or “bouts” of looking at the picture was less than half that of two previous successive trials. The infant was then exposed to the same geometric figure alongside a new figure until he or she had accumulated a further 40 seconds of looking time at the two pictures. This provided a measure of his or her preference for the novel stimulus (novelty preference).

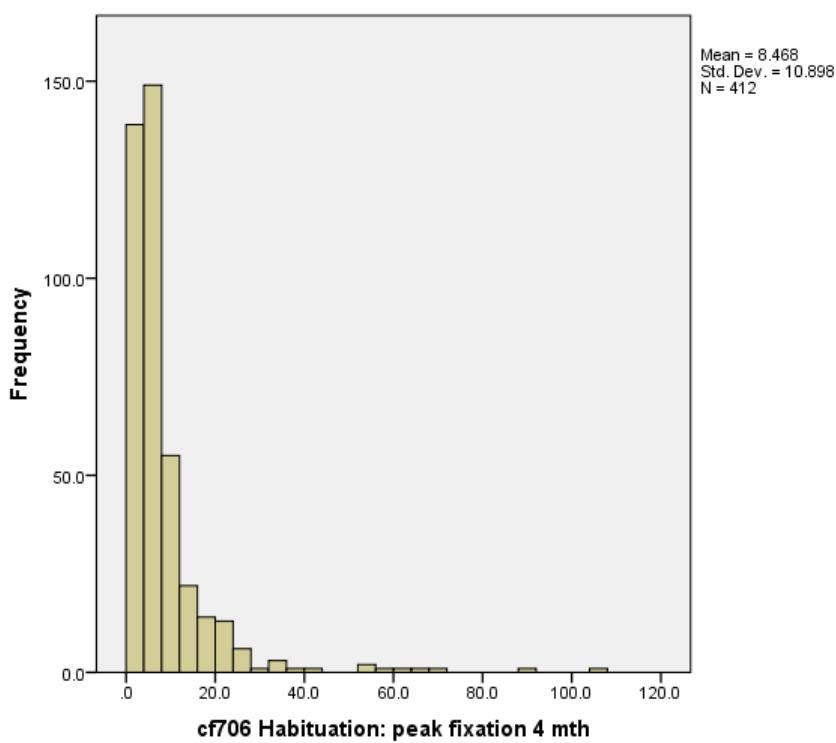
The test was designed by Dr Alan Slater, Department of Psychology, University of Exeter, UK and his team who helped set up the task here, and by Dr Marc Bornstein, NICHD, USA. Technical help was generously provided by John Barrett, Department of Psychology, University of Bristol.

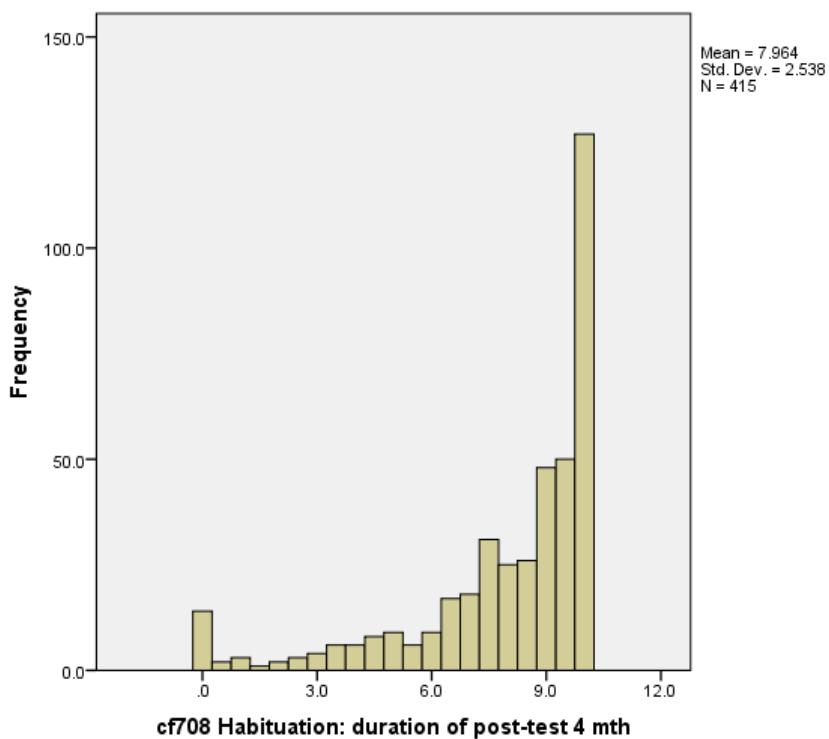
#### Test-retest study

A test-retest habituation study was carried out in order to assess the reliability of the habituation measures used. 42 infants were seen twice, exactly seven days apart, under conditions identical to the CiF habituation study. The habituation measures demonstrated good short-term reliability over the one-week period, replicating the results of other habituation studies. A substantial number of infants in the CiF habituation study did not complete the whole of the habituation task as they became too restless or distressed to continue looking at the habituation task stimuli, or occasionally, because they fell asleep. Infants were therefore divided into Cs, who completed the whole of the habituation task (that is, they reached habituation criterion and accumulated forty seconds of looking at the novelty preference figures), and DNCs, who did not complete the whole of the task. The test-retest study demonstrated short-term stability for this measure, with infants tending to complete the habituation session either both weeks or neither week ( $\chi^2=8.15$ ,  $p<0.005$ ). This suggests that the measure of the extent to which the infant completed is measuring something at least relatively stable in the infant (or between the infant and his or her environment). Such a measure, therefore, might be usable in conjunction with the more traditional measures of habituation performance.

**cf705 Habituation: number of looks to criterion 4 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	243	17.0	59.0	59.0
	5	68	4.7	16.5	75.5
	6	41	2.9	10.0	85.4
	7	30	2.1	7.3	92.7
	8	12	.8	2.9	95.6
	9	8	.6	1.9	97.6
	10	3	.2	.7	98.3
	11 Still not habituated	7	.5	1.7	100.0
	Total	412	28.8	100.0	
Missing	-2 Did not attend	409	28.6		
	-1 Missing	611	42.7		
	Total	1020	71.2		
Total		1432	100.0		





**cf709 Habituation: Noise interruption 4 mth**

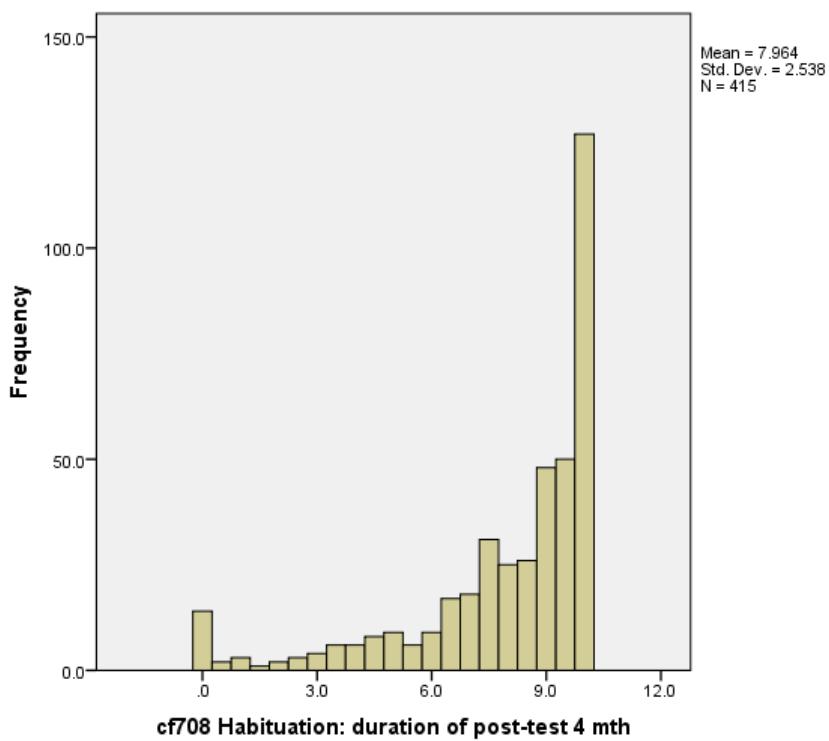
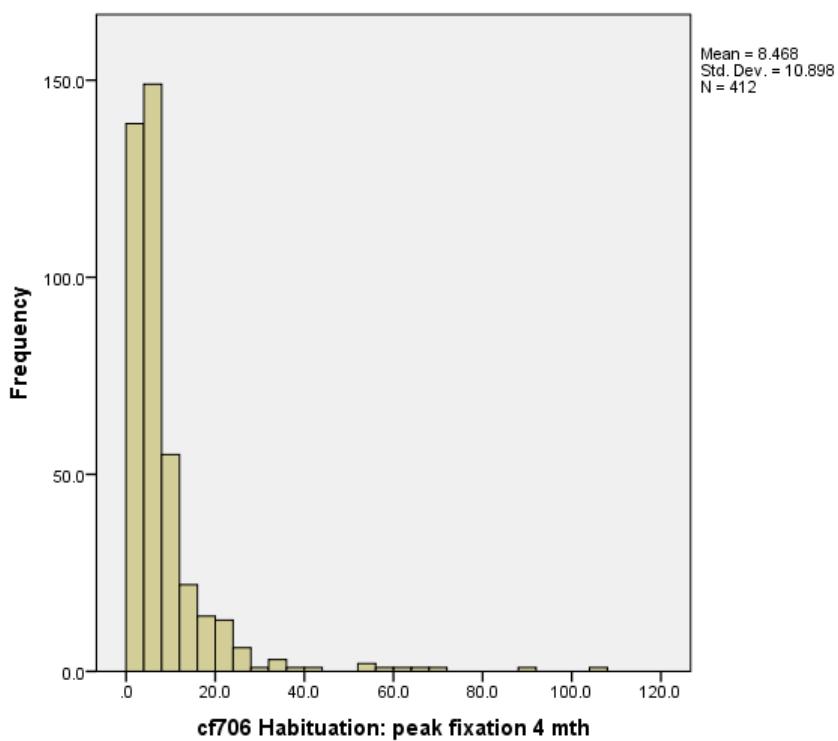
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	17	1.2	4.1	4.1
	2 No	400	27.9	95.9	100.0
	Total	417	29.1	100.0	
Missing	-2 Did not attend	409	28.6		
	-1 Missing	606	42.3		
	Total	1015	70.9		
Total		1432	100.0		

**cf710 Habituation: Data usable 4 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	898	62.7	91.4	91.4
	2 Possibly not	60	4.2	6.1	97.5
	3 Probably not	25	1.7	2.5	100.0
Missing	Total	983	68.6	100.0	
	-2 Did not attend	409	28.6		
	-1 Missing	40	2.8		
Total		449	31.4		
Total		1432	100.0		

**cf711 Habituation: Duration completed 4 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Did not start/minimal completion	565	39.5	58.3	58.3
	1 Part completed	105	7.3	10.8	69.1
	2 Completed	299	20.9	30.9	100.0
Missing	Total	969	67.7	100.0	
	-2 Did not attend	409	28.6		
	-1 Missing	54	3.8		
Total		463	32.3		
Total		1432	100.0		



**cf709 Habituation: Noise interruption 4 mth**

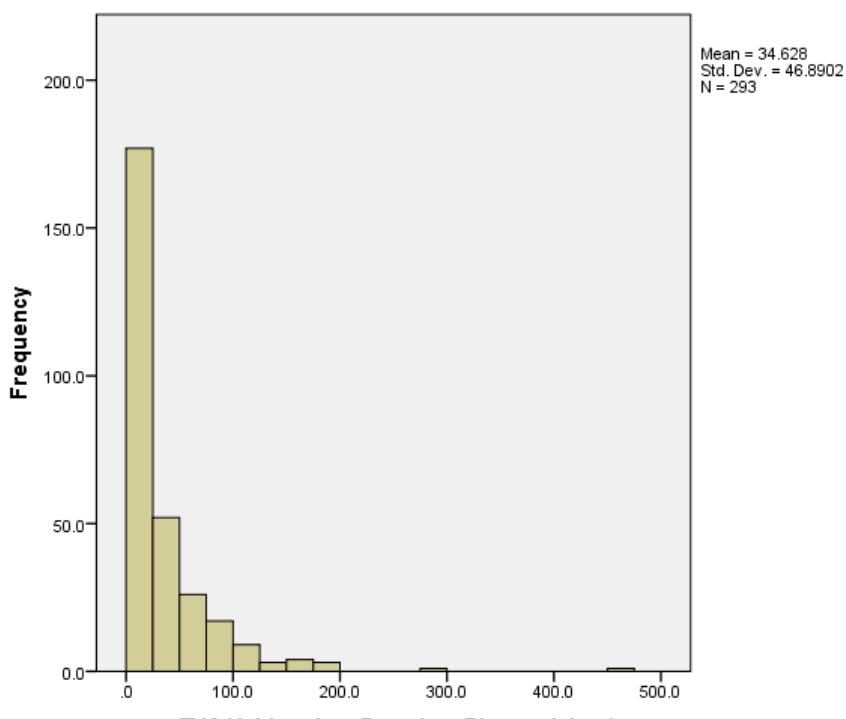
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	17	1.2	4.1	4.1
	2 No	400	27.9	95.9	100.0
	Total	417	29.1	100.0	
Missing	-2 Did not attend	409	28.6		
	-1 Missing	606	42.3		
	Total	1015	70.9		
Total		1432	100.0		

**cf710 Habituation: Data usable 4 mth**

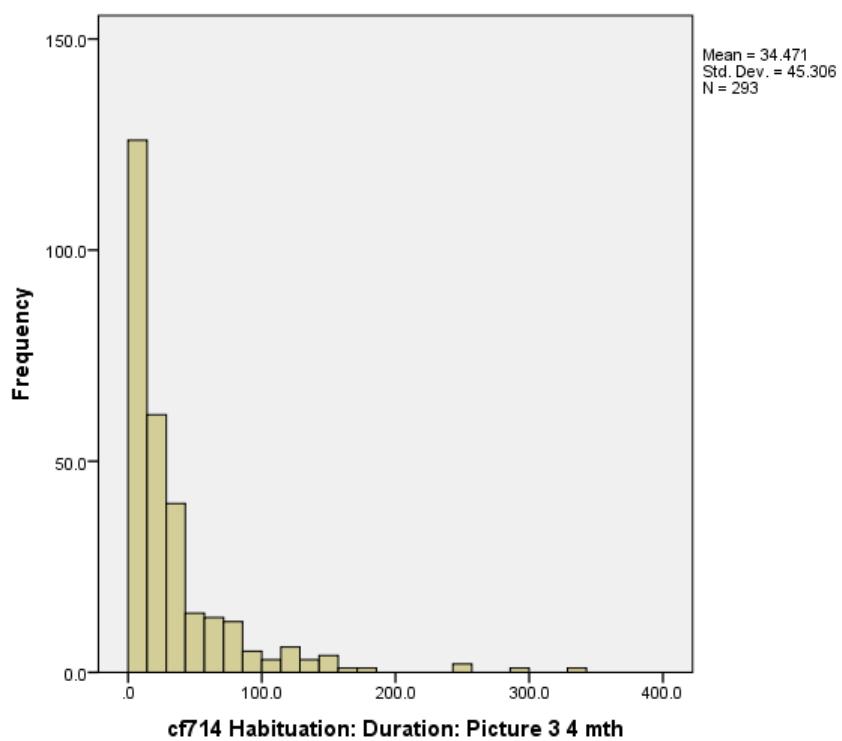
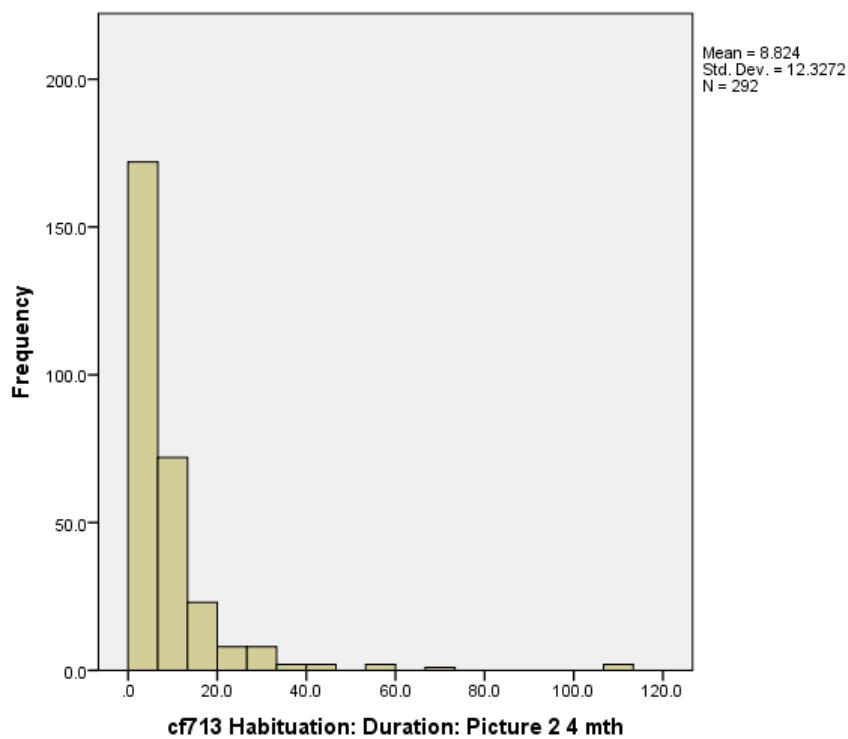
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	898	62.7	91.4	91.4
	2 Possibly not	60	4.2	6.1	97.5
	3 Probably not	25	1.7	2.5	100.0
	Total	983	68.6	100.0	
Missing	-2 Did not attend	409	28.6		
	-1 Missing	40	2.8		
	Total	449	31.4		
Total		1432	100.0		

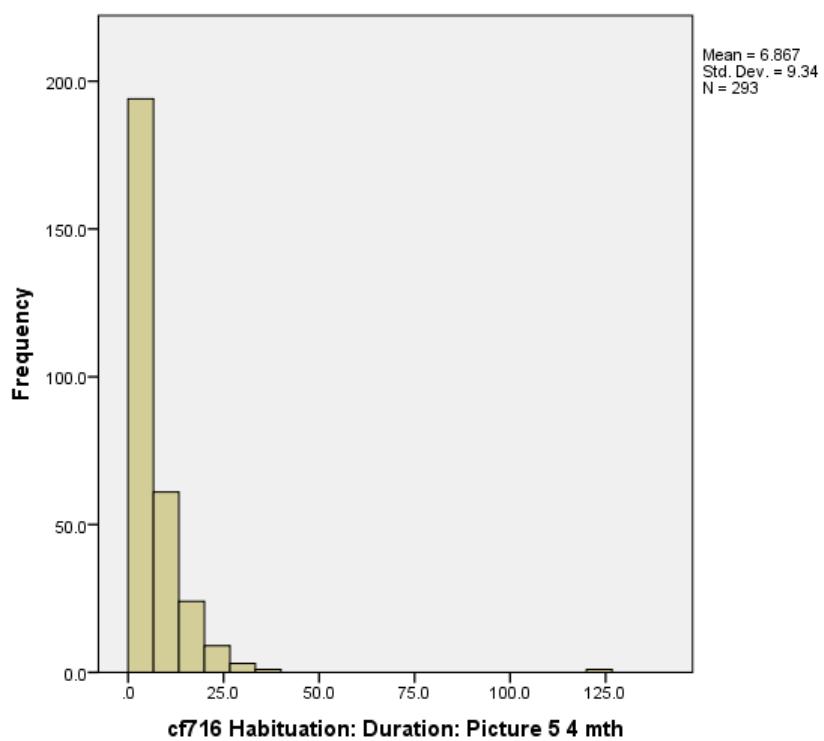
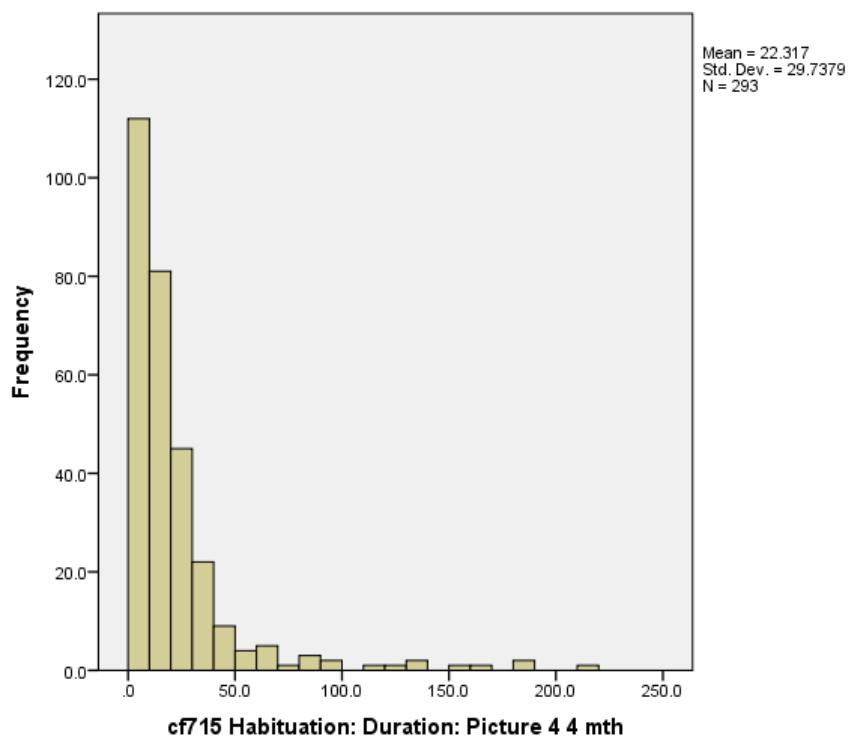
**cf711 Habituation: Duration completed 4 mth**

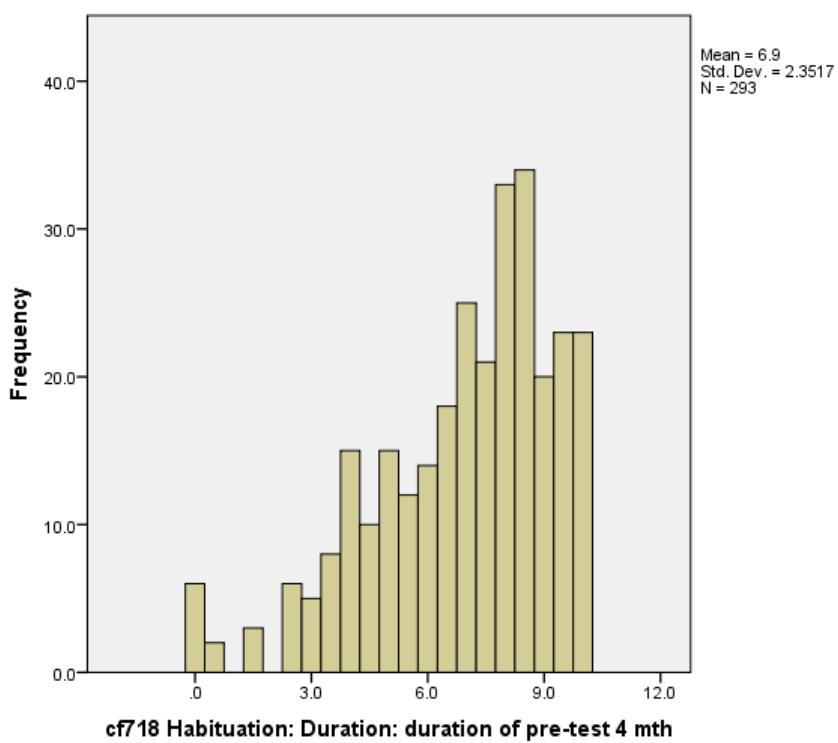
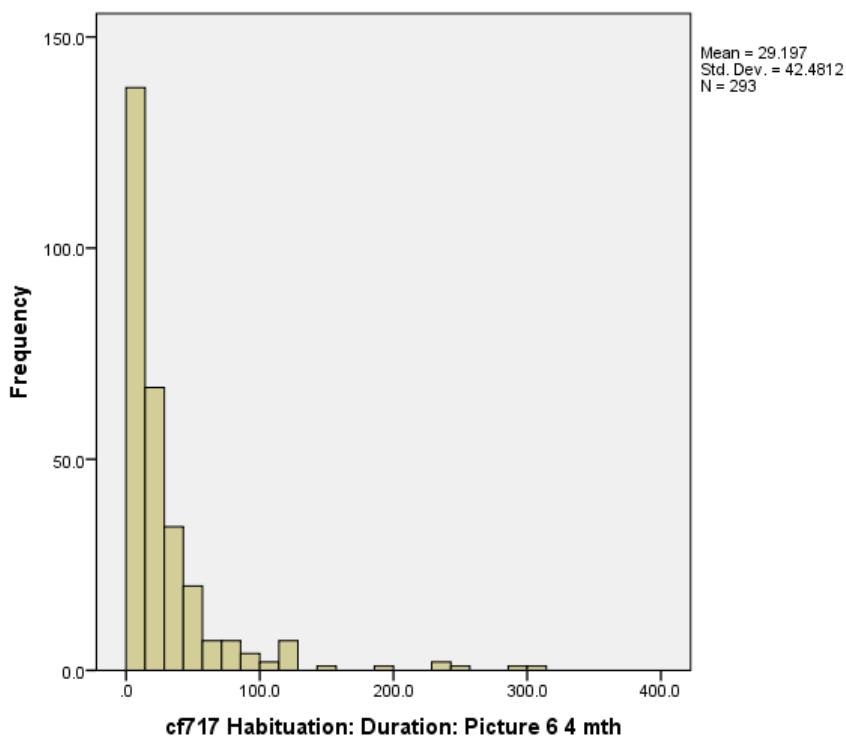
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 Did not start/mininal completion	565	39.5	58.3	58.3
	1 Part completed	105	7.3	10.8	69.1
	2 Completed	299	20.9	30.9	100.0
	Total	969	67.7	100.0	
Missing	-2 Did not attend	409	28.6		
	-1 Missing	54	3.8		
	Total	463	32.3		
Total		1432	100.0		

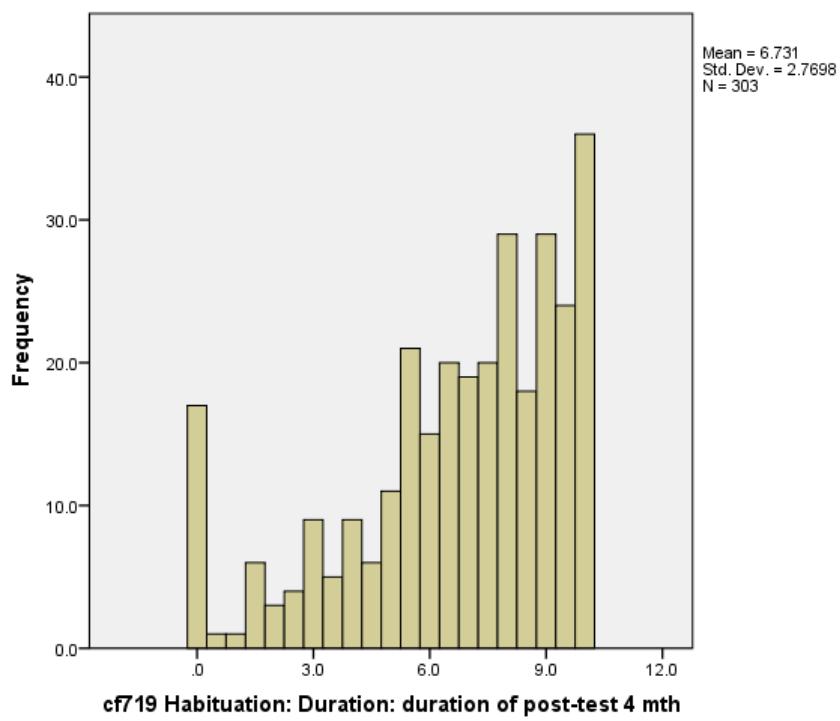


**cf712 Habituation: Duration: Picture 1 4 mth**









## 4.2 Laterality

Questions have been included in the self-completion questionnaires, enquiring about handedness and footedness, but it was thought important to assess the accuracy of maternal report by carrying out these tests. There was also considerable interest from the vision team in ascertaining the eye preference of the child. The test was carried out at age 37 months (and therefore included the control sample).

cf730 Laterality test done 37 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1069	74.7	98.9	98.9
	2 No	12	.8	1.1	100.0
	Total	1081	75.5	100.0	
Missing	-2 Did not attend	351	24.5		
	Total	1432	100.0		

cf731 Laterality tester 37 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	154	10.8	14.4	14.4
	2	76	5.3	7.1	21.5
	3	183	12.8	17.1	38.6
	4	245	17.1	22.9	61.6
	5	186	13.0	17.4	79.0
	6	225	15.7	21.0	100.0
	Total	1069	74.7	100.0	
Missing	-3 Task not done	12	.8		
	-2 Did not attend	351	24.5		
	Total	363	25.3		
	Total	1432	100.0		

## Eyes

Three black boxes (37cm x 23.5 x 35.5cm) were made. Inside the box on the back wall was a picture in relief of the inside of a house with characters and objects which appealed to children. The lid was opaque but allowed light into the interior. The front wall had a keyhole in it with a coloured surround.

The boxes were placed on a table so that the keyholes were at the child's eye level, and the children were encouraged to see what was inside. It was noted whether they approached and looked with one eye, and if so which one, whether the other eye was closed, or whether they stood away and looked in with both eyes.

**Table 4.2.1: Frequencies of eye preference for keyholes**

	Red	Yellow	Green
<b>Eye preference</b>			
(Variable name)	(cf732a)	(cf733b)	(cf734c)
Right	589 (56.3%)	588 (56.4%)	586 (56.4%)
Left	400 (38.2%)	411 (39.4%)	408 (39.3%)
Both	57 (5.4%)	44 (4.2%)	45 (4.3%)
<b>Closed other eye</b>			
(Variable name)	(cf732b)	(cf733b)	(cf734b)
Yes	10 (1.0%)	11 (1.1%)	11 (1.1%)

Two kaleidoscopes and a prism were laid in front of the child who was invited to pick them up and look through them. Initially, the child was asked to place both their hands on their lap to ensure they were in a neutral position. The tester noted whether the child picked each object up which left or right hand or both, and whether held to one eye, and if so which, or between the eyes.

**Table 4.2.2: Frequencies of eye and hand preference for kaleidoscopes and prism**

	Red	Black	Prism
<b>Eye preference</b>			
(Variable name)	(cf735a)	(cf736a)	(cf737a)
Right	540 (53.3%)	534 (52.6%)	565 (55.7%)
Left	295 (29.1%)	304 (29.9%)	294 (29.0%)
Both	179 (17.7%)	178 (17.5%)	155 (15.3%)
<b>Hand Preference</b>			
(Variable name)	(cf735b)	(cf736b)	(cf737b)
Right	418 (41.3%)	347 (34.2%)	564 (55.6%)
Left	188 (18.6%)	159 (15.6%)	229 (22.6%)
Both	407 (40.2%)	510 (50.2%)	221 (21.8%)

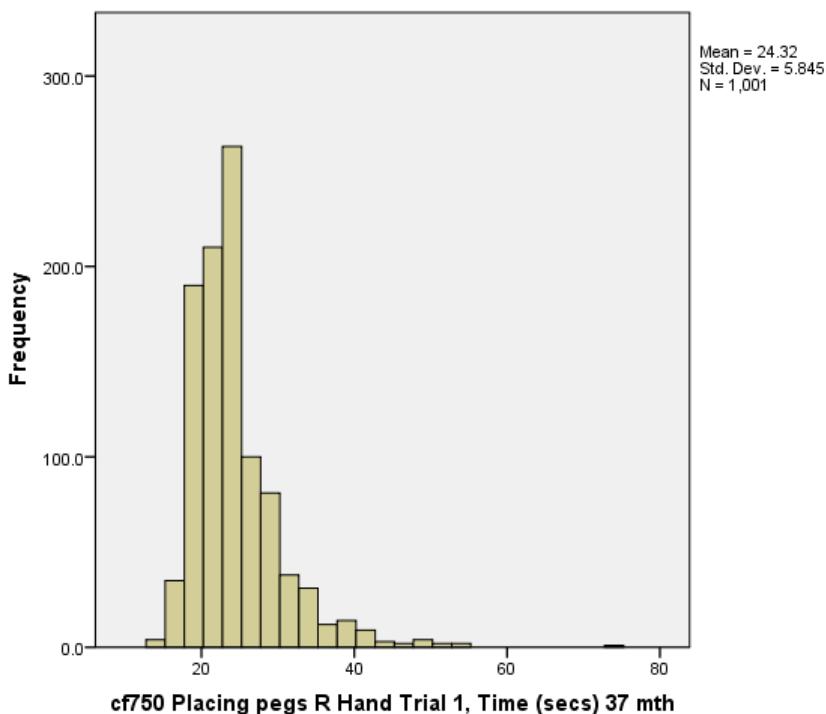
## Hands

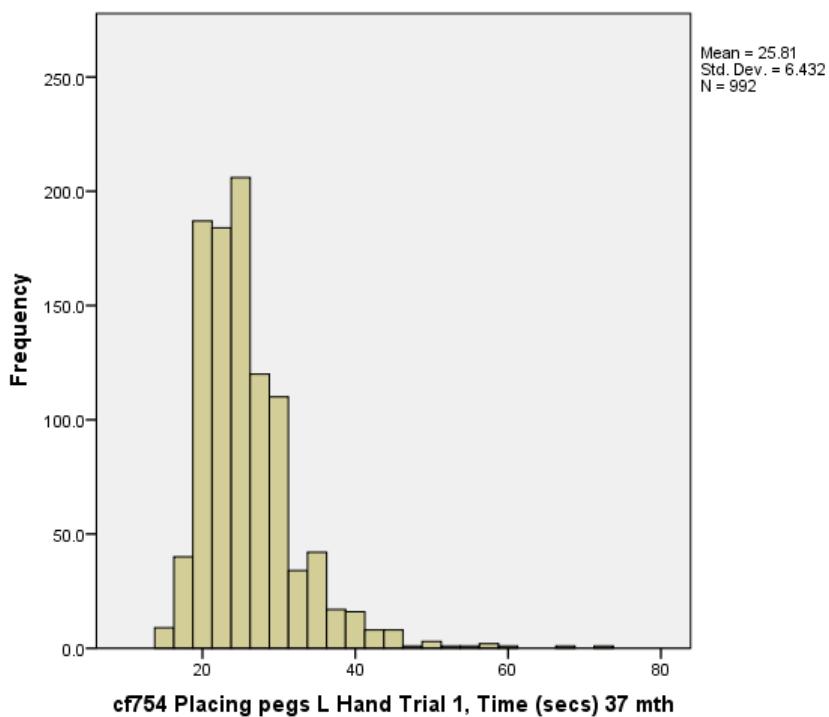
In preparation for this task the child was again asked to place their hands on their laps. The child was then passed a hammer and asked to hammer in one of 10 pegs into a toy placed in the middle of the table at which she/he was sitting. This was repeated three times and the hand(s) used noted each time. The preferred hand was the one which banged the peg in rather than the one which picked the hammer up.

**Table 4.2.3 Frequencies of hand preference for hammer trials**

	Trial 1	Trial 2	Trial 3
(Variable name)	(cf740)	(cf740)	(cf740)
Right	868 (83.7%)	858 (83.1%)	851 (82.9%)
Left	161 (15.5%)	168 (16.3%)	172 (16.7%)
Both	8 (0.8%)	6 (0.6%)	4 (0.4%)

A long wooden block with ten pegs standing in it in a line was provided. The pegs were removed and the child asked to put them in, in sequence, as fast as possible. After a practice with each hand, the child was timed using one hand, then the other. The task was repeated with each hand. The tester recorded the time taken to place the pegs (started when the first peg entered its respective hole). The tester also recorded the number of pegs the child dropped and the number of pegs misplaced. If the child dropped one or more pegs or misplaced some the child was re-tested for that hand up to a maximum of 3 trials (the time was still recorded for any 'soiled' trials). Frequencies for the first trial for each hand only are shown below.





cf750a Placing pegs R Hand Trial 1, Number dropped 37 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	950	66.3	96.3	96.3
	1	32	2.2	3.2	99.6
	2	3	.2	.3	99.9
	3	1	.1	.1	100.0
	Total	986	68.9	100.0	
Missing	-4 Ch refused	55	3.8		
	-3 Task not done	12	.8		
	-2 Did not attend	355	24.8		
	-1 Missing	24	1.7		
	Total	446	31.1		
Total		1432	100.0		

cf750b Placing pegs R Hand Trial 1, Number misplaced 37 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	950	66.3	97.2	97.2
	1	24	1.7	2.5	99.7
	2	3	.2	.3	100.0
	Total	977	68.2	100.0	
Missing	-4 Ch refused	55	3.8		
	-3 Task not done	12	.8		
	-2 Did not attend	355	24.8		
	-1 Missing	33	2.3		
	Total	455	31.8		
Total		1432	100.0		

**cf754a Placing pegs L Hand Trial 1, Number dropped 37 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	948	66.2	96.0	96.0
	1	31	2.2	3.1	99.2
	2	6	.4	.6	99.8
	3	2	.1	.2	100.0
	Total	987	68.9	100.0	
Missing	-4 Ch refused	61	4.3		
	-3 Task not done	12	.8		
	-2 Did not attend	355	24.8		
	-1 Missing	17	1.2		
	Total	445	31.1		
Total		1432	100.0		

**cf754b Placing pegs L Hand Trial 1, Number misplaced 37 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1009	70.5	98.6	98.6
	1	9	.6	.9	99.5
	2	3	.2	.3	99.8
	3	2	.1	.2	100.0
	Total	1023	71.4	100.0	
Missing	-3 Task not done	12	.8		
	-2 Did not attend	355	24.8		
	-1 Missing	42	2.9		
	Total	409	28.6		
Total		1432	100.0		

## Feet

The child was invited to kick a ball at a set of skittles, and the foot used to kick with was noted. The ball was placed in front of the child at a midline position between the two feet. This task was repeated three times.

**Table IV.2.4 Frequencies of foot preference for ball kicking trials**

	Trial 1	Trial 2	Trial 3
(Variable name)	(cf760)	(cf760)	(cf760)
Right	862 (83.9%)	840 (82.4%)	849 (83.8%)
Left	166 (16.1%)	179 (17.6%)	164 (16.2%)

The child was invited to copy a large model of a stork, by standing on one leg, ideally for a count of six. The leg the child stood on for the longest was deemed to be the preferred. If the child was as willing to stand on one as the other, 'no preference' was recorded.

**cf765 Standing on one leg, Foot preference 37 mth**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Right	346	24.2	40.9
	2 Left	475	33.2	56.2
	3 No Preference	24	1.7	2.8
	Total	845	59.0	100.0
Missing	-4 Ch refused	203	14.2	
	-3 Task not done	12	.8	
	-2 Did not attend	355	24.8	
	-1 Missing	17	1.2	
	Total	587	41.0	
Total	1432	100.0		

## 4.3 Developmental assessment at 18 months - The Griffiths Test

### Method

Development of the child was assessed using the Griffiths Mental Development Scales. These scales were selected for two reasons: first, they distinguish between a child who has a general developmental delay and one who has a delay in a specific area, and second, they are standardised on a British sample.

Eight trained Griffiths testers performed the assessments using the extended scales (0-8 years). These were chosen to avoid ceiling effects which may have occurred using the baby scales (0-2 years). Each child was seen for approximately 45 minutes at the play session and was scored immediately.

In order to ensure consistency between the 8 testers, they met before the start of the clinics to consider how each item would be administered and then fortnightly to discuss any problems encountered with specific children or items of the scales. Testers were also required to sit in on at least two Griffiths assessments by other testers, and to score 4 assessments which had been video-taped.

Discrepancies were discussed thoroughly.

The Griffiths Scales assess five areas of development: locomotion, personal/social skills, hearing and speech, hand and eye co-ordination, and performance. A child's developmental quotient, DQ, is the mean of his/her scores on the five sub-scales.

cf770 Griffiths test done 18 mth

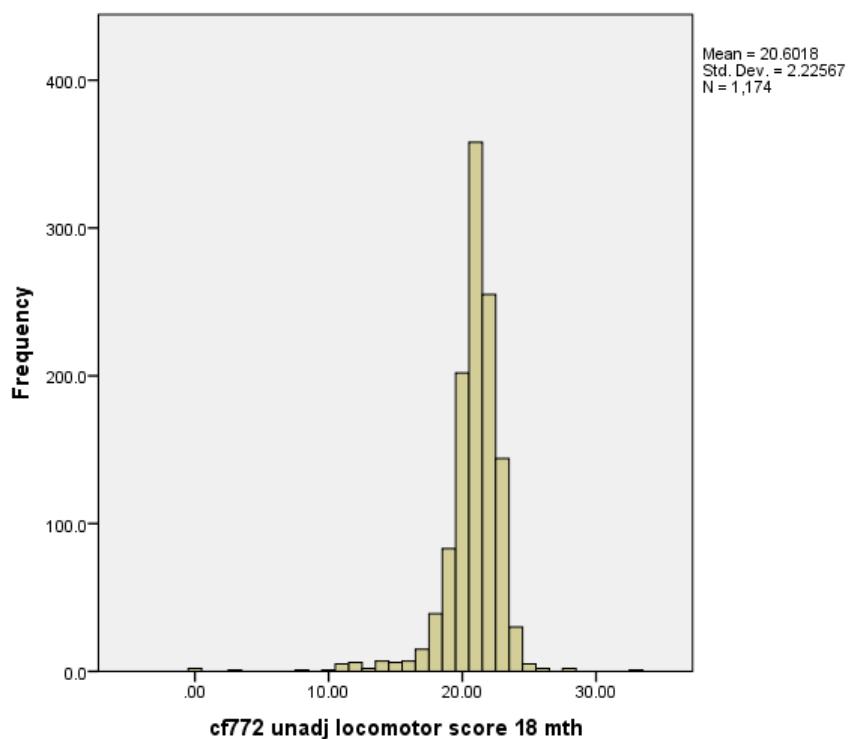
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1175	82.1	99.3	99.3
	2 No	8	.6	.7	100.0
	Total	1183	82.6	100.0	
Missing	-2 Did not attend	249	17.4		
	Total	1432	100.0		

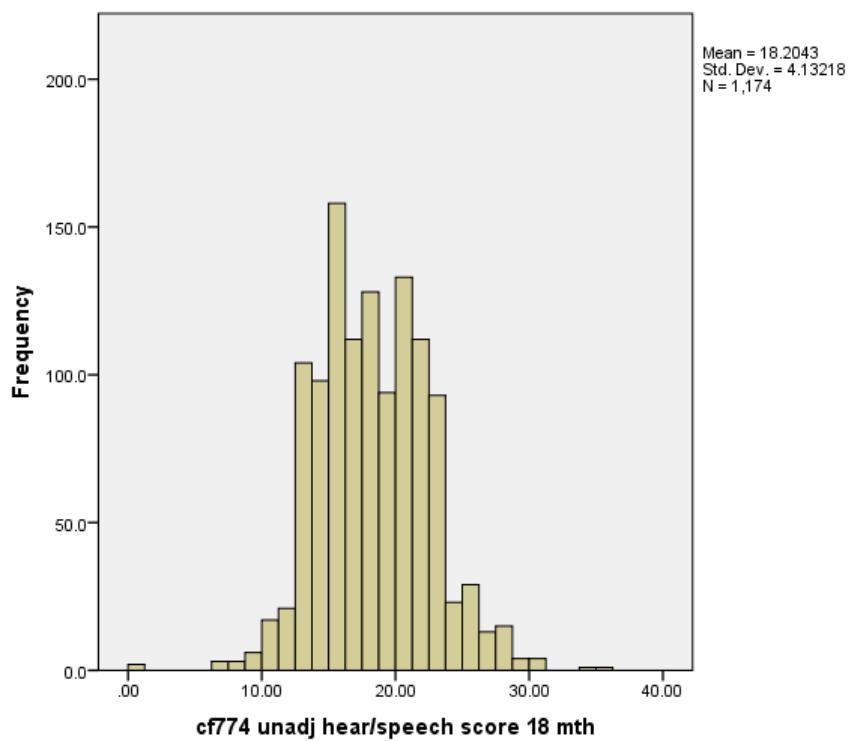
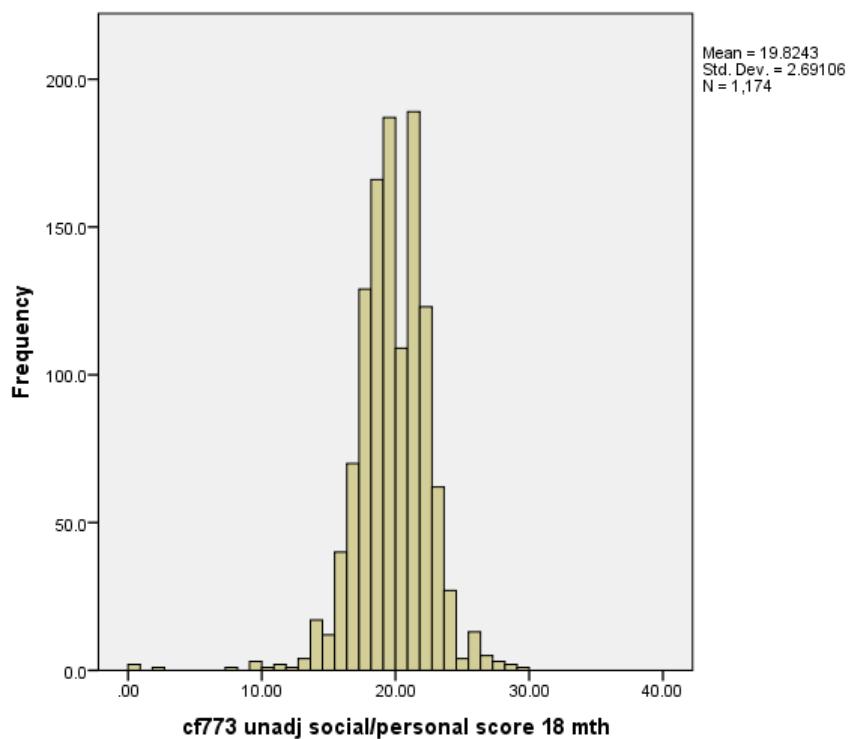
cf771 Child input 18 mth

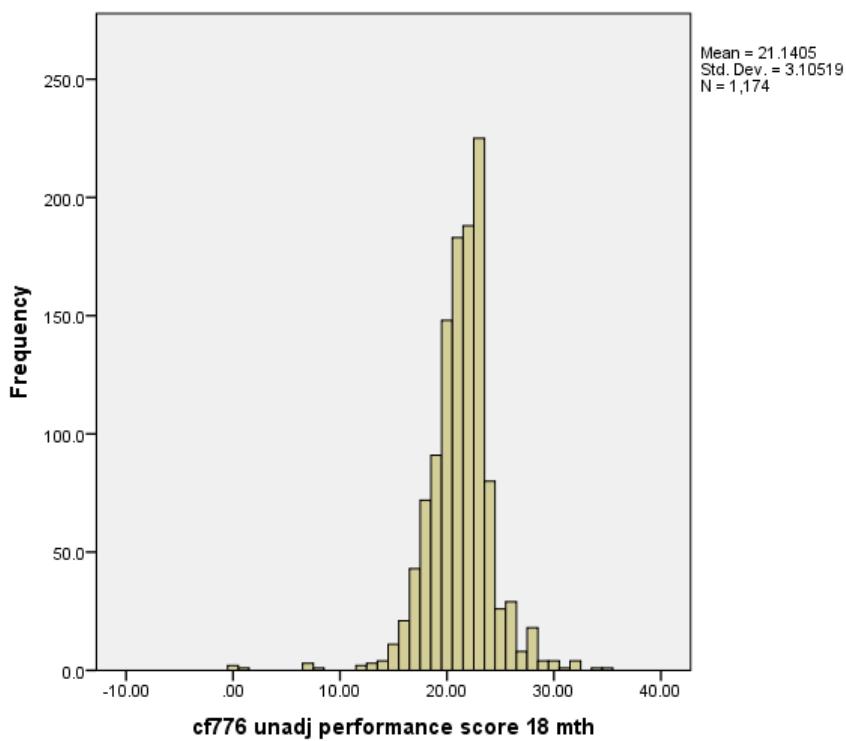
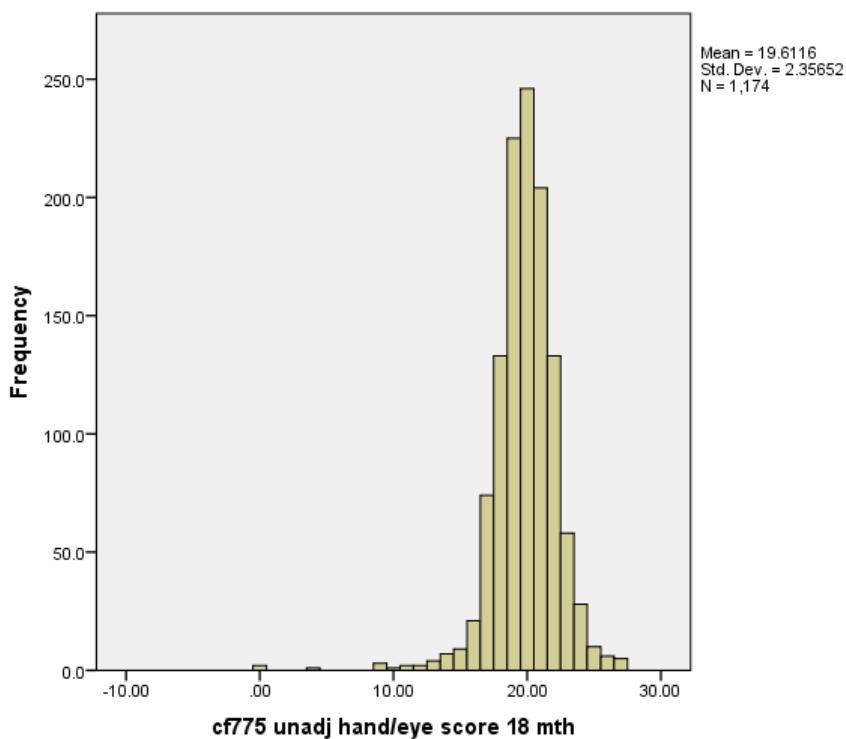
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Low	6	.4	.5	.5
	2	18	1.3	1.6	2.1
	3	135	9.4	11.6	13.7
	4	691	48.3	59.6	73.3
	5 High	310	21.6	26.7	100.0
	Total	1160	81.0	100.0	
Missing	-2 Did not attend	249	17.4		
	-1 Missing	23	1.6		
	Total	272	19.0		
	Total	1432	100.0		

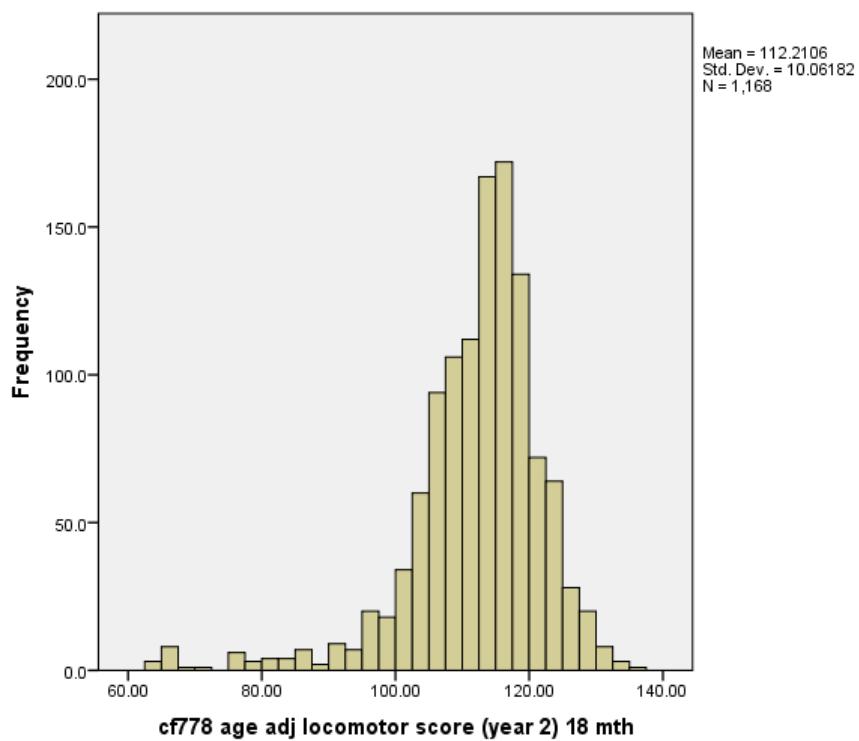
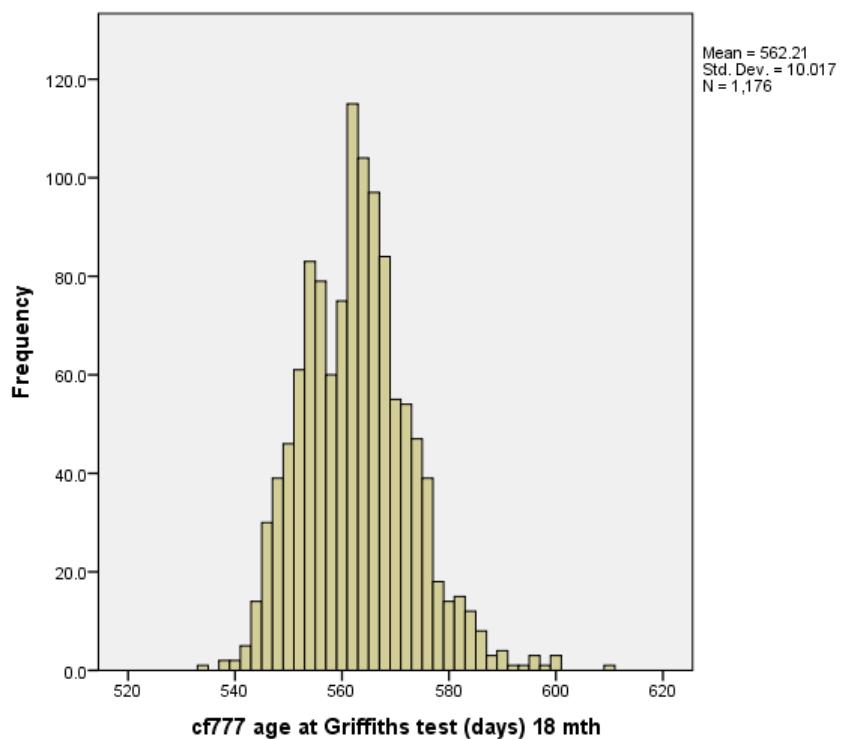
For a number of reasons, including the fact that there was not always time to proceed onto Year 3 for those children who scored highly enough, only the Year 2 scores are to be used for the purposes of analyses. This means that the 18-month Children in Focus children have scores calculated from the 12-24 month Griffiths items. These have been converted to standard developmental quotient scores, assuming that the children would have scored full marks on 0-12 month items from the Griffiths test, and that they would not have performed items correctly taken from the Year 3 part of the assessment. Although this assumption is likely to be true for the vast majority of children, it is worth noting that a very small number of children whose development was considerably delayed, or considerably advanced, would have been assigned somewhat inflated or deflated scores, respectively. Scores calculated in this way are available for 1172 children.

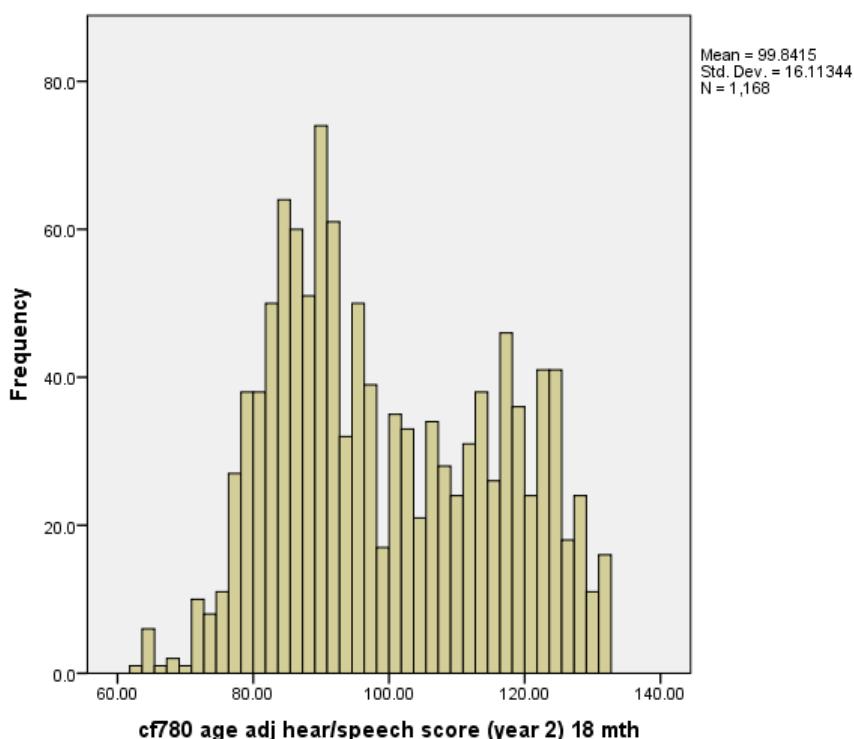
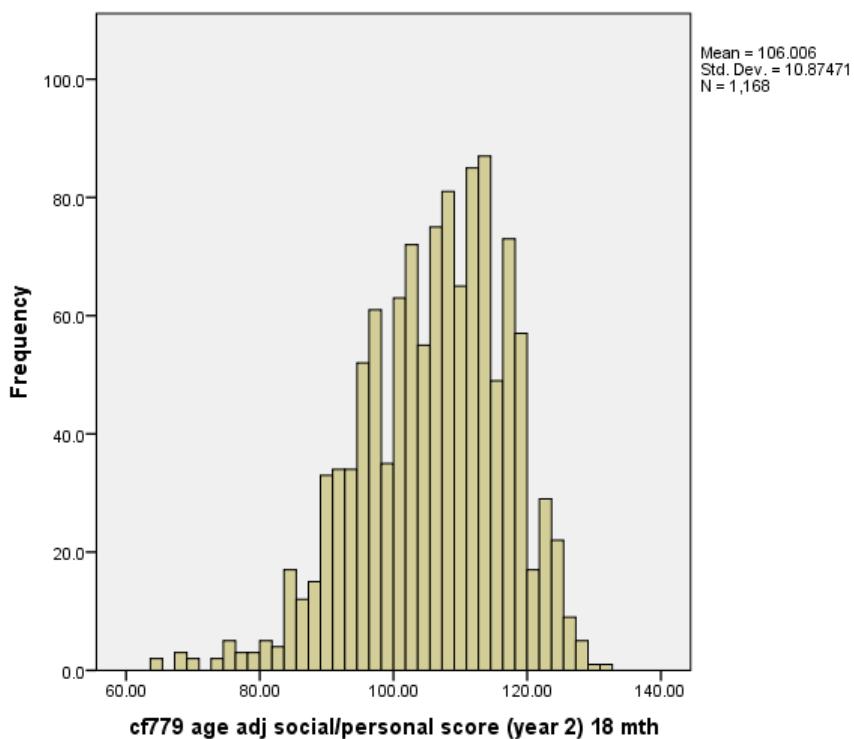
NB Scores are available, using the Year 1 in addition to Year 2 data, where used, on 841 children. Documentation relating to how these scores were calculated is available from Clare Bell.











**cf784 griffiths tester involvement 18 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	.3	2.1	2.1
	3	33	2.3	17.4	19.5
	4	111	7.8	58.4	77.9
	5 A lot	42	2.9	22.1	100.0
	Total	190	13.3		
Missing	-2 Did not attend	249	17.4		
	-1 Missing	993	69.3		
	Total	1242	86.7		

Total	1432	100.0	
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**cf785 order child seen in day 18 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	58	4.1	30.1	30.1
	2	60	4.2	31.1	61.1
	3	54	3.8	28.0	89.1
	4	20	1.4	10.4	99.5
	5	1	.1	.5	100.0
	Total	193	13.5	100.0	
Missing	-2 Did not attend	249	17.4		
	-1 Missing	990	69.1		
	Total	1239	86.5		
Total		1432	100.0		

**cf786 griffiths tester 18 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	96	6.7	8.2	8.2
	2	219	15.3	18.7	26.9
	3	88	6.1	7.5	34.5
	4	172	12.0	14.7	49.2
	5	86	6.0	7.4	56.5
	6	254	17.7	21.7	78.3
	7	97	6.8	8.3	86.6
	8	157	11.0	13.4	100.0
	Total	1169	81.6	100.0	
Missing	-2 Did not attend	249	17.4		
	-1 Missing	14	1.0		
	Total	263	18.4		
Total		1432	100.0		

#### 4.4 Developmental assessment at 49 months (The WPPSI) Method

Mental development was assessed using the Wechsler Pre-school and Primary Scale of Intelligence - Revised<sup>UK</sup> Edition (WPPSI). All scales were administered except the two optional tests. The children were also given a digit span test of short term memory, devised and standardised by Prof. Susan Gathercole, Psychology Dept., University of Bristol.

Following each child's session, which usually lasted 50 - 60 minutes, the parent or carer was given a short questionnaire asking whether the child's behaviour and performances was typical, and if not, how and why.

Every effort was made to ensure inter-rater reliability. The testers were overseen by Steve Gibbs, a tester with long experience of psychometric testing with ALSPAC. He observed each tester, advised them, met with the group regularly to discuss the precise administration of each test, and supervised and checked their scoring. Each tester scored 4 videos of tests and these were compared.

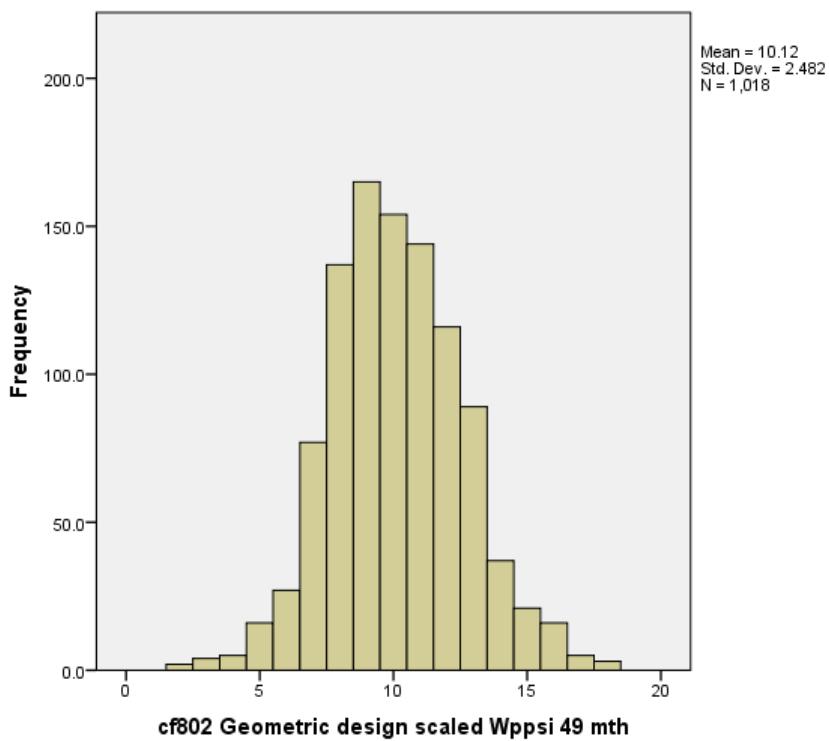
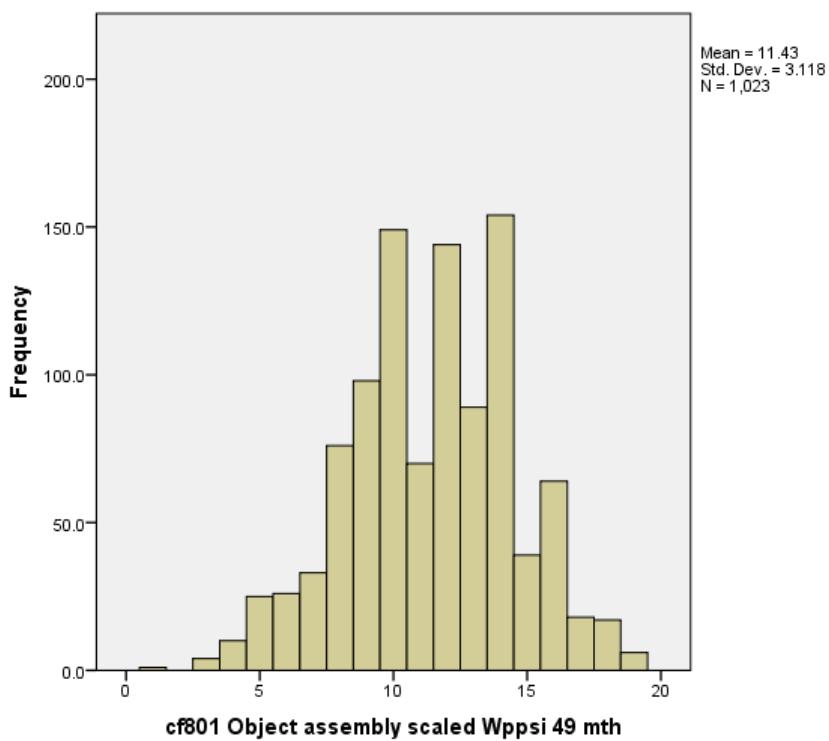
The WPPSI comprises 10 subtests, five verbal and five performance. The verbal subtest scores combine to make up the VIQ, verbal IQ, and the performance scores combine to make up the PIQ, performance IQ. The ten subtest scores together combine to produce a full-scale IQ score. Subtest scores can be used individually, if you feel that you have good reason to look at the individual scores, although it is more usual to use IQ, VIQ and PIQ.

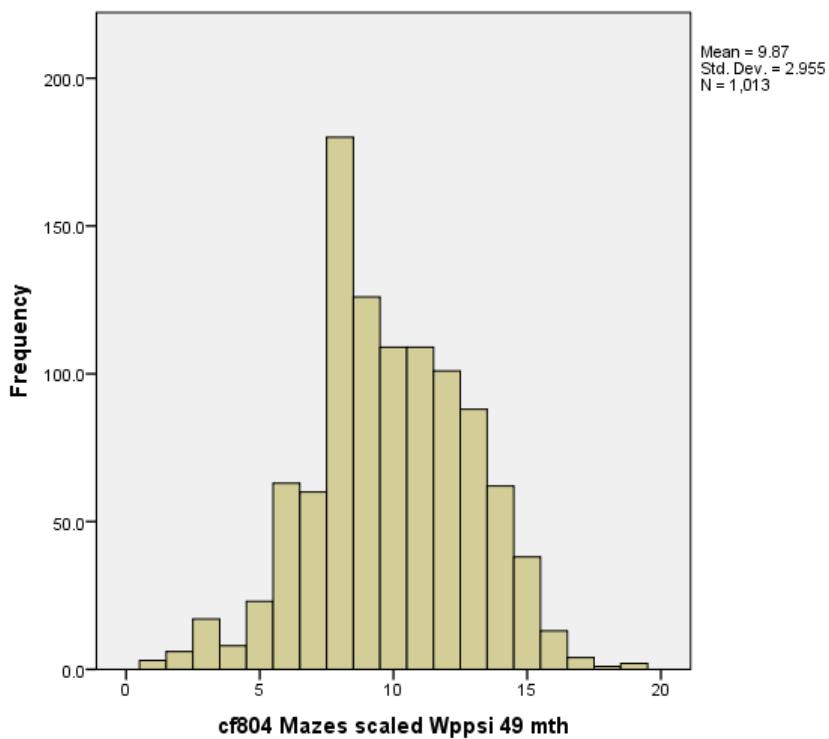
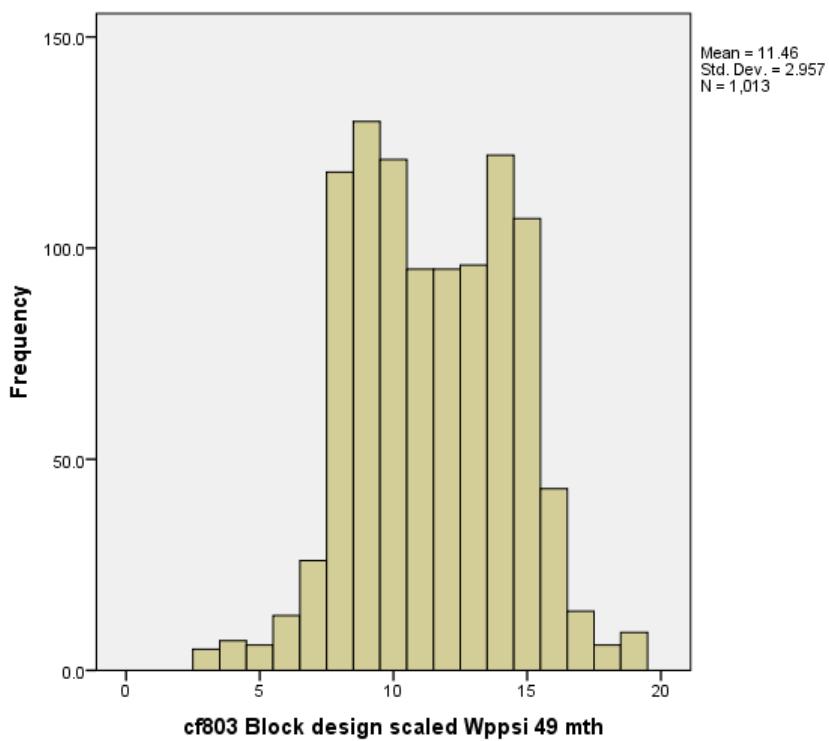
If a child completed fewer than 4 subtests on the performance scale then the final performance IQ score could not be calculated (and therefore nor would the full-scale score). If however the child completed 4 out of the 5, the mean of the four subtests was calculated and imputed for the subtest not completed, so that a performance score could be computed. This *prorating* is standard WPPSI practice.

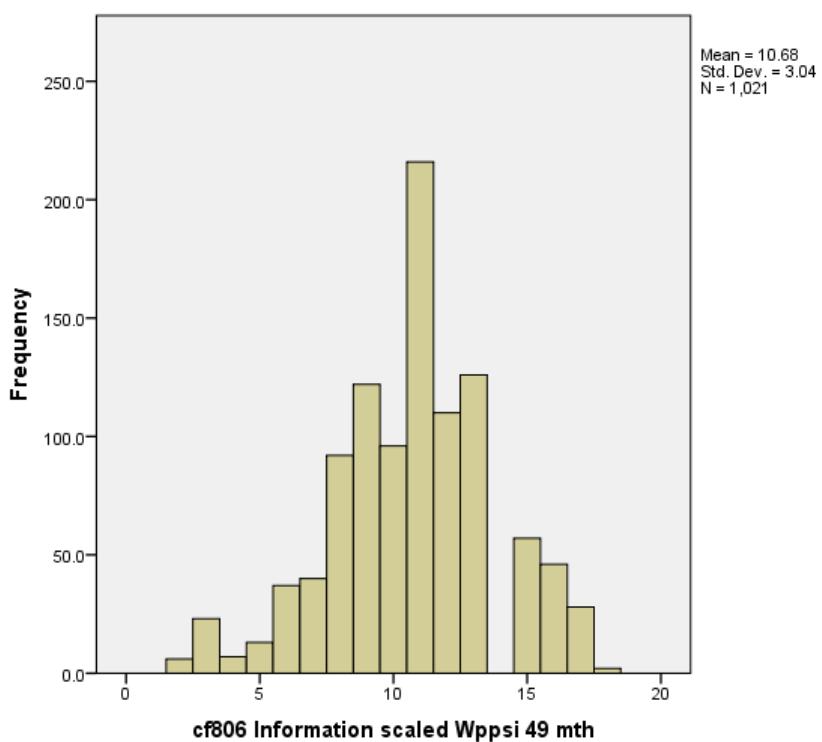
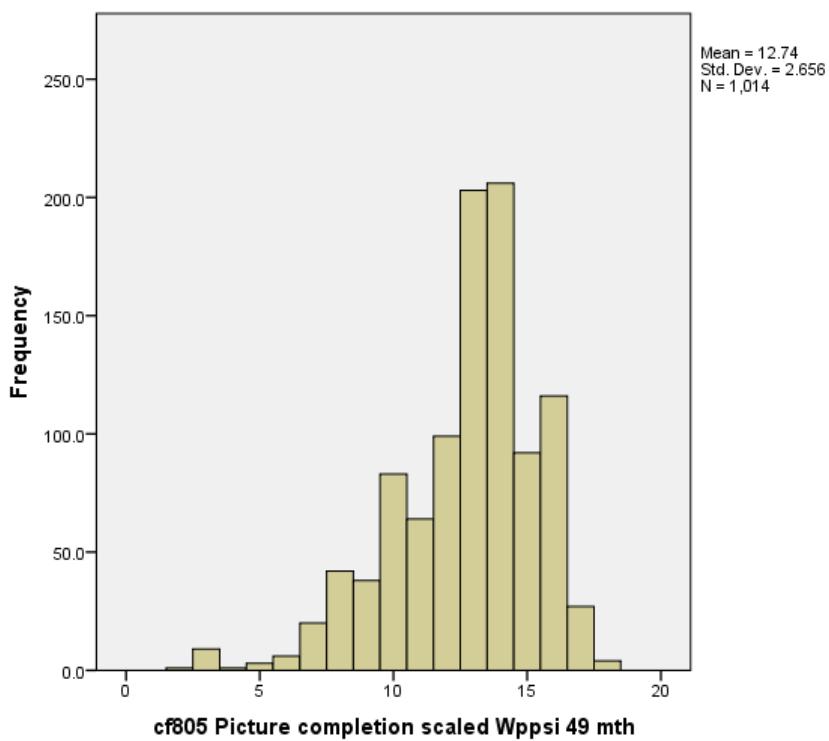
Identical rules apply for the verbal score. Therefore, there will not be consistent missing values for variables, since some children, although not completing a subtest, will have a score for that subtest.

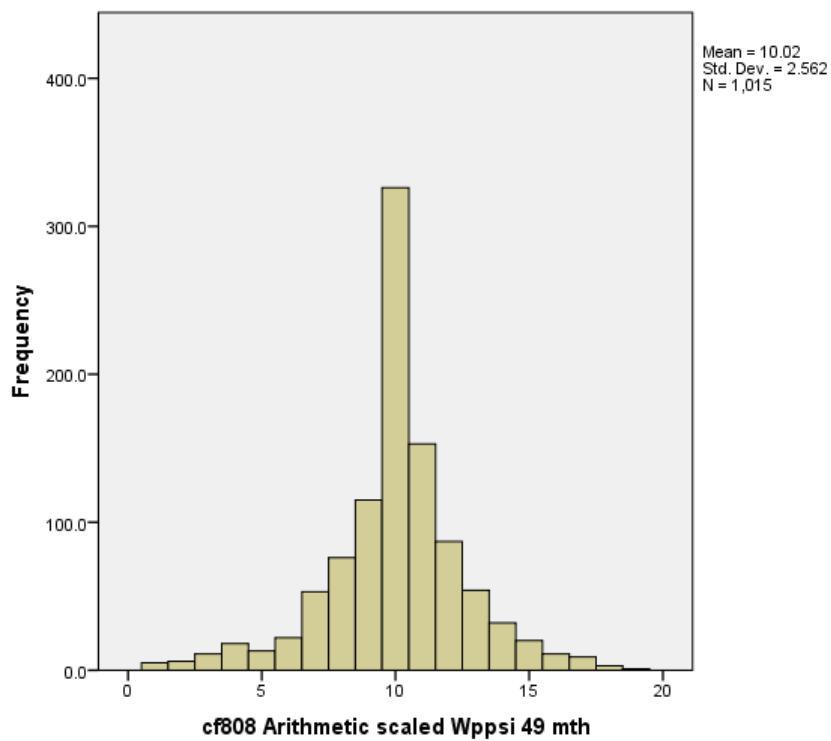
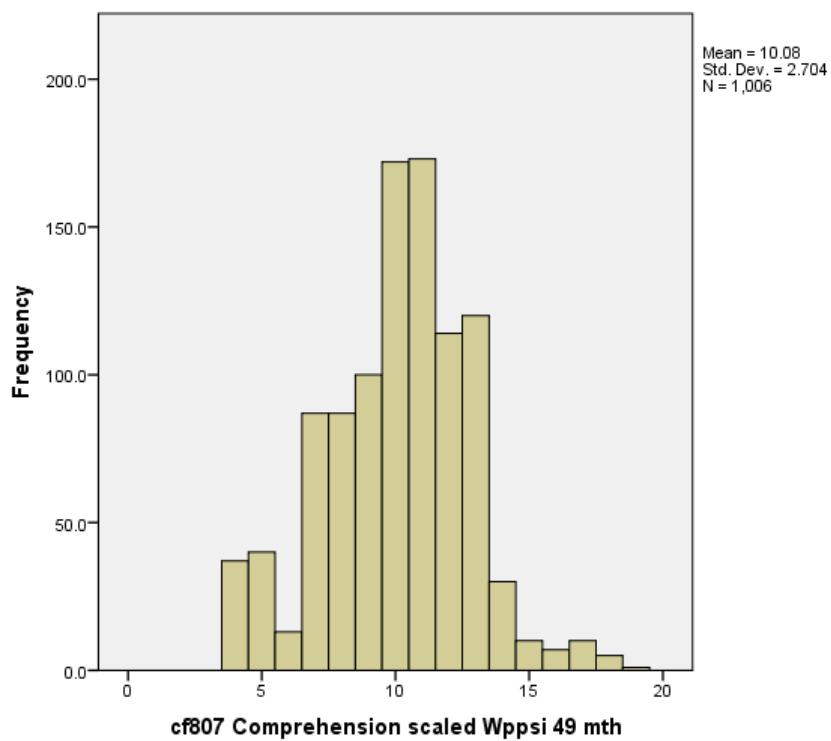
cf800 Wppsi tester 49 mth

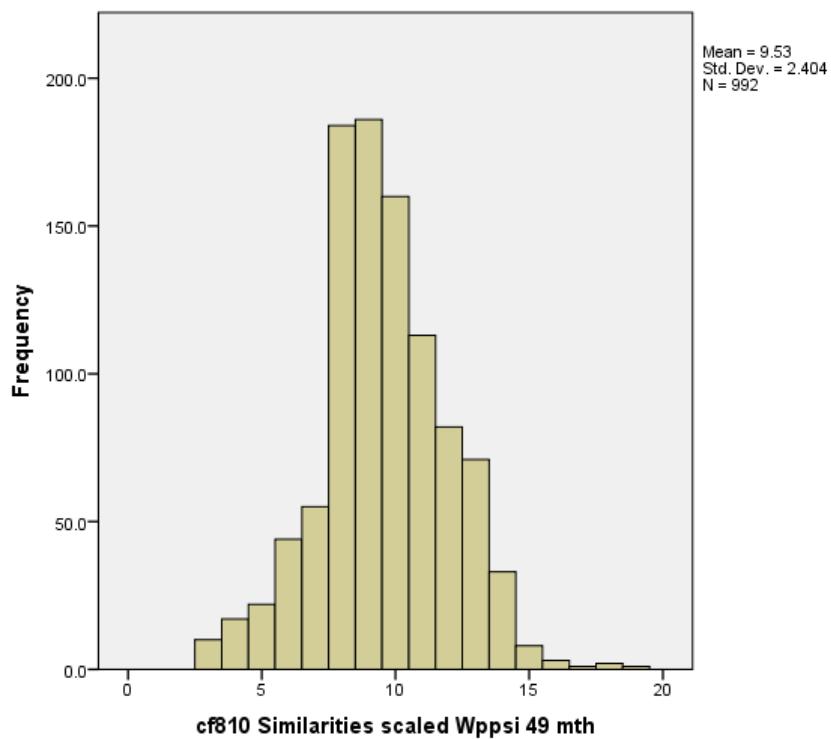
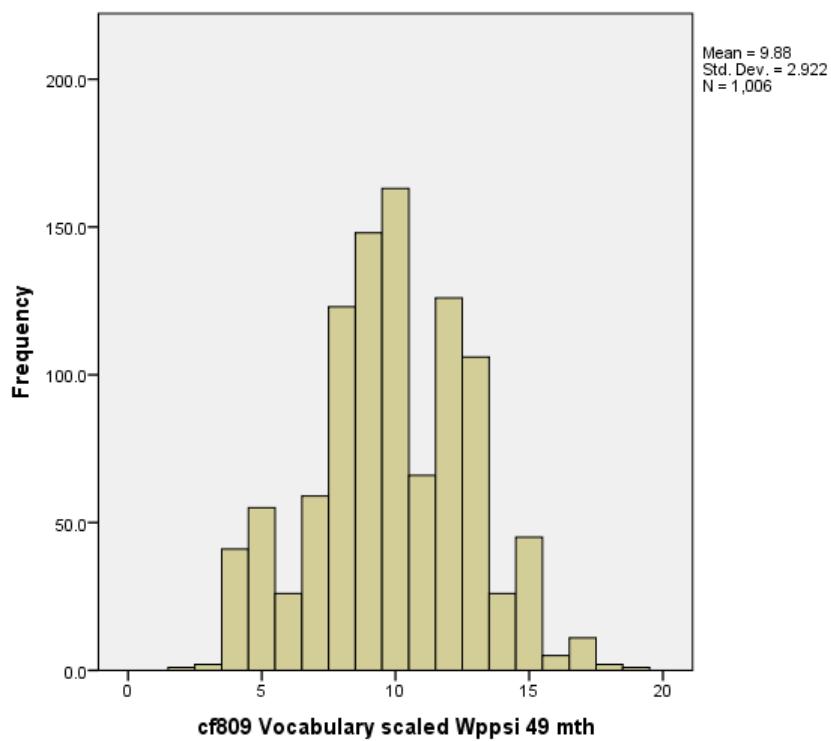
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	129	9.0	12.6	12.6
	2	228	15.9	22.2	34.8
	3	91	6.4	8.9	43.6
	4	226	15.8	22.0	65.6
	5	207	14.5	20.2	85.8
	6	97	6.8	9.4	95.2
	7	13	.9	1.3	96.5
	8	36	2.5	3.5	100.0
Total		1027	71.7	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	5	.3		
	Total	405	28.3		
Total		1432	100.0		

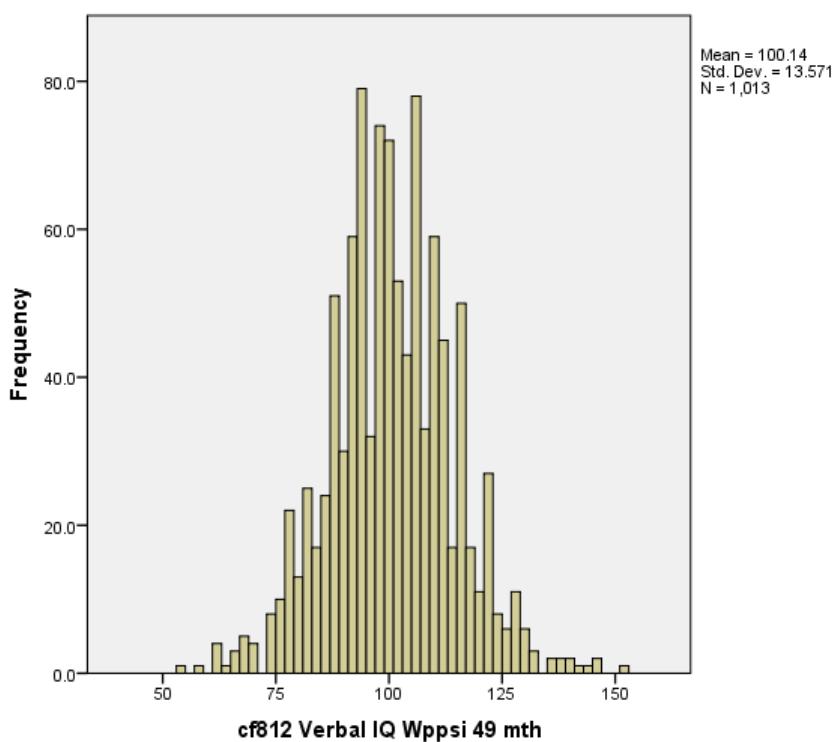
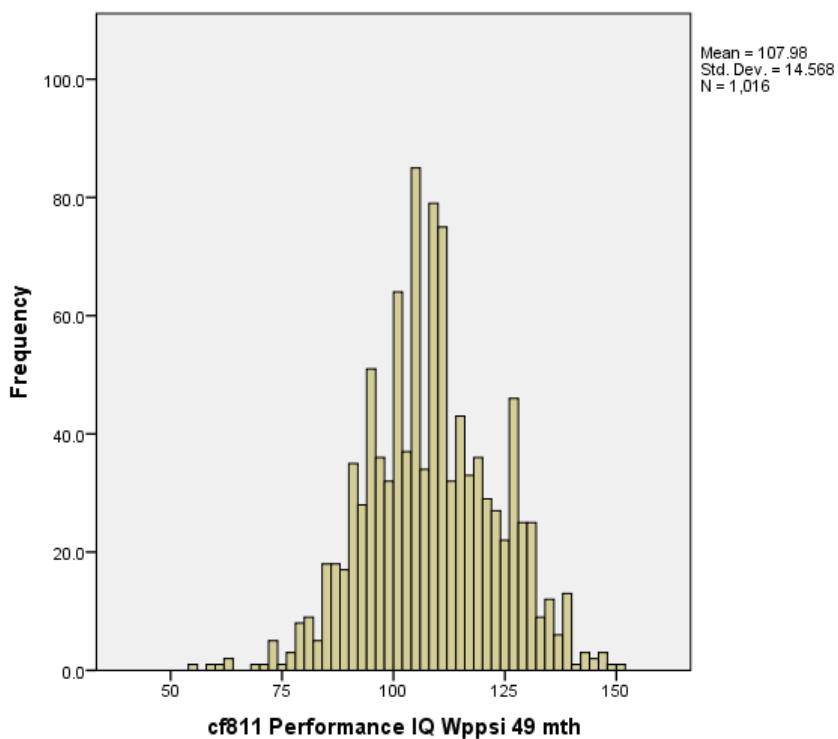


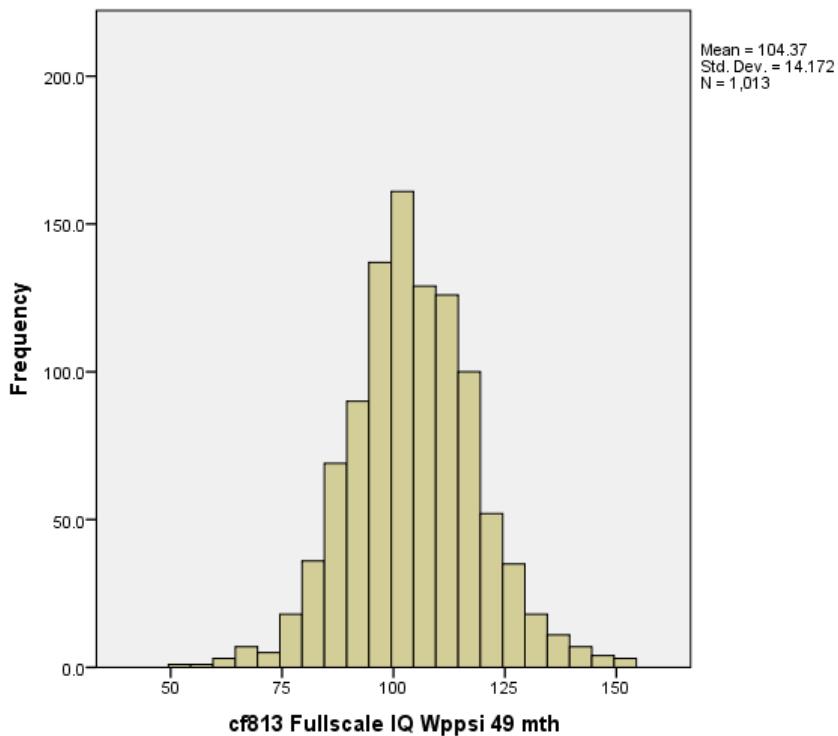












cf814 Any subtest refusals Wppsi 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Completed all	902	63.0	94.9	94.9
	2 Refused 1	35	2.4	3.7	98.6
	3 Refused 2+	13	.9	1.4	100.0
	Total	950	66.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	82	5.7		
	Total	482	33.7		
Total		1432	100.0		

cf815 Refused part of subtest Wppsi 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Completed all	798	55.7	84.2	84.2
	2 Refused part of 1	117	8.2	12.3	96.5
	3 Refused part of 2	22	1.5	2.3	98.8
	4 Refused part of 3 or 4	11	.8	1.2	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf816 Arithmetic subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	940	65.6	99.2	99.2
	2 No	8	.6	.8	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf817 Block design subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	852	59.5	89.5	89.5
	2 No	100	7.0	10.5	100.0
	Total	952	66.5	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	80	5.6		
	Total	480	33.5		
Total		1432	100.0		

**cf818 Comprehension subtest completed v49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	946	66.1	99.8	99.8
	2 No	2	.1	.2	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf819 Geometric design subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	932	65.1	98.2	98.2
	2 No	17	1.2	1.8	100.0
	Total	949	66.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	83	5.8		
	Total	483	33.7		
Total		1432	100.0		

**cf820 Information subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	944	65.9	99.6	99.6
	2 No	4	.3	.4	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf821 Mazes subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	943	65.9	99.5	99.5
	2 No	5	.3	.5	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf822 Object assembly subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	945	66.0	99.7	99.7
	2 No	3	.2	.3	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf823 Picture completion subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	943	65.9	99.5	99.5
	2 No	5	.3	.5	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf824 Similarities subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	921	64.3	97.2	97.2
	2 No	27	1.9	2.8	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf825 Vocabulary subtest completed Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	919	64.2	96.8	96.8
	2 No	30	2.1	3.2	100.0
	Total	949	66.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	83	5.8		
	Total	483	33.7		
Total		1432	100.0		

**cf826 Child behaviour Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very/mostly atypical	67	4.7	7.1	7.1
	2 Somewhat atypical	197	13.8	20.8	27.8
	3 Typical/very typical	684	47.8	72.2	100.0
	Total	948	66.2	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	84	5.9		
	Total	484	33.8		
Total		1432	100.0		

**cf827 Child performance Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Poor/barely adequate	128	8.9	13.5	13.5
	2 Adequate	327	22.8	34.6	48.1
	3 Good/excellent	491	34.3	51.9	100.0
	Total	946	66.1	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	86	6.0		
	Total	486	33.9		
Total		1432	100.0		

**cf828 Uncooperative Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes/becoming	41	2.9	4.3	4.3
	2 No	910	63.5	95.7	100.0
	Total	951	66.4	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	81	5.7		
	Total	481	33.6		
Total		1432	100.0		

**cf829 Overactive Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes/becoming	56	3.9	5.9	5.9
	2 No	898	62.7	94.1	100.0
	Total	954	66.6	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	78	5.4		
	Total	478	33.4		
Total		1432	100.0		

**cf830 Shy Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes/slow to warm up	110	7.7	11.5	11.5
	2 No	843	58.9	88.5	100.0
	Total	953	66.6	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	79	5.5		
	Total	479	33.4		
Total		1432	100.0		

**cf831 Attention Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Attention OK	693	48.4	71.7	71.7
	2 Occ lapses	56	3.9	5.8	77.5
	3 Lost during session	93	6.5	9.6	87.2
	4 Poor	124	8.7	12.8	100.0
	Total	966	67.5	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	66	4.6		
	Total	466	32.5		
Total		1432	100.0		

**cf832 Unwell/hungry Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes, or possibly/becoming	53	3.7	5.6	5.6
	2 No	896	62.6	94.4	100.0
	Total	949	66.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	83	5.8		
	Total	483	33.7		
Total		1432	100.0		

**cf833 Hearing problem Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Glue ear (parental report)	18	1.3	1.9	1.9
	2 Hearing problem (parental report)	10	.7	1.1	3.0
	3 No	921	64.3	97.0	100.0
	Total	949	66.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	83	5.8		
	Total	483	33.7		
Total		1432	100.0		

**cf834 Upset Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Upset/becoming upset	18	1.3	1.9	1.9
	3 No	933	65.2	98.1	100.0
	Total	951	66.4	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	81	5.7		
	Total	481	33.6		
Total		1432	100.0		

**cf835 Unusual behaviour Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes/possibly	33	2.3	3.5	3.5
	3 No	916	64.0	96.5	100.0
	Total	949	66.3	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	83	5.8		
	Total	483	33.7		
Total		1432	100.0		

**cf836 Delay Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Speech/lang prob or dev delay (parental report)	43	3.0	4.5	4.5
	2 No	913	63.8	95.5	100.0
	Total	956	66.8	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	76	5.3		
	Total	476	33.2		
Total		1432	100.0		

**cf837 Distractions Wppsi 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes (carer/other)	61	4.3	6.4	6.4
	2 No	893	62.4	93.6	100.0
	Total	954	66.6	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	78	5.4		
	Total	478	33.4		
Total		1432	100.0		

cf838 Order of test (for tester) Wppsi 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 First in day for tester	360	25.1	35.1	35.1
	2 Second in day for tester	344	24.0	33.5	68.5
	3 Third in day for tester	253	17.7	24.6	93.2
	4 Fourth or fifth in day for tester	70	4.9	6.8	100.0
	Total	1027	71.7	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	5	.3		
	Total	405	28.3		
Total		1432	100.0		

## 4.5 Short term memory

### The Digit Span Test

This was administered at both 49 and 61 months, using staff trained by Dr Sue Pickering in conjunction with Professor Sue Gathercole. It involves the presentation of spoken sequences of digits for immediate serial recall. The child was given a practise session. A maximum of four lists were then presented, starting with 2-item sequences, if the first 3 lists at a particular sequence length were correctly recalled, the list length was increased by one. The number of lists correctly recalled was scored and credit was given if a child correctly recalled the first two lists of a list of 3 at a particular length.

Gathercole, S. E., & Pickering, S. J. (2000). Assessment of working memory in six- and seven-year-old children. *Journal of Educational Psychology*. 92(2): 377-390.

cf860 Digit Span done 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	847	59.1	82.5	82.5
	2 No	180	12.6	17.5	100.0
	Total	1027	71.7	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	5	.3		
	Total	405	28.3		
Total		1432	100.0		

cf860a Reason Digit Span Not Done 49 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Started not comp	9	.6	5.0	5.0
	2 Too tired	73	5.1	40.6	45.6
	3 Oactive/uncoop/poor att	44	3.1	24.4	70.0
	4 Other	54	3.8	30.0	100.0
	Total	180	12.6	100.0	
Missing	-3 Test Done	847	59.1		
	-2 Did not attend	400	27.9		
	-1 Missing	5	.3		
	Total	1252	87.4		
Total		1432	100.0		

**cf861 Total Digit Span Score 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.1	.1	.1
	2	1	.1	.1	.2
	3	2	.1	.2	.5
	4	16	1.1	1.9	2.4
	5	18	1.3	2.1	4.5
	6	24	1.7	2.8	7.3
	7	52	3.6	6.2	13.5
	8	142	9.9	16.8	30.3
	9	75	5.2	8.9	39.2
	10	74	5.2	8.8	48.0
	11	106	7.4	12.6	60.5
	12	199	13.9	23.6	84.1
	13	49	3.4	5.8	89.9
	14	25	1.7	3.0	92.9
	15	16	1.1	1.9	94.8
	16	30	2.1	3.6	98.3
	17	4	.3	.5	98.8
	18	3	.2	.4	99.2
	19	3	.2	.4	99.5
	20	2	.1	.2	99.8
	21	1	.1	.1	99.9
	23	1	.1	.1	100.0
	Total	844	58.9	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	188	13.1		
	Total	588	41.1		
Total		1432	100.0		

**cf862 No. Digit Span Lists recalled 49 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	49	3.4	5.8	5.8
	3	331	23.1	39.3	45.1
	4	400	27.9	47.4	92.5
	5	58	4.1	6.9	99.4
	6	4	.3	.5	99.9
	7	1	.1	.1	100.0
	Total	843	58.9	100.0	
Missing	-2 Did not attend	400	27.9		
	-1 Missing	189	13.2		
	Total	589	41.1		
Total		1432	100.0		

**cf870 Digit Span done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	973	67.9	98.0	98.0
	2 No	20	1.4	2.0	100.0
	Total	993	69.3	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	1	.1		
	Total	439	30.7		
Total		1432	100.0		

**cf872 Total Digit Span Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.1	.1	.1
	1	2	.1	.2	.3
	2	1	.1	.1	.4
	3	1	.1	.1	.5
	4	6	.4	.6	1.1
	5	7	.5	.7	1.9
	6	10	.7	1.0	2.9
	7	10	.7	1.0	3.9
	8	81	5.7	8.4	12.4
	9	80	5.6	8.3	20.7
	10	74	5.2	7.7	28.3
	11	132	9.2	13.7	42.1
	12	204	14.2	21.2	63.2
	13	115	8.0	11.9	75.2
	14	54	3.8	5.6	80.8
	15	62	4.3	6.4	87.2
	16	61	4.3	6.3	93.6
	17	35	2.4	3.6	97.2
	18	12	.8	1.2	98.4
	19	5	.3	.5	99.0
	20	7	.5	.7	99.7
	21	2	.1	.2	99.9
	22	1	.1	.1	100.0
Total		963	67.2	100.0	
Missing	-2 Did not attend	458	32.0		
	-1 Missing	11	.8		
	Total	469	32.8		
Total		1432	100.0		

**cf873 Incomplete Digit Span session 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.1	5.6	5.6
	4	2	.1	11.1	16.7
	8	1	.1	5.6	22.2
	10	1	.1	5.6	27.8
	11	2	.1	11.1	38.9
	16	1	.1	5.6	44.4
	17	1	.1	5.6	50.0
	23	1	.1	5.6	55.6
	31	2	.1	11.1	66.7
	33	1	.1	5.6	72.2
	37	1	.1	5.6	77.8
	43	2	.1	11.1	88.9
	47	1	.1	5.6	94.4
	62	1	.1	5.6	100.0
	Total	18	1.3	100.0	
Missing	-2 Did not attend	458	32.0		
	-1 Missing	956	66.8		
	Total	1414	98.7		
Total		1432	100.0		

**cf874 Digit Span Test Code 1 Done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	932	65.1	97.3	97.3
	2 Not sure	19	1.3	2.0	99.3
	3 No	7	.5	.7	100.0
	Total	958	66.9	100.0	
Missing	-2 Did not attend	458	32.0		
	-1 Missing	16	1.1		
	Total	474	33.1		
Total		1432	100.0		

**cf875 Digit Span Test Code 2 Done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	916	64.0	95.4	95.4
	2 Not sure	38	2.7	4.0	99.4
	3 No	6	.4	.6	100.0
	Total	960	67.0	100.0	
Missing	-2 Did not attend	458	32.0		
	-1 Missing	14	1.0		
	Total	472	33.0		
Total		1432	100.0		

**cf876 Digit Span Test Code 3 Done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	914	63.8	95.3	95.3
	2 Not sure	41	2.9	4.3	99.6
	3 No	4	.3	.4	100.0
	Total	959	67.0	100.0	
Missing	-2 Did not attend	458	32.0		
	-1 Missing	15	1.0		
	Total	473	33.0		
Total		1432	100.0		

**cf877 Digit Span Tester 61mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	236	16.5	23.9	23.9
	2	318	22.2	32.2	56.1
	3	271	18.9	27.4	83.5
	4	7	.5	.7	84.2
	5	156	10.9	15.8	100.0
Missing	Total	988	69.0	100.0	
	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		

## Nonword Repetition

40 nonwords (10 each containing 2, 3, 4 and 5 syllables) were presented to the child in spoken form via an audio cassette recorder. The child was asked to repeat each item. The repetition attempt was scored as correct if there was no phonological deviation from the target form. The number of items at each syllable length (maximum score of 10 in each case) was scored for each child. Any phonological inaccuracies in a response reflecting consistent immaturities/simplifications in the child's phonological system were credited as being correct. This test was performed within the speech session at 61 months, as such the following variables should be used in conjunction with the behaviour variables from that session.

Gathercole SE, Baddeley AD. (1996) *The Children's Test of Nonword Repetition*. The Psychological Corporation.

cf470 Nonword repetition done 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	868	60.6	87.9	87.9
	2 No	86	6.0	8.7	96.6
	3 Part completed	34	2.4	3.4	100.0
	Total	988	69.0	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	6	.4		
	Total	444	31.0		
Total		1432	100.0		

cf471 No. of two syllable words 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	12	.8	1.3	1.3
	1	28	2.0	3.0	4.2
	2	32	2.2	3.4	7.6
	3	32	2.2	3.4	11.0
	4	50	3.5	5.3	16.3
	5	105	7.3	11.1	27.5
	6	162	11.3	17.2	44.6
	7	202	14.1	21.4	66.1
	8	205	14.3	21.7	87.8
	9	91	6.4	9.7	97.5
	10	24	1.7	2.5	100.0
	Total	943	65.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	51	3.6		
	Total	489	34.1		
Total		1432	100.0		

**cf472 No. of 3 syllable words 61 mth**

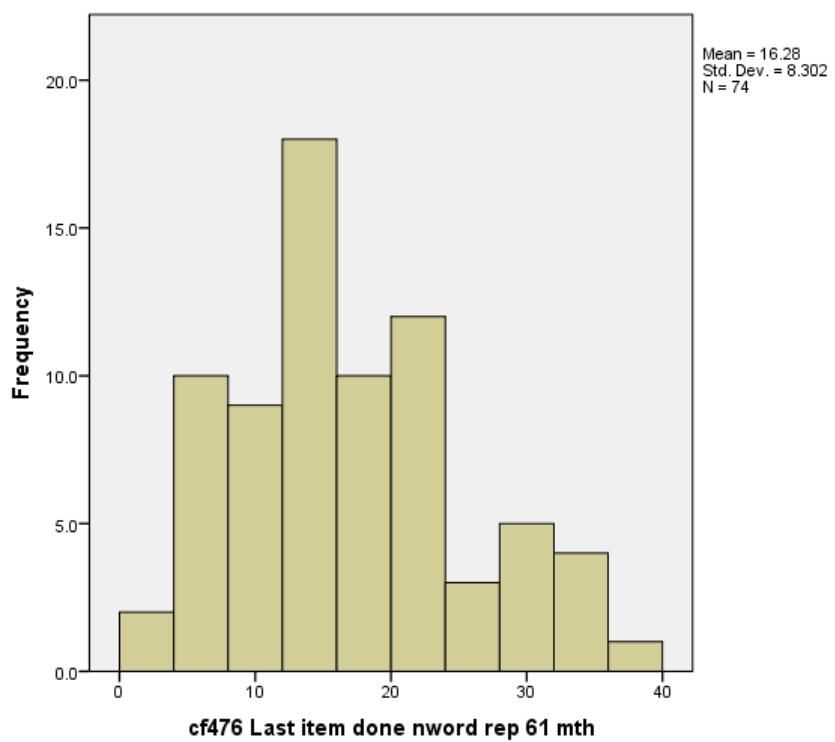
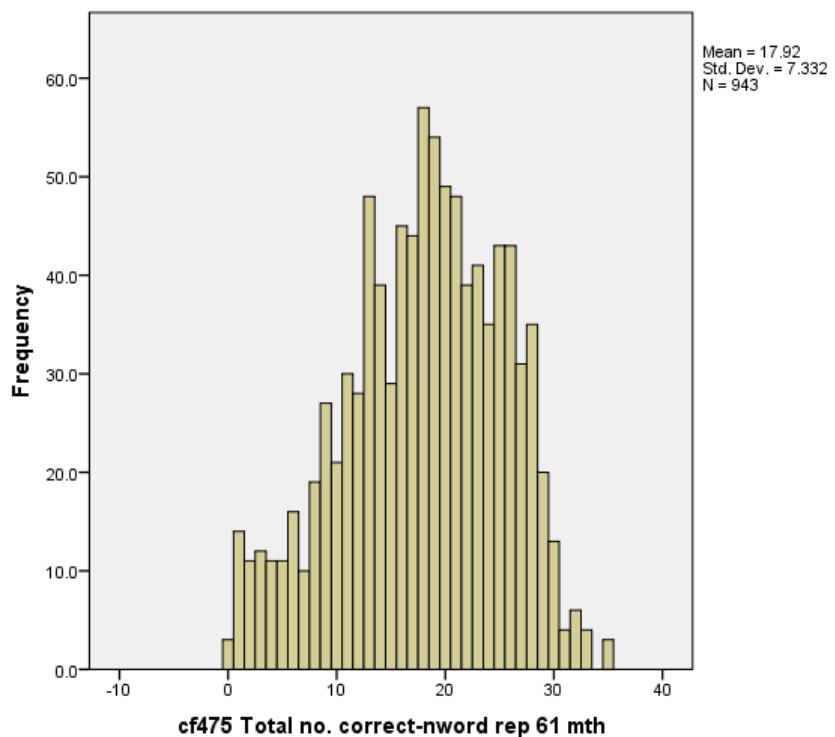
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	21	1.5	2.2	2.2
	1	51	3.6	5.4	7.6
	2	73	5.1	7.7	15.4
	3	96	6.7	10.2	25.6
	4	129	9.0	13.7	39.2
	5	148	10.3	15.7	54.9
	6	163	11.4	17.3	72.2
	7	142	9.9	15.1	87.3
	8	79	5.5	8.4	95.7
	9	35	2.4	3.7	99.4
	10	6	.4	.6	100.0
Total		943	65.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	51	3.6		
	Total	489	34.1		
Total		1432	100.0		

**cf473 No. of 4 syllable words 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	146	10.2	15.5	15.5
	1	131	9.1	13.9	29.4
	2	163	11.4	17.3	46.7
	3	145	10.1	15.4	62.0
	4	134	9.4	14.2	76.2
	5	102	7.1	10.8	87.1
	6	67	4.7	7.1	94.2
	7	44	3.1	4.7	98.8
	8	7	.5	.7	99.6
	9	4	.3	.4	100.0
	Total	943	65.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	51	3.6		
	Total	489	34.1		
Total		1432	100.0		

**cf474 No. of 5 syllable words 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	134	9.4	14.2	14.2
	1	102	7.1	10.8	25.0
	2	101	7.1	10.7	35.7
	3	131	9.1	13.9	49.6
	4	124	8.7	13.1	62.8
	5	115	8.0	12.2	75.0
	6	97	6.8	10.3	85.3
	7	65	4.5	6.9	92.2
	8	52	3.6	5.5	97.7
	9	14	1.0	1.5	99.2
	10	8	.6	.8	100.0
	Total	943	65.9	100.0	
Missing	-2 Did not attend	438	30.6		
	-1 Missing	51	3.6		
	Total	489	34.1		
Total		1432	100.0		



## 5. Blood taking

### 5.1 Strategy

Regular meetings were held between Sue Sadler and Dr. Alan Emond, Community Paediatrician for Bristol, who oversaw this project and the staff involved. At these meetings ideas were shared about the technique and about ways of handling the children and the parents.

Guidelines were developed which required:

- The mother's or father's informed consent in writing before the sample was taken;
- Note to be made of any infections or treatments current in the child (acute infection is known to affect ferritin levels);
- The blood taker to ask the mother to say if she wanted her to stop taking the blood (this removed some of the anxiety from both parent and blood-taker);
- From 18 months, mothers who refused permission because the child was too tired, upset or unwell, to be asked if they would like a home visit to take the blood. Fifteen such visits occurred in the course of the 18-month clinic. Three such visits occurred in the course of the 31-month clinic. From 43 months, parents were offered a return visit to clinic rather than a home visit.

### 5.2 Methodology

Heel-prick samples of capillary blood were taken from children attending the 8, 12 and 18 month clinics and collected in EDTA tubes. The staff were midwives or children's nurses and were trained specifically in heel-prick techniques by Janet Stone, laboratory scientific officer at St. Michael's Hospital.

At 25 and 49 months, no blood was taken, but at 31, 43 and 61 months two samples were taken from a vein. Staff were trained in venepuncture at the Bristol Royal Infirmary if they did not already have this qualification. They also had practice where necessary, putting IV lines into anaesthetised children before surgery, and at an out-patients clinic in the Children's Hospital when blood samples were required. Training was given in preparing children and for taking blood by venepuncture by Lizzy May, playleader at Bristol Royal Hospital for Sick Children.

The parent's permission was sought and EMLA local anaesthetic cream applied by the blood-taker shortly after the child arrived at clinic. The sample was taken not sooner than 50 minutes after this, the procedure first being explained to the child using Teddy. A video of Postman Pat (or other similar children's programme) distracted the child as the samples were taken. If any child refused or objected at any stage, no further attempt was made to obtain a sample.

Blood was collected through butterfly needles into Sarstedt tubes. At 31 months one (5ml) contained EDTA for lead and haemoglobin analysis. A clotting gel tube (5ml) was used for the remaining sample for all other analyses. Training in the use of the Sarstedt system for venepuncture was given by David Norman, and on-going support was given by him and Liz Protherill from Sarstedt. A small percentage of the samples were taken with syringes when staff felt that that method better suited the vein in question.

At 43 months one 9ml and one 7.5ml tube both with EDTA were used, and at 61 months two 9ml tubes were used, one with EDTA and one plain with no additive.

**Table 5.2.1 Permission for blood**

		Variable name	Yes	No	No record
			1	2	-1
<b>Clinic</b>	8m	cf900	1176	135	3
	12m	cf905	963	278	-
	18m	cf910	847	329	7
	31m	cf915	929	194	12
	43m	cf920	868	197	-
	61m	cf925	803	129	62

90% of mothers gave permission for a heel prick sample at 8 months. Of these a capillary sample was obtained from 96% of infants. The proportion of permissions fell to 78% at 12 months and 72% at 18 months – but the procedure was highly successful with 99% of those with permission having blood taken.

Of the 1135 children attending the 31 month clinic, parental consent was obtained for 83% and of these a sample was obtained from 74%, or 59% of those attending. These average figures however hide an enormous improvement in samples obtained as staff gained confidence and experience of painless venepuncture in such young children. In the first two weeks consents were obtained from only 57% of parents. This rose to 84% towards the end of the clinic. Of those willing for blood to be taken, samples were obtained from 60% at first and this rose to 82%.

At 43 months, samples were obtained from 70% of the 1065 children who came to the clinic. 83% of parents gave permission. Some of their children then refused but staff obtained samples from 84% of those who gave permission. At 61 months, 81% gave permission and 82% (658/803) of these had a sample obtained.

**Table 5.2.2 EMLA cream used**

		Variable name	Yes	No	No permission	No record
			1	2	-3	-1
<b>Clinic</b>	31m	cf919	899	30	194	12
	43m	cf924	863	5	197	-
	61m	cf929	771	49	129	45

**Table 5.2.3 Blood sample obtained**

		Variable name	No	Yes	No permission	No record
			2	1	-3	-1
<b>Clinic</b>	8m	CF901	25	1132	135	22
	12m	CF906	12	951	278	-
	18m	CF911	10	837	329	7
	31m	CF916	237	673	194	31
	43m	CF921	124	744	197	-
	61m	CF926a (white cells)	116	604	129	145
		CF926b (red cells)	103	658	129	104

**Table 5.2.4 Blood taker code**

Clinic	8m	12m	18m	31m	43m	61m
Variable name	CF902a	CF907	CF912	CF917	CF922	CF927
1	12	76	320	227	185	29
2	7	184	39	311	247	186
3	92	301	205	223	225	263
4	90	177	214	149	231	229
5	89	209	115	-		23
6	36	138	281	-		178
7	164	88	-	-		26
8	297	24	-	-		
9	152	7	-	-		
10	230	37	-	-		
11	6	-	-	-		
No record -1	4	-	7	31	-	44

**Table 5.2.5 Infection present of recent**

Clinic	Variable name	Yes	No	No record
		1	2	-1
8m	CF903	316	841	157
12m	CF908	223	1018	-
18m	CF913	163	686	334
31m	CF918	166	715	254
43m	CF923	120	763	182
61m	CF928	105	646	114

**cf929a Blood code 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Ch ref bef blood taken	22	1.5	16.3	16.3
	2 Ch anx bef needle ins	12	.8	8.9	25.2
	3 Ch anx aft needle ins	28	2.0	20.7	45.9
	4 No vein at crm rem	9	.6	6.7	52.6
	5 No vein at crm rem	8	.6	5.9	58.5
	7 Ch moved bef sample	3	.2	2.2	60.7
	8 Needle ins no blood	15	1.0	11.1	71.9
	9 Bld stp dur/aft T1	24	1.7	17.8	89.6
	10 Ch moved dur/aft T2	1	.1	.7	90.4
	11 Ch moved dur/aft T3	4	.3	3.0	93.3
	13 Combination 1 & 3	1	.1	.7	94.1
	23 Combination 2 & 3	2	.1	1.5	95.6
	39 Combination 3 & 9	1	.1	.7	96.3
	43 Combination 4 & 3	2	.1	1.5	97.8
	72 Combination 7 & 2	1	.1	.7	98.5
Missing	411 Combination 4 & 11	1	.1	.7	99.3
	911 Comination 9 & 11	1	.1	.7	100.0
	Total	135	9.4	100.0	
Total	-2 Did not attend	438	30.6		
	-1 Missing	859	60.0		
	Total	1297	90.6		
		1432	100.0		

**cf929b Type of multify needle used blood 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 B	333	23.3	58.0	58.0
	2 G	241	16.8	42.0	100.0
	Total	574	40.1	100.0	
Missing	-2 No permission	438	30.6		
	-1	420	29.3		
	Total	858	59.9		
Total		1432	100.0		

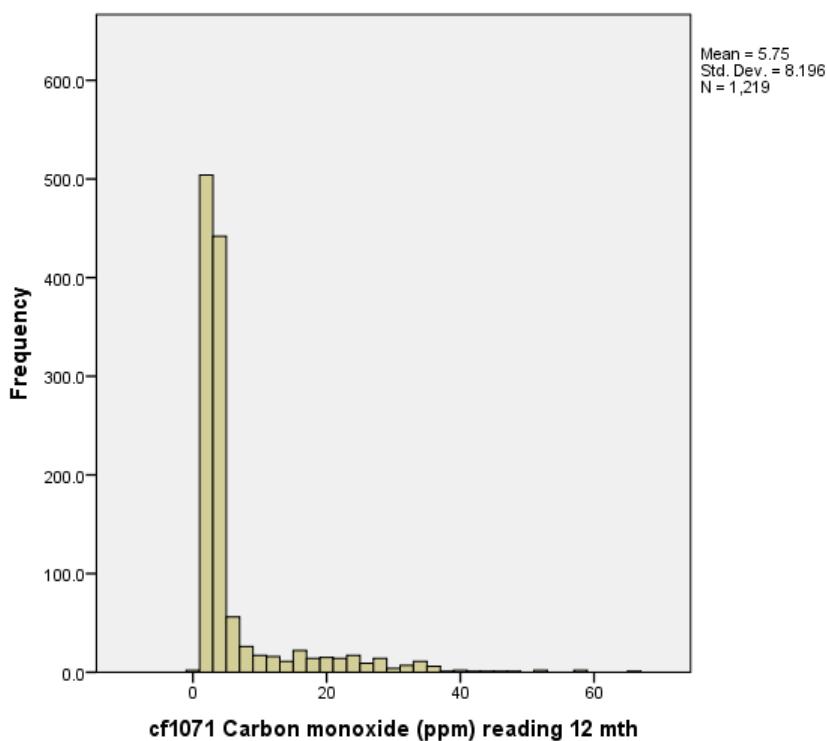
**Please note that all data derived from blood samples are available in the child samples release file.**

## 6. Air pollution

The mother's alveolar carbon monoxide concentrations were measured with a Bedfont 'smokelyzer' during the 12-month clinic.

cf1070 Carbon monoxide measured 12 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1226	85.6	98.8	98.8
	2 No	15	1.0	1.2	100.0
	Total	1241	86.7	100.0	
Missing	-2 Did not attend	191	13.3		
	Total	1432	100.0		



## 7. Dietary investigations

### 7.1 Dietary diaries

A dietary diary was sent to the mother 1 week before her clinic appointment, to be filled in for a 24-hour period at 4 months, and a 3-day period, including a week-end day, at 8, 18, 43 and 61 months.

When the mother (or other carer) brought the completed diary to the CIF clinic, she was interviewed by one of the nutrition team, with the aim of ensuring accuracy in the type of food/drink and the amount eaten/drunk.

The dietary records thus included detailed information about foods eaten and weights in household measures or taken from information given on the packaging of the food.

Similar details were collected on the drinks consumed; in the very young children this was the major part of the diet.

The dietary diaries were then prepared for analysis by computer, at 4 and 8 months using Microdiet software (University of Salford) and from 18 months using Dido software (MRC Human Nutrition Resource Centre, Cambridge). This dietary analysis uses data from the fifth edition of McCance and Widdowson's food tables as well as the supplements to the tables and is constantly being updated as information about new foods becomes available.

The following data includes estimated average nutrient and energy intakes and food group intake (measured in grams). More detail can be found in:

Cowin, I., Emmett, P. and the ALSPAC study team (2000) 'Diet in a group of 18-month-old children in South West England and comparison with the results of a national survey'. *The Journal of Human Nutrition and Dietetics*. 13: 87 – 100.

Emmett, P., Rogers, I., & Symes, C. (2002). 'Food and nutrient intakes of a population sample of 3-year-old children in the South West of England in 1996'. *Public Health Nutrition*. 5(1): 55-64. doi:10.1079/PHN2001241

Noble, S. and Emmett, P. (2006) 'Differences in weaning practice, food and nutrient intake between breast- and formula-fed 4-month-old infants in England'. *Journal of Human Nutrition and Dietetics*. 19: 303-313. doi:10.1111/j.1365-277X.2006.00708.x

Noble, S., Emmett, P. and the ALSPAC Study Team (2001) 'Food and nutrient intake in a cohort of 8-month-old infants in the south-west of England in 1993'. *European Journal of Clinical Nutrition*. 55: 698–707

### 7.1.1 4 months: Average nutrient and food group intakes

Summary statistics for average nutrient intakes at 4 months (n=962)

	Min	Max	M	SD
cf010 DV: Total Protein intake (g): 1 day diet diary: 4m	5.97	28.17	14.36	3.59
cf011 DV: Total Fat intake (g): 1 day diet diary: 4m	9.29	61.50	32.32	8.16
cf012 DV: Total Carbohydrate intake (g): 1 day diet diary: 4m	36.00	146.92	77.36	18.40
cf013 DV: Total Energy intake (kcal): 1 day diet diary: 4m	267.27	1085.81	639.13	138.53
cf014 DV: Total Energy intake (kj): 1 day diet diary: 4m	1126.66	4571.05	2682.58	582.63
cf015 DV: Total Saturated fatty acid intake (g): 1 day diet diary: 4m	4.38	27.00	13.27	3.72
cf016 DV: Total Monounsaturated fatty acid intake (g): 1 day diet diary: 4m	3.27	24.25	12.52	3.18
cf017 DV: Total Polyunsaturated fatty acid intake (g): 1 day diet diary: 4m	1.28	10.68	4.75	1.49
cf018 DV: Total Dietary cholesterol intake (mg): 1 day diet diary: 4m	.00	240.00	74.17	50.74
cf019 DV: Total Total sugar intake (g): 1 day diet diary: 4m	24.37	126.79	67.83	15.64
cf020 DV: Total Starch intake (g): 1 day diet diary: 4m	.00	57.79	9.51	8.77
cf021 DV: Total Southgate fibre (old type) intake (g): 1 day diet diary: 4m	.00	7.23	.90	.97
cf022 DV: Total Non-starch polysaccharide (fibre) intake (g): 1 day diet diary: 4m	.00	5.03	.65	.68
cf023 DV: Total Sodium intake (mg): 1 day diet diary: 4m	67.29	547.10	179.64	59.21
cf024 DV: Total Potassium intake (mg): 1 day diet diary: 4m	283.63	1539.24	662.30	189.32
cf025 DV: Total Calcium intake (mg): 1 day diet diary: 4m	142.98	1292.30	475.25	166.16
cf026 DV: Total Magnesium intake (mg): 1 day diet diary: 4m	15.00	108.68	48.46	16.80
cf027 DV: Total Phosphorus intake (mg): 1 day diet diary: 4m	75.00	791.80	297.51	133.83
cf028 DV: Total Iron intake (mg): 1 day diet diary: 4m	.35	22.96	5.75	3.46
cf029 DV: Total Copper intake (mg): 1 day diet diary: 4m	.13	1.53	.45	.14
cf030 DV: Total Zinc intake (mg): 1 day diet diary: 4m	1.49	7.45	3.49	.96
cf031 DV: Total Chloride intake (mg): 1 day diet diary: 4m	126.56	1054.48	409.50	107.72
cf032 DV: Total Manganese intake (mg): 1 day diet diary: 4m	.00	1.60	.30	.24
cf033 DV: Total Selenium intake (ug): 1 day diet diary: 4m	.00	15.00	4.46	4.20
cf034 DV: Total Iodine intake (ug): 1 day diet diary: 4m	9.01	118.40	55.89	17.79
cf035 DV: Total Retinol intake (ug): 1 day diet diary: 4m	191.80	1867.88	750.73	251.49
cf036 DV: Total Carotene intake (ug): 1 day diet diary: 4m	.00	8902.13	454.63	620.81
cf037 DV: Total Vitamin D intake (ug): 1 day diet diary: 4m	.15	15.42	5.87	4.05
cf038 DV: Total Vitamin E intake (mg): 1 day diet diary: 4m	1.39	15.72	5.54	2.52
cf039 DV: Total Thiamin intake (mg): 1 day diet diary: 4m	.10	2.03	.53	.27
cf040 DV: Total Riboflavin intake (mg): 1 day diet diary: 4m	.11	1.70	.73	.33
cf041 DV: Total Niacin intake (mg): 1 day diet diary: 4m	1.00	14.48	4.96	2.26
cf042 DV: Total Tryptophane/60 intake (mg): 1 day diet diary: 4m	1.28	8.00	4.14	1.13
cf043 DV: Total Vitamin B6 intake (mg): 1 day diet diary: 4m	.05	.92	.33	.16
cf044 DV: Total Vitamin B12 intake (ug): 1 day diet diary: 4m	.00	3.34	.99	.70
cf045 DV: Total Folate intake (ug): 1 day diet diary: 4m	23.32	163.73	63.82	23.43
cf046 DV: Total Pantothenate intake (mg): 1 day diet diary: 4m	.80	5.85	2.50	.66
cf047 DV: Total Biotin intake (ug): 1 day diet diary: 4m	2.99	33.53	11.28	4.30
cf048 DV: Total Vitamin C intake (mg): 1 day diet diary: 4m	20.00	393.75	72.70	39.08
cf049 DV: Total Alcohol intake (g): 1 day diet diary: 4m	.00	.00	.00	.00
cf050 DV: Total Trans fatty acid intake (g): 1 day diet diary: 4m	.00	3.90	.81	1.05
cf051 DV: Total Retinol equivalent intake (ug): 1 day diet diary: 4m (caro/6+ret)	265.18	2085.56	826.50	265.78
cf052 DV: Total Niacin equivalent intake (mg): 1 day diet diary: 4m (niac+tr60)	3.50	20.43	9.10	2.80

Summary statistics for average nutrient intakes at 4 months (n=923)

	Min	Max	M	SD
cf100 DV: High fibre breakfast cereals (g/day): ndns food group: 1 day diet diary: 4m	.00	75.00	.30	3.17
cf101 DV: Other breakfast cereals (g/day): ndns food group: 1 day diet diary: 4m	.00	1.00	.00	.03
cf102 DV: Rusks (g/day): ndns food group: 1 day diet diary: 4m	.00	59.00	2.55	6.66
cf104 DV: Other white fish, shellfish and fish dishes (g/day): ndns food group: 1 day diet diary: 4m	.00	10.00	.02	.39
cf106 DV: Yoghurt and fromage frais (g/day): ndns food group: 1 day diet diary: 4m	.00	125.00	.79	8.68
cf107 DV: Puddings and icecreams (g/day): ndns food group: 1 day diet diary: 4m	.00	110.00	.25	4.49
cf108 DV: Buns, cakes, pastries and fruit pies (g/day): ndns food group: 1 day diet diary: 4m	.00	6.00	.01	.19
cf109 DV: Crisps and savoury snacks (g/day): ndns food group: 1 day diet diary: 4m	.00	3.00	.00	.10
cf111 DV: Chocolate confectionery (g/day): ndns food group: 1 day diet diary: 4m	.00	23.00	.05	.94
cf112 DV: Sugar, preserves and sweet spreads (g/day): ndns food group: 1 day diet diary: 4m	.00	10.00	.04	.45
cf113 DV: Baked beans (g/day): ndns food group: 1 day diet diary: 4m	.00	23.00	.03	.81
cf116 DV: Chicken, turkey and dishes (g/day): ndns food group: 1 day diet diary: 4m	.00	15.00	.17	1.30
cf118 DV: Lamb and dishes (g/day): ndns food group: 1 day diet diary: 4m	.00	20.00	.07	1.03

**(cont.) Summary statistics for average nutrient intakes at 4 months (n=962)**

	Min	Max	M	SD
cf120 DV: Beef and dishes (g/day): ndns food group: 1 day diet diary: 4m	.00	22.00	.14	1.57
cf122 DV: Sausages (g/day): ndns food group: 1 day diet diary: 4m	.00	10.00	.02	.46
cf139 DV: Other potatoes (g/day): ndns food group: 1 day diet diary: 4m	.00	40.00	.87	4.02
cf141 DV: Cooked carrots (g/day): ndns food group: 1 day diet diary: 4m	.00	44.00	1.04	4.55
cf142 DV: Green leafy vegetables (g/day): ndns food group: 1 day diet diary: 4m	.00	60.00	.44	3.22
cf143 DV: Peas (g/day): ndns food group: 1 day diet diary: 4m	.00	15.00	.09	1.05
cf144 DV: Green and runner beans (g/day): ndns food group: 1 day diet diary: 4m	.00	10.00	.02	.46
cf146 DV: Raw tomatoes (g/day): ndns food group: 1 day diet diary: 4m	.00	30.00	.03	.97
cf147 DV: Other salad and raw vegetables (g/day): ndns food group: 1 day diet diary: 4m	.00	25.00	.04	.87
cf148 DV: Other cooked vegetables (g/day): ndns food group: 1 day diet diary: 4m	.00	120.00	2.13	9.22
cf149 DV: Legumes (g/day): ndns food group: 1 day diet diary: 4m	.00	15.00	.02	.48
cf150 DV: Vegetable dishes (g/day): ndns food group: 1 day diet diary: 4m	.00	30.00	.03	.97
cf151 DV: Cheese (g/day): ndns food group: 1 day diet diary: 4m	.00	30.00	.03	.97
cf152 DV: Fruit juice (g/day): ndns food group: 1 day diet diary: 4m	.00	84.00	.81	5.92
cf153 DV: Whole milk (g/day): ndns food group: 1 day diet diary: 4m	.00	112.00	.84	7.54
cf160 DV: Fruit canned in syrup (g/day): ndns food group: 1 day diet diary: 4m	.00	58.00	.12	2.13
cf161 DV: Fruit canned in juice (g/day): ndns food group: 1 day diet diary: 4m	.00	60.00	.14	2.33
cf163 DV: Apples and pears (g/day): ndns food group: 1 day diet diary: 4m	.00	200.00	2.49	13.09
cf164 DV: Bananas (g/day): ndns food group: 1 day diet diary: 4m	.00	160.00	4.04	16.75
cf165 DV: Other fruit (g/day): ndns food group: 1 day diet diary: 4m	.00	60.00	.16	2.74
cf166 DV: Pasta, rice, pizza etc. (g/day): ndns food group: 1 day diet diary: 4m	.00	15.00	.04	.63
cf168 DV: Vitamins - label only: 1 day diet diary: 4m	.00	13.00	.44	1.48
cf169 DV: Medicines - label only: 1 day diet diary: 4m	.00	38.00	.84	3.37
cf170 DV: Soup (g/day): ndns food group: 1 day diet diary: 4m	.00	45.00	.05	1.45
cf171 DV: Normal squashes and cordials (g/day): ndns food group: 1 day diet diary: 4m	.00	37.00	.20	2.14
cf173 DV: Diet squashes and cordials (g/day): ndns food group: 1 day diet diary: 4m	.00	11.00	.03	.54
cf177 DV: Water mineral and flavoured water (g/day): ndns food group: 1 day diet diary: 4m	.00	28.00	.03	.90
cf178 DV: Other sauces (g/day): ndns food group: 1 day diet diary: 4m	.00	30.00	.23	1.98
cf179 DV: Human milk (g/day): ndns food group: 1 day diet diary: 4m	.00	1500.0	305.70	405.35
cf182 DV: Savoury biscuits and crackers (g/day): ndns food group: 1 day diet diary: 4m	.00	40.00	.04	1.29
cf183 DV: Powdered drinks e.g. drinking chocolate (g/day): ndns food group: 1 day diet diary: 4m	.00	2.00	.00	.06
cf184 DV: Soya products (g/day): ndns food group: 1 day diet diary: 4m	.00	938.00	6.16	67.00
cf187 DV: Herbal tea (g/day): ndns food group: 1 day diet diary: 4m	.00	196.00	.28	6.62
cf188 DV: Tea, as drunk, (g/day): ndns food group: 1 day diet diary: 4m	.00	56.00	.06	1.81
cf191 DV: Fluoride drops - label only: 1 day diet diary: 4m	.00	14.00	.03	.52
cf194 DV: Formula milk made-up all types (g/day): ndns food group: 1 day diet diary: 4m	.00	1484.0	513.52	403.17
cf197 DV: Dry baby food dry-weight (g/day): ndns food group: 1 day diet diary: 4m	.00	101.00	11.16	13.75
cf198 DV: Savoury baby food in can or jar (g/day): ndns food group: 1 day diet diary: 4m	.00	256.00	7.64	26.23
cf199 DV: Sweet baby food in can or jar (g/day): ndns food group: 1 day diet diary: 4m	.00	300.00	13.69	34.49
cf200 DV: Ready-made baby drinks (g/day): ndns food group: 1 day diet diary: 4m	.00	308.00	4.33	20.67
cf201 DV: Granulated or dilutable baby drinks (fruit and herbal) (g/day): ndns food group: 1 day diet diary: 4m	.00	97.00	2.04	5.90

## 7.1.2 8 months: Average nutrient and energy intakes

cf202 Number of days dietary data collected for: 8m

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	57	4.0	4.8	4.8
	2	88	6.1	7.5	12.3
	3	1030	71.9	87.4	99.7
	4	3	.2	.3	100.0
Total		1178	82.3	100.0	
Missing	-2 Did not attend	117	8.2		
	-1 Missing	137	9.6		
	Total	254	17.7		
Total		1432	100.0		

Summary statistics for average nutrient intakes at 8 months (n=1178)

		Min	Max	M	SD
cf210 DV: Mean Protein intake (g): diet diary: 8m		6.0	71.6	27.70	8.55
cf211 DV: Mean Fat intake (g): diet diary: 8m		8.3	97.9	32.86	9.23
cf212 DV: Mean Carbohydrate intake (g): diet diary: 8m		34.2	224.6	108.00	23.34
cf213 DV: Total Energy intake (kcal): diet diary: 8m		280	1912	813.18	173.55
cf214 DV: Total Energy intake (kJ): diet diary: 8m		1179	7995	3419.46	728.40
cf215 DV: Mean Saturated fat intake (g): diet diary: 8m		2.0	48.3	14.48	4.96
cf216 DV: Mean Monounsaturated fat intake (g): diet diary: 8m		2.0	39.2	11.58	3.33
cf217 DV: Mean Polyunsaturated fat intake (g): diet diary: 8m		.8	13.2	4.58	1.70
cf218 DV: Mean Cholesterol intake (mg): diet diary: 8m		5.9	363.8	89.52	48.64
cf219 DV: Mean Total sugar intake (g): diet diary: 8m		19.9	196.7	70.06	16.97
cf220 DV: Mean Starch intake (g): diet diary: 8m		5.1	96.6	37.58	13.48
cf221 DV: Mean Southgate fibre intake (g): diet diary: 8m		.3	27.5	5.81	2.85
cf222 DV: Mean Non-starch polysaccharide intake (g): diet diary: 8m		.2	17.2	4.21	1.95
cf223 DV: Mean Sodium intake (mg): diet diary: 8m		80	2712	614.07	325.01
cf224 DV: Mean Potassium intake (mg): diet diary: 8m		261	2956	1206.13	344.08
cf225 DV: Mean Calcium intake (mg): diet diary: 8m		124	1814	663.62	241.61
cf226 DV: Mean Magnesium intake (mg): diet diary: 8m		19	286	104.60	31.36
cf227 DV: Mean Phosphorus intake (mg): diet diary: 8m		88	1661	610.90	206.53
cf228 DV: Mean Iron intake (mg): diet diary: 8m		.8	25.0	8.59	3.67
cf229 DV: Mean Copper intake (mg): diet diary: 8m		.08	2.81	.60	.24
cf230 DV: Mean Zinc intake (mg): diet diary: 8m		1.3	11.0	4.53	1.20
cf231 DV: Mean Chloride intake (mg): diet diary: 8m		138	4253	1010.05	503.97
cf232 DV: Mean Manganese intake (mg): diet diary: 8m		.07	3.47	.99	.41
cf233 DV: Mean Selenium intake (ug): diet diary: 8m		.5	79.9	15.14	9.17
cf234 DV: Mean Iodine intake (ug): diet diary: 8m		6	243	82.47	34.30
cf235 DV: Mean Retinol intake (ug): diet diary: 8m		91	5779	634.10	413.67
cf236 DV: Mean Carotene intake (ug): diet diary: 8m		6	9020	1593.24	1087.03
cf237 DV: Mean Vitamin D intake (ug): diet diary: 8m		.1	20.9	4.83	3.17
cf238 DV: Mean Vitamin E intake (mg): diet diary: 8m		.6	23.2	5.37	2.47
cf239 DV: Mean Thiamin intake (mg): diet diary: 8m		.13	3.01	.94	.34
cf240 DV: Mean Riboflavin intake (mg): diet diary: 8m		.12	2.79	1.19	.39
cf241 DV: Mean Niacin intake (mg): diet diary: 8m		1.3	23.9	7.33	2.65
cf242 DV: Mean Tryptophan/60 intake (mg): diet diary: 8m		1.5	15.5	6.25	1.80
cf243 DV: Mean Vitamin B6 intake (mg): diet diary: 8m		.07	1.91	.73	.24
cf244 DV: Mean Vitamin B12 intake (ug): diet diary: 8m		.00	22.98	2.15	1.81
cf245 DV: Mean Folate intake (ug): diet diary: 8m		25	276	102.61	30.28
cf246 DV: Mean Pantothenate intake (mg): diet diary: 8m		.9	8.6	3.03	.89
cf247 DV: Mean Biotin intake (ug): diet diary: 8m		3	42	16.65	5.04
cf248 DV: Mean Vitamin C intake (mg): diet diary: 8m		6	420	89.82	53.09
cf249 DV: Mean Alcohol intake (g): diet diary: 8m		.0	3.1	.02	.17
cf250 DV: Mean Trans fatty acid intake (g): diet diary: 8m		.0	3.3	.64	.58
cf251 DV: Mean Retinol equivalents intake (ug): diet diary: 8m		167	6052	899.64	441.41
cf252 DV: Mean Niacin equivalents intake (mg): diet diary: 8m		3.2	31.4	13.57	3.70

**Descriptive Statistics**

	N	Min	Max	M	SD
cf301 DV: Total Energy Intake (kcal) on day 1: diet diary: 8m	1178	242.41	1969.86	814.9048	192.14532
cf302 DV: Total Energy Intake (kcal) on day 2: diet diary: 8m	1121	91.00	1920.45	810.0818	198.06139
cf303 DV: Total Energy Intake (kcal) on day 3: diet diary: 8m	1033	106.04	1705.49	808.7371	198.37571
cf304 DV: Total Energy Intake (kcal) on day 4: diet diary: 8m	3	660.77	861.00	774.8600	102.99959
cf305 DV: Coefficient of variation for total energy intake (kcal): 8m	1121	.00	76.46	12.1759	8.42926

### 7.1.3 18 months: Average nutrient intakes, food groups and energy intake

cf402 Number of days dietary data collected for: 18m

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	1.8	2.5
	2	84	5.9	8.2
	3	916	64.0	89.3
	Total	1026	71.6	100.0
Missing	-2 Did not attend	241	16.8	
	-1 Missing	165	11.5	
	Total	406	28.4	
Total	1432	100.0		

Average nutrient intakes at 18 months (n=1026)

	Min	Max	M	SD
cf409 DV: Mean Water intake (g): diet diary: 18m (this does not include water added to drinks)	103.08	1781.26	793.98	213.20
cf410 DV: Mean Protein intake (g): diet diary: 18m	10.62	85.22	41.49	10.22
cf411 DV: Mean Fat intake (g): diet diary: 18m	13.52	103.44	46.85	12.04
cf412 DV: Mean Carbohydrate intake (g): diet diary: 18m	53.41	270.79	136.40	30.30
cf413 DV: Total Energy intake (kcal): diet diary: 18m	475	2177	1099.40	223.55
cf414 DV: Total Energy intake (kj): diet diary: 18m	2000	9136	4617.87	937.33
cf415 DV: Mean Saturated fatty acid intake (g): diet diary: 18m	5.91	50.77	22.48	6.60
cf416 DV: Mean Monounsaturated fatty acid intake (g): diet diary: 18m	3.48	37.54	15.05	4.12
cf417 DV: Mean Polyunsaturated fatty acid intake (g): diet diary: 18m	.85	16.03	5.33	2.24
cf418 DV: Mean Dietary cholesterol intake (mg): diet diary: 18m	5.17	420.27	145.99	60.08
cf419 DV: Mean Total sugar intake (g): diet diary: 18m	24.49	179.52	75.52	20.70
cf420 DV: Mean Starch intake (g): diet diary: 18m	12.06	167.06	60.19	19.09
cf421 DV: Mean Southgate fibre (old type) DO NOT USE intake (g): diet diary: 18m	1.54	32.48	10.11	3.56
cf422 DV: Mean Non-starch polysaccharide (fibre) USE THIS FOR FIBRE intake (g): diet diary: 18m	.97	16.76	6.63	2.35
cf423 DV: Mean Sodium intake (mg): diet diary: 18m	354.76	3789.32	1432.14	438.72
cf424 DV: Mean Potassium intake (mg): diet diary: 18m	369.01	4298.01	1733.05	425.93
cf425 DV: Mean Calcium intake (mg): diet diary: 18m	177.24	1973.27	805.58	256.32
cf426 DV: Mean Magnesium intake (mg): diet diary: 18m	44.61	308.98	153.18	37.00
cf427 DV: Mean Phosphorus intake (mg): diet diary: 18m	234.24	1790.38	878.06	226.39
cf428 DV: Mean Iron intake (mg): diet diary: 18m	1.62	16.02	5.34	1.84
cf429 DV: Mean Copper intake (mg): diet diary: 18m	.08	3.41	.47	.27
cf430 DV: Mean Zinc intake (mg): diet diary: 18m	1.17	10.40	4.96	1.28
cf431 DV: Mean Chloride intake (mg): diet diary: 18m	438.73	5736.61	2201.70	653.17
cf432 DV: Mean Manganese intake (mg): diet diary: 18m	.16	3.56	1.33	.54
cf433 DV: Mean Selenium intake (ug): diet diary: 18m	4.10	84.85	33.79	11.48
cf434 DV: Mean Iodine intake (ug): diet diary: 18m	16.22	564.22	179.24	91.51
cf435 DV: Mean Retinol intake (ug): diet diary: 18m	59.06	5263.44	436.61	455.86
cf436 DV: Mean Carotene intake (ug): diet diary: 18m	88.40	5943.93	1413.17	995.74
cf437 DV: Mean Vitamin D intake (ug): diet diary: 18m	.09	15.59	1.56	1.57
cf438 DV: Mean Vitamin E intake (mg): diet diary: 18m	1.00	15.02	4.48	2.03
cf439 DV: Mean Thiamin intake (mg): diet diary: 18m	.23	2.55	.87	.25
cf440 DV: Mean Riboflavin intake (mg): diet diary: 18m	.24	3.22	1.50	.43
cf441 DV: Mean Niacin intake (mg): diet diary: 18m	2.41	30.89	8.33	2.93
cf442 DV: Mean Tryptophan/60 intake (mg): diet diary: 18m	2.36	18.46	8.76	2.16
cf443 DV: Mean Vitamin B6 intake (mg): diet diary: 18m	.25	3.50	1.11	.32
cf444 DV: Mean Vitamin B12 intake (ug): diet diary: 18m	.14	21.95	3.35	1.76
cf445 DV: Mean Folate intake (ug): diet diary: 18m	35.48	346.41	131.70	37.22
cf446 DV: Mean Pantothenate intake (mg): diet diary: 18m	.65	316.72	46.44	41.65
cf447 DV: Mean Biotin intake (ug): diet diary: 18m	6.18	45.24	20.47	5.89
cf448 DV: Mean Vitamin C intake (mg): diet diary: 18m	3.37	391.76	51.77	46.64
cf449 DV: Mean Alcohol intake (g): diet diary: 18m	.00	3.39	.02	.18
cf450 DV: Mean Trans fatty acid intake (g): diet diary: 18m	.00	4.88	1.66	.58
cf451 DV: Mean Retinol equivalent intake (ug): diet diary: 18m (caro/6+ret)	116.15	5496.63	672.14	484.07
cf452 DV: Mean Niacin equivalent intake (mg): diet diary: 18m (niac+tr60)	5.69	39.10	17.08	4.33
cf453 DV: Mean intrinsic and milk sugars intake (g): diet diary: 18m	4.47	161.98	40.02	14.53
cf454 DV: Mean non-milk extrinsic sugars intake (g): diet diary: 18m	2.19	141.97	35.50	17.79

**Summary statistics for average NDNS food group dietary intakes at 18 months (n=1026)**

	Min	Max	M	SD
cf500 DV: Mean High fibre breakfast cereals intake (g/day): ndns food group: diet diary: 18m	.00	174.33	13.89	18.21
cf501 DV: Mean Other breakfast cereals intake (g/day): ndns food group: diet diary: 18m	.00	66.33	4.54	7.47
cf502 DV: Mean Sweet biscuits intake (g/day): ndns food group: diet diary: 18m	.00	111.00	10.95	10.43
cf503 DV: Mean Coated & fried white fish & shellfish intake (g/day): ndns food group: diet diary: 18m	.00	98.00	5.55	9.73
cf504 DV: Mean Other white fish, shellfish & fish dishes intake (g/day): ndns food group: diet diary: 18m	.00	101.33	3.10	10.51
cf505 DV: Mean Oily fish intake (g/day): ndns food group: diet diary: 18m	.00	70.00	1.44	5.69
cf506 DV: Mean Yoghurt & fromage frais intake (g/day): ndns food group: diet diary: 18m	.00	333.33	40.43	41.69
cf507 DV: Mean Puddings & icecreams intake (g/day): ndns food group: diet diary: 18m	.00	244.67	24.88	33.95
cf508 DV: Mean Buns, cakes, pastries & fruit pies intake (g/day): ndns food group: diet diary: 18m	.00	92.33	8.09	12.37
cf509 DV: Mean Crisps & savoury snacks intake (g/day): ndns food group: diet diary: 18m	.00	68.50	5.94	7.23
cf510 DV: Mean Sugar confectionery intake (g/day): ndns food group: diet diary: 18m	.00	57.00	1.75	5.31
cf511 DV: Mean Chocolate confectionery intake (g/day): ndns food group: diet diary: 18m	.00	54.00	6.91	8.61
cf512 DV: Mean Sugar, preserves & sweet spreads intake (g/day): ndns food group: diet diary: 18m	.00	47.33	3.71	5.95
cf513 DV: Mean Baked beans intake (g/day): ndns food group: diet diary: 18m	.00	180.00	16.08	25.45
cf514 DV: Mean Meat pies & pastries intake (g/day): ndns food group: diet diary: 18m	.00	156.67	3.19	10.46
cf515 DV: Mean Coated chicken & turkey intake (g/day): ndns food group: diet diary: 18m	.00	48.00	1.58	5.38
cf516 DV: Mean Chicken, turkey & dishes intake (g/day): ndns food group: diet diary: 18m	.00	86.67	7.99	12.79
cf517 DV: Mean Liver & dishes intake (g/day): ndns food group: diet diary: 18m	.00	75.00	1.46	6.53
cf518 DV: Mean Lamb & dishes intake (g/day): ndns food group: diet diary: 18m	.00	212.67	6.64	20.24
cf519 DV: Mean Pork & dishes intake (g/day): ndns food group: diet diary: 18m	.00	88.00	2.15	7.27
cf520 DV: Mean Beef & dishes intake (g/day): ndns food group: diet diary: 18m	.00	177.00	9.20	17.97
cf521 DV: Mean Burgers & kebabs intake (g/day): ndns food group: diet diary: 18m	.00	40.00	.83	4.11
cf522 DV: Mean Sausages intake (g/day): ndns food group: diet diary: 18m	.00	48.33	4.51	8.22
cf523 DV: Mean Other meat & meat products intake (g/day): ndns food group: diet diary: 18m	.00	103.67	2.29	8.51
cf524 DV: Mean Eggs & egg dishes intake (g/day): ndns food group: diet diary: 18m	.00	133.00	6.36	13.88
cf525 DV: Mean White bread intake (g/day): ndns food group: diet diary: 18m	.00	131.00	20.33	20.98
cf526 DV: Mean Brown & granary bread intake (g/day): ndns food group: diet diary: 18m	.00	102.00	3.35	9.79
cf527 DV: Mean Softgrain white bread intake (g/day): ndns food group: diet diary: 18m	.00	66.33	.92	5.41
cf528 DV: Mean Wholemeal bread intake (g/day): ndns food group: diet diary: 18m	.00	94.67	7.90	15.00
cf529 DV: Mean Other bread intake (g/day): ndns food group: diet diary: 18m	.00	40.00	1.09	4.38
cf530 DV: Mean Butter intake (g/day): ndns food group: diet diary: 18m	.00	22.00	1.44	3.22
cf531 DV: Mean Full-fat polyunsaturated margarine intake (g/day): ndns food group: diet diary: 18m	.00	23.00	2.18	3.61
cf532 DV: Mean Low-fat polyunsaturated margarine intake (g/day): ndns food group: diet diary: 18m	.00	13.67	.36	1.66
cf533 DV: Mean Full-fat non-polyunsaturated margarine intake (g/day): ndns food group: diet diary: 18m	.00	23.67	1.17	3.00
cf534 DV: Mean Low-fat non-polyunsaturated margarine intake (g/day): ndns food group: diet diary: 18m	.00	15.33	.84	2.46
cf535 DV: Mean Polyunsaturated cooking fat intake (g/day): ndns food group: diet diary: 18m	.00	6.67	.02	.26
cf536 DV: Mean Non-polyunsaturated cooking fat intake (g/day): ndns food group: diet diary: 18m	.00	2.67	.01	.13
cf537 DV: Mean Ham & bacon intake (g/day): ndns food group: diet diary: 18m	.00	59.33	2.76	5.98
cf538 DV: Mean Fried/roast potatoes & chips intake (g/day): ndns food group: diet diary: 18m	.00	166.00	17.61	23.69
cf539 DV: Mean Other potatoes intake (g/day): ndns food group: diet diary: 18m	.00	160.00	29.17	27.11
cf540 DV: Mean Raw carrots intake (g/day): ndns food group: diet diary: 18m	.00	26.67	.32	2.05
cf541 DV: Mean Cooked carrots intake (g/day): ndns food group: diet diary: 18m	.00	60.00	10.12	11.76
cf542 DV: Mean Green leafy vegetables intake (g/day): ndns food group: diet diary: 18m	.00	120.00	8.88	13.82
cf543 DV: Mean Peas intake (g/day): ndns food group: diet diary: 18m	.00	80.00	7.30	9.71
cf544 DV: Mean Green & runner beans intake (g/day): ndns food group: diet diary: 18m	.00	40.00	1.03	3.75

(cont.) Summary statistics for average NDNS food group dietary intakes at 18 months (n=1026)

	Min	Max	M	SD
cf545 DV: Mean Cooked & canned tomatoes intake (g/day): ndns food group: diet diary: 18m	.00	80.00	1.16	5.10
cf546 DV: Mean Raw tomatoes intake (g/day): ndns food group: diet diary: 18m	.00	80.00	1.98	6.75
cf547 DV: Mean Other salad & raw vegetables intake (g/day): ndns food group: diet diary: 18m	.00	88.33	1.31	5.09
cf548 DV: Mean Other cooked vegetables intake (g/day): ndns food group: diet diary: 18m	.00	73.00	7.73	11.16
cf549 DV: Mean Legumes intake (g/day): ndns food group: diet diary: 18m	.00	186.67	.57	6.72
cf550 DV: Mean Vegetable dishes intake (g/day): ndns food group: diet diary: 18m	.00	175.00	2.70	11.62
cf551 DV: Mean Cheese intake (g/day): ndns food group: diet diary: 18m	.00	65.33	6.88	9.29
cf552 DV: Mean Fruit juice intake (g/day): ndns food group: diet diary: 18m	.00	723.33	39.83	83.61
cf553 DV: Mean Whole milk intake (g/day): ndns food group: diet diary: 18m	.00	1500.00	390.96	243.87
cf554 DV: Mean Semi-skimmed milk intake (g/day): ndns food group: diet diary: 18m	.00	961.33	30.45	113.72
cf555 DV: Mean Skimmed milk intake (g/day): ndns food group: diet diary: 18m	.00	637.00	1.61	26.38
cf556 DV: Mean Soya milk intake (g/day): ndns food group: diet diary: 18m	.00	342.33	.67	13.70
cf557 DV: Mean Animal milk intake (g/day): ndns food group: diet diary: 18m	.00	895.33	3.78	45.07
cf558 DV: Mean Human milk intake (g/day): ndns food group: diet diary: 18m	.00	541.67	5.49	40.30
cf559 DV: Mean Other milk & cream intake (g/day): ndns food group: diet diary: 18m	.00	30.00	.41	2.07
cf560 DV: Mean Fruit canned in syrup intake (g/day): ndns food group: diet diary: 18m	.00	80.00	1.18	6.35
cf561 DV: Mean Fruit canned in juice intake (g/day): ndns food group: diet diary: 18m	.00	136.00	1.54	8.94
cf562 DV: Mean Citrus fruit intake (g/day): ndns food group: diet diary: 18m	.00	190.00	8.48	20.69
cf563 DV: Mean Apples & pears intake (g/day): ndns food group: diet diary: 18m	.00	146.67	13.40	21.56
cf564 DV: Mean Bananas intake (g/day): ndns food group: diet diary: 18m	.00	210.00	28.54	32.88
cf565 DV: Mean Other fruit intake (g/day): ndns food group: diet diary: 18m	.00	194.00	10.71	20.37
cf566 DV: Mean Pasta, rice, pizza etc. intake (g/day): ndns food group: diet diary: 18m	.00	268.50	28.12	38.09
cf567 DV: Mean Nuts intake (g/day): ndns food group: diet diary: 18m	.00	27.67	.77	2.50
cf568 DV: Mean Vitamins - label only: ndns food group: diet diary: 18m	.00	10.00	.69	1.63
cf569 DV: Mean Medicines - label only: ndns food group: diet diary: 18m	.00	65.33	.66	3.16
cf570 DV: Mean Soup intake (g/day): ndns food group: diet diary: 18m	.00	150.00	5.85	19.60
cf571 DV: Mean Normal squashes & cordials intake (g/day): ndns food group: diet diary: 18m	.00	287.50	9.15	26.53
cf572 DV: Mean Normal fizzy drinks & made-up squash intake (g/day): ndns food group: diet diary: 18m	.00	457.33	9.35	35.57
cf573 DV: Mean Diet squashes & cordials intake (g/day): ndns food group: diet diary: 18m	.00	306.33	23.31	34.79
cf574 DV: Mean Diet fizzy drinks & made-up squash intake (g/day): ndns food group: diet diary: 18m	.00	364.00	9.31	36.23
cf575 DV: Mean Alcoholic drinks intake (g/day): ndns food group: diet diary: 18m	.00	9.33	.03	.43
cf576 DV: Mean Milk-based sauces intake (g/day): ndns food group: diet diary: 18m	.00	54.00	1.10	4.43
cf577 DV: Mean Water & flavoured water intake (g/day): ndns food group: diet diary: 18m	.00	632.33	2.20	25.32
cf578 DV: Mean Tomato-based sauces intake (g/day): ndns food group: diet diary: 18m	.00	53.33	1.04	3.88
cf579 DV: Mean Other sauces intake (g/day): ndns food group: diet diary: 18m	.00	88.00	7.13	10.37
cf580 DV: Mean Herbs & spices intake (g/day): ndns food group: diet diary: 18m	.00	1.00	.01	.08
cf581 DV: Mean Savoury biscuits & crackers intake (g/day): ndns food group: diet diary: 18m	.00	46.67	1.81	4.14
cf582 DV: Mean Powdered drinks e.g. drinking chocolate intake (g/day): ndns food group: diet diary: 18m	.00	45.00	.69	3.20
cf583 DV: Mean Soya products intake (g/day): ndns food group: diet diary: 18m	.00	116.00	.86	6.48
cf584 DV: Mean Salty flavourings intake (g/day): ndns food group: diet diary: 18m	.00	8.33	.40	.89
cf585 DV: Mean Cod liver oil - label only: ndns food group: diet diary: 18m	.00	6.00	.01	.24
cf586 DV: Mean Herbal tea intake (g/day): ndns food group: diet diary: 18m	.00	71.00	.13	3.01
cf587 DV: Mean Normal tea intake (g/day): ndns food group: diet diary: 18m	.00	520.00	18.66	53.02
cf588 DV: Mean Instant coffee granules/powder intake (g/day): ndns food group: diet diary: 18m	.00	4.67	.01	.15
cf589 DV: Mean Coffee infusion/made-up instant coffee intake (g/day): ndns food group: diet diary: 18m	.00	46.67	.08	1.71

(cont.) Summary statistics for average NDNS food group dietary intakes at 18 months (n=1026)

	Min	Max	M	SD
cf590 DV: Mean Fluoride drops – label only: ndns food group: diet diary: 18m	.00	7.00	.03	.32
cf591 DV: Mean Baby food intake (g/day): ndns food group: diet diary: 18m	.00	425.33	13.75	42.78
cf592 DV: Mean Baby drinks intake (g/day): ndns food group: diet diary: 18m	.00	494.67	4.14	27.92
cf593 DV: Mean Formula milk intake (g/day): ndns food group: diet diary: 18m	.00	1085.00	25.78	106.84
cf594 DV: Mean Iron drops - label only: ndns food group: diet diary: 18m	.00	5.00	.02	.28
cf595 DV: Mean Mineral water intake (g/day): ndns food group: diet diary: 18m	.00	632.33	2.20	25.32

Energy intakes by day at 18 months

	N	Min	Max	M	SD
cf601 DV: Total Energy Intake (kcal) on day 1: diet diary: 18m	1026	190.12	3675.66	1221.72	462.57
cf602 DV: Total Energy Intake (kcal) on day 2: diet diary: 18m	1000	342.05	4530.86	1218.24	458.81
cf603 DV: Total Energy Intake (kcal) on day 3: diet diary: 18m	916	284.57	3511.84	1205.29	455.71
cf605 DV: Coefficient of variation for total energy intake (kcal): diet diary: 18m	1000	.27	71.95	14.46	9.32

## 7.1.4 43 months: Average nutrient intakes, food groups and energy intake

cf702 Number of days dietary data collected for: 43m

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	59	4.1	6.8	6.8
2	80	5.6	9.3	16.1
3	724	50.6	83.9	100.0
Total	863	60.3	100.0	
Missing -2 Did not attend	366	25.6		
-1 Missing	203	14.2		
Total	569	39.7		
Total	1432	100.0		

Summary statistics for average nutrient intakes at 43 months (n=863)

	Min	Max	M	SD
cf709 DV: Mean Water intake (g): diet diary: 43m (does not include water added to drinks)	260	2187	876.68	269.17
cf710 DV: Mean Protein intake (g): diet diary: 43m	17.0	85.4	46.74	11.78
cf711 DV: Mean Fat intake (g): diet diary: 43m	18.4	111.7	55.73	13.77
cf712 DV: Mean Carbohydrate intake (g): diet diary: 43m	85.6	315.4	176.23	35.55
cf713 DV: Total Energy intake (kcal): diet diary: 43m	574	2360	1348.87	258.02
cf714 DV: Total Energy intake (kj): diet diary: 43m	2421	9922	5671.37	1082.60
cf715 DV: Mean Saturated fatty acid intake (g): diet diary: 43m	6.1	54.0	24.79	7.40
cf716 DV: Mean Monounsaturated fatty acid intake (g): diet diary: 43m	5.0	35.5	18.23	4.67
cf717 DV: Mean Polyunsaturated fatty acid intake (g): diet diary: 43m	1.4	26.5	7.67	2.94
cf718 DV: Mean Dietary cholesterol intake (mg): diet diary: 43m	2.5	469.3	154.16	65.16
cf719 DV: Mean Total sugar intake (g): diet diary: 43m	17.5	190.2	90.82	25.14
cf720 DV: Mean Starch intake (g): diet diary: 43m	20.2	207.3	83.90	23.25
cf721 DV: Mean Southgate fibre (old type - DO NOT USE) intake (g): diet diary: 43m	2.7	30.0	12.36	4.00
cf722 DV: Mean Non-starch polysaccharide (fibre - use this) intake (g): diet diary: 43m	1.9	22.1	8.12	2.80
cf723 DV: Mean Sodium intake (mg): diet diary: 43m	532	4296	1822.15	469.65
cf724 DV: Mean Potassium intake (mg): diet diary: 43m	698	4088	1876.66	491.55
cf725 DV: Mean Calcium intake (mg): diet diary: 43m	161	2191	768.45	284.78
cf726 DV: Mean Magnesium intake (mg): diet diary: 43m	62	371	167.76	43.35
cf727 DV: Mean Phosphorus intake (mg): diet diary: 43m	287	1963	913.24	250.81
cf728 DV: Mean Iron intake (mg): diet diary: 43m	1.76	17.95	6.26	1.82
cf729 DV: Mean Copper intake (mg): diet diary: 43m	.12	1.44	.54	.16
cf730 DV: Mean Zinc intake (mg): diet diary: 43m	1.40	11.80	5.14	1.49
cf731 DV: Mean Chloride intake (mg): diet diary: 43m	856	6525	2737.16	706.25
cf732 DV: Mean Manganese intake (mg): diet diary: 43m	.13	5.29	1.60	.64
cf733 DV: Mean Selenium intake (ug): diet diary: 43m	12.4	104.4	42.26	13.98
cf734 DV: Mean Iodine intake (ug): diet diary: 43m	19.5	592.2	152.50	82.15
cf735 DV: Mean Retinol intake (ug): diet diary: 43m	43	4404	364.64	297.66
cf736 DV: Mean Carotene intake (ug): diet diary: 43m	83	10180	1420.01	1114.30
cf737 DV: Mean Vitamin D intake (ug): diet diary: 43m	.12	23.02	1.79	1.36
cf738 DV: Mean Vitamin E intake (mg): diet diary: 43m	1.59	16.46	6.10	2.49
cf739 DV: Mean Thiamin intake (mg): diet diary: 43m	.33	8.44	.98	.37
cf740 DV: Mean Riboflavin intake (mg): diet diary: 43m	.45	3.71	1.47	.47
cf741 DV: Mean Niacin intake (mg): diet diary: 43m	3.0	24.9	10.84	3.45
cf742 DV: Mean Tryptophane/60 intake (mg): diet diary: 43m	3.3	19.1	9.78	2.50
cf743 DV: Mean Vitamin B6 intake (mg): diet diary: 43m	.44	2.60	1.32	.37
cf744 DV: Mean Vitamin B12 intake (ug): diet diary: 43m	.45	18.45	3.15	1.43
cf745 DV: Mean Folate intake (ug): diet diary: 43m	43	328	151.57	45.03
cf746 DV: Mean Pantothenate intake (mg): diet diary: 43m	1	358	57.65	48.86
cf747 DV: Mean Biotin intake (ug): diet diary: 43m	6	76	21.53	7.68
cf748 DV: Mean Vitamin C intake (mg): diet diary: 43m	4.8	322.4	54.38	39.70
cf749 DV: Mean Alcohol intake (g): diet diary: 43m	.0	3.4	.01	.16
cf750 DV: Mean Trans fatty acid intake (g): diet diary: 43m	.5	6.6	2.06	.72
cf751 DV: Mean Retinol equivalent intake (ug): diet diary: 43m (caro/6+ret)	101	4742	601.31	359.72
cf752 DV: Mean Niacin equivalent intake (mg): diet diary: 43m (niac+tr60)	8.56	41.63	20.62	5.17
cf753 DV: Mean intrinsic and milk sugars intake (g): diet diary: 43m	3.32	107.57	34.63	15.89
cf754 DV: Mean non-milk extrinsic sugars intake (g): diet diary: 43m	3.74	164.39	56.19	21.40

Summary statistics for average NDNS food group intakes at 43 months (n=863)

	Min	Max	M	Std. Deviation
cf800 DV: Mean High fibre breakfast cereals intake (g/day): ndns food group: diet diary: 43m	.00	176.67	13.66	20.55
cf801 DV: Mean Other breakfast cereals intake (g/day): ndns food group: diet diary: 43m	.00	62.33	9.69	10.83
cf802 DV: Mean Sweet biscuits intake (g/day): ndns food group: diet diary: 43m	.00	81.33	15.64	13.38
cf803 DV: Mean Coated & fried white fish & shellfish intake (g/day): ndns food group: diet diary: 43m	.00	100.00	8.69	13.86
cf804 DV: Mean Other white fish, shellfish & fish dishes intake (g/day): ndns food group: diet diary: 43m	.00	98.33	3.08	11.19
cf805 DV: Mean Oily fish intake (g/day): ndns food group: diet diary: 43m	.00	90.00	2.59	8.54
cf806 DV: Mean Yoghurt & fromage frais intake (g/day): ndns food group: diet diary: 43m	.00	251.00	39.09	43.72
cf807 DV: Mean Puddings & icecreams intake (g/day): ndns food group: diet diary: 43m	.00	246.67	35.80	39.62
cf808 DV: Mean Buns, cakes, pastries & fruit pies intake (g/day): ndns food group: diet diary: 43m	.00	240.00	15.97	21.46
cf809 DV: Mean Crisps & savoury snacks intake (g/day): ndns food group: diet diary: 43m	.00	84.00	11.25	10.88
cf810 DV: Mean Sugar confectionery intake (g/day): ndns food group: diet diary: 43m	.00	84.00	5.25	9.44
cf811 DV: Mean Chocolate confectionery intake (g/day): ndns food group: diet diary: 43m	.00	99.00	11.55	13.06
cf812 DV: Mean Sugar, preserves & sweet spreads intake (g/day): ndns food group: diet diary: 43m	.00	78.00	6.92	8.90
cf813 DV: Mean Baked beans intake (g/day): ndns food group: diet diary: 43m	.00	200.00	15.50	26.07
cf814 DV: Mean Meat pies & pastries intake (g/day): ndns food group: diet diary: 43m	.00	140.00	3.55	12.07
cf815 DV: Mean Coated chicken & turkey intake (g/day): ndns food group: diet diary: 43m	.00	100.00	5.03	11.33
cf816 DV: Mean Chicken, turkey & dishes intake (g/day): ndns food group: diet diary: 43m	.00	185.00	12.75	20.09
cf817 DV: Mean Liver & dishes intake (g/day): ndns food group: diet diary: 43m	.00	50.00	.88	4.96
cf818 DV: Mean Lamb & dishes intake (g/day): ndns food group: diet diary: 43m	.00	175.00	5.32	17.51
cf819 DV: Mean Pork & dishes intake (g/day): ndns food group: diet diary: 43m	.00	75.00	3.59	10.82
cf820 DV: Mean Beef & dishes intake (g/day): ndns food group: diet diary: 43m	.00	270.00	10.28	25.40
cf821 DV: Mean Burgers & kebabs intake (g/day): ndns food group: diet diary: 43m	.00	100.00	1.05	6.44
cf822 DV: Mean Sausages intake (g/day): ndns food group: diet diary: 43m	.00	80.00	6.48	10.87
cf823 DV: Mean Other meat & meat products intake (g/day): ndns food group: diet diary: 43m	.00	61.67	1.61	5.89
cf824 DV: Mean Eggs & egg dishes intake (g/day): ndns food group: diet diary: 43m	.00	120.00	7.26	14.15
cf825 DV: Mean White bread intake (g/day): ndns food group: diet diary: 43m	.00	202.67	35.56	29.53
cf826 DV: Mean Brown & granary bread intake (g/day): ndns food group: diet diary: 43m	.00	98.00	2.98	10.96
cf827 DV: Mean Softgrain white bread intake (g/day): ndns food group: diet diary: 43m	.00	84.00	1.30	7.69
cf828 DV: Mean Wholemeal bread intake (g/day): ndns food group: diet diary: 43m	.00	112.00	10.57	19.64
cf829 DV: Mean Other bread intake (g/day): ndns food group: diet diary: 43m	.00	72.33	2.51	8.61
cf830 DV: Mean Butter intake (g/day): ndns food group: diet diary: 43m	.00	36.00	2.40	5.13
cf831 DV: Mean Full-fat polyunsaturated margarine intake (g/day): ndns food group: diet diary: 43m	.00	30.33	3.81	5.46
cf832 DV: Mean Low-fat polyunsaturated margarine intake (g/day): ndns food group: diet diary: 43m	.00	24.00	.80	2.83
cf833 DV: Mean Full-fat non-polyunsaturated margarine intake (g/day): ndns food group: diet diary: 43m	.00	24.00	1.52	3.72
cf834 DV: Mean Low-fat non-polyunsaturated margarine intake (g/day): ndns food group: diet diary: 43m	.00	23.67	.78	2.78
cf835 DV: Mean Polyunsaturated cooking fat intake (g/day): ndns food group: diet diary: 43m	.00	2.00	.01	.11
cf836 DV: Mean Non-polyunsaturated cooking fat intake (g/day): ndns food group: diet diary: 43m	.00	1.67	.01	.08
cf837 DV: Mean Ham & bacon intake (g/day): ndns food group: diet diary: 43m	.00	57.00	5.20	8.72
cf838 DV: Mean Fried/roast potatoes & chips intake (g/day): ndns food group: diet diary: 43m	.00	260.00	32.43	34.09

**(cont.) Summary statistics for average NDNS food group intakes at 43 months (n=863)**

	Min	Max	M	SD
cf839 DV: Mean Other potatoes intake (g/day): ndns food group: diet diary: 43m	.00	176.67	25.37	30.08
cf840 DV: Mean Raw carrots intake (g/day): ndns food group: diet diary: 43m	.00	66.67	1.17	5.18
cf841 DV: Mean Cooked carrots intake (g/day): ndns food group: diet diary: 43m	.00	80.00	8.87	12.61
cf842 DV: Mean Green leafy vegetables intake (g/day): ndns food group: diet diary: 43m	.00	104.00	7.78	14.04
cf843 DV: Mean Peas intake (g/day): ndns food group: diet diary: 43m	.00	60.00	6.24	10.20
cf844 DV: Mean Green & runner beans intake (g/day): ndns food group: diet diary: 43m	.00	112.00	1.08	5.80
cf845 DV: Mean Cooked & canned tomatoes intake (g/day): ndns food group: diet diary: 43m	.00	66.67	.64	4.53
cf846 DV: Mean Raw tomatoes intake (g/day): ndns food group: diet diary: 43m	.00	100.00	3.56	10.23
cf847 DV: Mean Other salad & raw vegetables intake (g/day): ndns food group: diet diary: 43m	.00	148.33	4.19	10.74
cf848 DV: Mean Other cooked vegetables intake (g/day): ndns food group: diet diary: 43m	.00	105.33	6.97	12.82
cf849 DV: Mean Legumes intake (g/day): ndns food group: diet diary: 43m	.00	45.00	.62	3.87
cf850 DV: Mean Vegetable dishes intake (g/day): ndns food group: diet diary: 43m	.00	315.00	3.64	17.32
cf851 DV: Mean Cheese intake (g/day): ndns food group: diet diary: 43m	.00	84.00	9.11	11.87
cf852 DV: Mean Fruit juice intake (g/day): ndns food group: diet diary: 43m	.00	896.00	63.89	111.92
cf853 DV: Mean Whole milk intake (g/day): ndns food group: diet diary: 43m	.00	1400.00	260.91	231.75
cf854 DV: Mean Semi-skimmed milk intake (g/day): ndns food group: diet diary: 43m	.00	1381.33	76.47	159.16
cf855 DV: Mean Skimmed milk intake (g/day): ndns food group: diet diary: 43m	.00	150.00	1.48	11.72
cf856 DV: Mean Soya milk intake (g/day): ndns food group: diet diary: 43m	.00	607.33	2.23	29.32
cf857 DV: Mean Breast milk intake (g/day): ndns food group: diet diary: 43m	.00	200.00	.23	6.81
cf858 DV: Mean Animal milk, goats & sheep milk intake (g/day): ndns food group: diet diary: 43m	.00	628.00	1.23	25.91
cf859 DV: Mean Other milk & cream intake (g/day): ndns food group: diet diary: 43m	.00	60.00	.84	4.37
cf860 DV: Mean Fruit canned in syrup intake (g/day): ndns food group: diet diary: 43m	.00	100.00	.91	6.50
cf861 DV: Mean Fruit canned in juice intake (g/day): ndns food group: diet diary: 43m	.00	115.00	1.73	9.00
cf862 DV: Mean Citrus fruit intake (g/day): ndns food group: diet diary: 43m	.00	125.00	6.37	16.68
cf863 DV: Mean Apples & pears intake (g/day): ndns food group: diet diary: 43m	.00	480.00	26.75	37.01
cf864 DV: Mean Bananas intake (g/day): ndns food group: diet diary: 43m	.00	183.33	21.66	30.18
cf865 DV: Mean Other fruit intake (g/day): ndns food group: diet diary: 43m	.00	265.00	11.46	24.56
cf866 DV: Mean Pasta, rice, pizza etc. intake (g/day): ndns food group: diet diary: 43m	.00	365.00	36.47	44.07
cf867 DV: Mean Nuts intake (g/day): ndns food group: diet diary: 43m	.00	40.00	1.36	4.58
cf868 DV: Mean Vitamins – label only: ndns food group: diet diary: 43m	.00	5.00	.29	.99
cf869 DV: Mean Medicines – label only: ndns food group: diet diary: 43m	.00	28.33	.47	2.24
cf870 DV: Mean Soup intake (g/day): ndns food group: diet diary: 43m	.00	166.67	7.22	22.40
cf871 DV: Mean Normal squashes & cordials intake (g/day): ndns food group: diet diary: 43m	.00	373.33	10.62	25.58
cf872 DV: Mean Normal fizzy drinks & made-up squash intake (g/day): ndns food group: diet diary: 43m	.00	728.00	42.54	81.49
cf873 DV: Mean Diet squashes & cordials intake (g/day): ndns food group: diet diary: 43m	.00	298.67	35.01	47.22
cf874 DV: Mean Diet fizzy drinks & made-up squash intake (g/day): ndns food group: diet diary: 43m	.00	756.00	41.82	97.52
cf875 DV: Mean Alcoholic drinks intake (g/day): ndns food group: diet diary: 43m	.00	9.33	.02	.37
cf876 DV: Mean Milk-based sauces intake (g/day): ndns food group: diet diary: 43m	.00	50.00	.73	3.97
cf877 DV: Mean Water & flavoured water intake (g/day): ndns food group: diet diary: 43m	.00	1133.33	48.61	111.21
cf878 DV: Mean Tomato-based sauces intake (g/day): ndns food group: diet diary: 43m	.00	49.33	2.07	5.06
cf879 DV: Mean Other sauces intake (g/day): ndns food group: diet diary: 43m	.00	100.00	9.69	12.77
cf880 DV: Mean Savoury biscuits & crackers intake (g/day): ndns food group: diet diary: 43m	.00	33.00	1.85	4.19
cf881 DV: Mean Powdered drinks e.g. drinking chocolate intake (g/day): ndns food group: diet diary: 43m	.00	48.00	1.15	3.80
cf882 DV: Mean Soya products intake (g/day): ndns food group: diet diary: 43m	.00	81.00	.81	5.42
cf883 DV: Mean Salty flavourings intake (g/day): ndns food group: diet diary: 43m	.00	7.33	.28	.75
cf884 DV: Mean Cod liver oil intake (g/day): ndns food group: diet diary: 43m	.00	10.00	.03	.51
cf885 DV: Mean Herbal tea intake (g/day): ndns food group: diet diary: 43m	.00	9.33	.01	.32

**(cont.) Summary statistics for average NDNS food group dietary intakes at 43 months (n=863)**

	Min	Max	M	SD
cf886 DV: Mean Tea infusion intake (g/day): ndns food group: diet diary: 43m	.00	682.67	23.30	62.74
cf887 DV: Mean Instant coffee granules/powder intake (g/day): ndns food group: diet diary: 43m	.00	20.00	.03	.69
cf888 DV: Mean Coffee infusion/made-up instant coffee intake (g/day): ndns food group: diet diary: 43m	.00	126.67	1.24	8.99
cf889 DV: Mean Fluoride drops – label only: ndns food group: diet diary: 43m	.00	2.00	.00	.08
cf890 DV: Mean Formula milk intake (g/day): ndns food group: diet diary: 43m	.00	480.67	1.65	21.98
cf891 DV: Mean Baby foods intake (g/day): ndns food group: diet diary: 43m	.00	128.00	.75	7.43
cf892 DV: Mean Baby drinks intake (g/day): ndns food group: diet diary: 43m	.00	1.33	.00	.05
cf893 DV: Mean Iron drops –label only: ndns food group: diet diary: 43m	.00	5.00	.01	.17

**Descriptive Statistics**

	N	Min	Max	M	SD
cf901 DV: Total Energy Intake (kcal) on day 1: diet diary: 43m	863	487.79	2418.02	1348.69	308.26
cf902 DV: Total Energy Intake (kcal) on day 2: diet diary: 43m	804	445.78	2816.55	1363.97	320.80
cf903 DV: Total Energy Intake (kcal) on day 3: diet diary: 43m	724	593.51	2905.19	1339.65	320.78
cf905 DV: Coefficient of variation for total energy intake (kcal): diet diary: 43m	804	.03	53.90	15.15	8.82

### 7.1.5 61 months: Average nutrient intakes, food groups and energy intake

Cfd1002 Number of days dietary data collected for: 61m

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	41	2.9	5.3	5.3
	2	85	5.9	11.0	16.3
	3	645	45.0	83.7	100.0
	Total	771	53.8	100.0	
Missing	-2 Did not attend	434	30.3		
	-1 Missing	227	15.9		
	Total	661	46.2		
Total		1432	100.0		

Summary statistics for average nutrient intakes at 61 months (n=771)

	Min	Max	M	SD
cf1009 DV: Mean Water intake (g): diet diary: 61m (this does not include water added to drinks)	224.60	2592.38	938.89	288.09
cf1010 DV: Mean Protein intake (g): diet diary: 61m	13.67	92.45	49.93	12.10
cf1011 DV: Mean Fat intake (g): diet diary: 61m	12.24	161.74	61.42	15.05
cf1012 DV: Mean Carbohydrate intake (g): diet diary: 61m	70.78	509.03	203.59	43.14
cf1013 DV: Total Energy intake (kcal): diet diary: 61m	430.13	3708.34	1515.26	293.12
cf1014 DV: Total Energy intake (kj): diet diary: 61m	1816.15	15590.70	6373.61	1231.20
cf1015 DV: Mean Saturated fatty acid intake (g): diet diary: 61m	6.59	97.53	25.60	7.81
cf1016 DV: Mean Monounsaturated fatty acid intake (g): diet diary: 61m	3.62	44.53	20.51	5.08
cf1017 DV: Mean Polyunsaturated fatty acid intake (g): diet diary: 61m	1.23	24.81	9.28	3.23
cf1018 DV: Mean Dietary cholesterol intake (mg): diet diary: 61m	22.35	543.92	154.37	67.29
cf1019 DV: Mean Total sugar intake (g): diet diary: 61m	24.39	256.01	101.10	30.73
cf1020 DV: Mean Starch intake (g): diet diary: 61m	27.85	253.02	100.49	24.01
cf1021 DV: Mean Southgate fibre (old type) intake DO NOT USE (g): diet diary: 61m	3.05	30.38	14.16	4.20
cf1022 DV: Mean Non-starch polysaccharide (fibre) USE THIS FOR FIBRE intake (g): diet diary: 61m	2.53	21.60	9.29	3.07
cf1023 DV: Mean Sodium intake (mg): diet diary: 61m	303.72	4820.36	2072.24	523.17
cf1024 DV: Mean Potassium intake (mg): diet diary: 61m	586.93	3897.95	1985.75	492.63
cf1025 DV: Mean Calcium intake (mg): diet diary: 61m	184.61	1867.40	742.22	258.00
cf1026 DV: Mean Magnesium intake (mg): diet diary: 61m	66.73	332.28	179.58	44.96
cf1027 DV: Mean Phosphorus intake (mg): diet diary: 61m	266.27	1731.17	952.52	248.71
cf1028 DV: Mean Iron intake (mg): diet diary: 61m	2.56	16.11	7.28	1.92
cf1029 DV: Mean Copper intake (mg): diet diary: 61m	.17	1.73	.63	.17
cf1030 DV: Mean Zinc intake (mg): diet diary: 61m	1.47	16.81	5.43	1.60
cf1031 DV: Mean Chloride intake (mg): diet diary: 61m	495.62	7474.06	3090.31	778.05
cf1032 DV: Mean Manganese intake (mg): diet diary: 61m	.53	5.11	1.82	.73
cf1033 DV: Mean Selenium intake (ug): diet diary: 61m	13.34	146.06	47.97	15.16
cf1034 DV: Mean Iodine intake (ug): diet diary: 61m	28.02	659.17	136.09	72.40
cf1035 DV: Mean Retinol intake (ug): diet diary: 61m	30.41	2236.42	341.52	208.35
cf1036 DV: Mean Carotene intake (ug): diet diary: 61m	84.21	7724.20	1516.19	1187.44
cf1037 DV: Mean Vitamin D intake (ug): diet diary: 61m	.07	8.69	2.05	1.00
cf1038 DV: Mean Vitamin E intake (mg): diet diary: 61m	.58	18.39	7.20	2.71
cf1039 DV: Mean Thiamin intake (mg): diet diary: 61m	.26	10.33	1.20	.68
cf1040 DV: Mean Riboflavin intake (mg): diet diary: 61m	.27	3.49	1.49	.52
cf1041 DV: Mean Niacin intake (mg): diet diary: 61m	3.15	31.60	13.12	4.08
cf1042 DV: Mean Tryptophane/60 intake (mg): diet diary: 61m	2.94	21.11	10.31	2.58
cf1043 DV: Mean Vitamin B6 intake (mg): diet diary: 61m	.25	3.86	1.52	.45
cf1044 DV: Mean Vitamin B12 intake (ug): diet diary: 61m	.19	14.29	3.18	1.34
cf1045 DV: Mean Folate intake (ug): diet diary: 61m	25.44	455.32	172.90	55.65
cf1046 DV: Mean Pantothenate intake (mg): diet diary: 61m	.87	430.90	82.66	61.68
cf1047 DV: Mean Biotin intake (ug): diet diary: 61m	6.68	59.75	22.33	7.68
cf1048 DV: Mean Vitamin C intake (mg): diet diary: 61m	3.18	368.34	63.62	50.39
cf1049 DV: Mean Alcohol intake (g): diet diary: 61m	.00	4.25	.03	.22
cf1050 DV: Mean Trans fatty acid intake (g): diet diary: 61m	.39	6.49	2.32	.84
cf1051 DV: Mean Retinol equivalent intake (ug): diet diary: 61m (caro/6+ret)	94.20	2492.08	594.22	294.44
cf1052 DV: Mean Niacin equivalent intake (mg): diet diary: 61m (niac+tr60)	6.38	43.29	23.43	5.75
cf1053 DV: Mean intrinsic and milk sugars intake (g): diet diary: 61m	1.03	99.72	33.06	15.86
cf1054 DV: Mean non-milk extrinsic sugars intake (g): diet diary: 61m	5.65	204.66	68.04	26.61

**Summary statistics for average NDNS food group dietary intakes at 61 months (n=771)**

	Min	Max	M	SD
cf1100 DV: Mean High fibre breakfast cereals intake (g/day): ndns food group: diet diary: 61m	.00	201.00	14.14	19.71
cf1101 DV: Mean Other breakfast cereals intake (g/day): ndns food group: diet diary: 61m	.00	112.00	12.56	14.87
cf1102 DV: Mean Sweet biscuits intake (g/day): ndns food group: diet diary: 61m	.00	162.00	19.06	17.43
cf1103 DV: Mean Coated & fried white fish, shellfish intake (g/day): ndns food group: diet diary: 61m	.00	112.00	8.70	15.48
cf1104 DV: Mean Other white fish, shellfish, fish dishes intake (g/day): ndns food group: diet diary: 61m	.00	168.00	2.45	11.64
cf1105 DV: Mean Oily fish intake (g/day): ndns food group: diet diary: 61m	.00	66.67	3.02	9.07
cf1106 DV: Mean Yoghurt & fromage frais intake (g/day): ndns food group: diet diary: 61m	.00	286.67	40.54	46.53
cf1107 DV: Mean Puddings & icecreams intake (g/day): ndns food group: diet diary: 61m	.00	261.67	39.64	41.17
cf1108 DV: Mean Buns, cakes, pastries & fruit pies intake (g/day): ndns food group: diet diary: 61m	.00	164.33	23.27	27.62
cf1109 DV: Mean Crisps & savoury snacks intake (g/day): ndns food group: diet diary: 61m	.00	62.33	14.95	12.16
cf1110 DV: Mean Sugar confectionery intake (g/day): ndns food group: diet diary: 61m	.00	76.33	6.25	10.71
cf1111 DV: Mean Chocolate confectionery intake (g/day): ndns food group: diet diary: 61m	.00	90.33	11.44	12.90
cf1112 DV: Mean Sugar, preserves & sweet spreads intake (g/day): ndns food group: diet diary: 61m	.00	160.00	8.15	11.24
cf1113 DV: Mean Baked beans intake (g/day): ndns food group: diet diary: 61m	.00	153.33	15.82	26.33
cf1114 DV: Mean Meat pies & pastries intake (g/day): ndns food group: diet diary: 61m	.00	146.67	4.65	13.77
cf1115 DV: Mean Coated chicken & turkey intake (g/day): ndns food group: diet diary: 61m	.00	105.00	8.31	15.27
cf1116 DV: Mean Chicken, turkey & dishes intake (g/day): ndns food group: diet diary: 61m	.00	165.00	12.62	19.62
cf1117 DV: Mean Liver & dishes intake (g/day): ndns food group: diet diary: 61m	.00	125.00	.65	5.86
cf1118 DV: Mean Lamb & dishes intake (g/day): ndns food group: diet diary: 61m	.00	118.33	4.49	13.15
cf1119 DV: Mean Pork & dishes intake (g/day): ndns food group: diet diary: 61m	.00	88.00	4.61	12.78
cf1120 DV: Mean Beef & dishes intake (g/day): ndns food group: diet diary: 61m	.00	133.33	8.90	18.19
cf1121 DV: Mean Burgers & kebabs intake (g/day): ndns food group: diet diary: 61m	.00	65.67	1.79	7.06
cf1122 DV: Mean Sausages intake (g/day): ndns food group: diet diary: 61m	.00	92.00	8.65	13.57
cf1123 DV: Mean Other meat & meat products intake (g/day): ndns food group: diet diary: 61m	.00	103.33	2.52	9.52
cf1124 DV: Mean Eggs & egg dishes intake (g/day): ndns food group: diet diary: 61m	.00	80.00	6.00	13.12
cf1125 DV: Mean White bread intake (g/day): ndns food group: diet diary: 61m	.00	450.00	48.37	38.13
cf1126 DV: Mean Brown & granary bread intake (g/day): ndns food group: diet diary: 61m	.00	125.33	3.04	11.62
cf1127 DV: Mean Softgrain white bread intake (g/day): ndns food group: diet diary: 61m	.00	100.00	1.00	7.39
cf1128 DV: Mean Wholemeal bread intake (g/day): ndns food group: diet diary: 61m	.00	142.67	11.16	23.83
cf1129 DV: Mean Other bread intake (g/day): ndns food group: diet diary: 61m	.00	108.00	2.32	9.43
cf1130 DV: Mean Butter intake (g/day): ndns food group: diet diary: 61m	.00	90.00	2.76	6.56
cf1131 DV: Mean Full-fat polyunsaturated margarine intake (g/day): ndns food group: diet diary: 61m	.00	32.67	4.55	6.40
cf1132 DV: Mean Low-fat polyunsaturated margarine intake (g/day): ndns food group: diet diary: 61m	.00	30.00	.66	2.67
cf1133 DV: Mean Full-fat non-polyunsaturated margarine intake (g/day): ndns food group: diet diary: 61m	.00	27.33	2.08	4.68
cf1134 DV: Mean Low-fat non-polyunsaturated margarine intake (g/day): ndns food group: diet diary: 61m	.00	31.33	.80	3.10
cf1135 DV: Mean Polyunsaturated cooking fat intake (g/day): ndns food group: diet diary: 61m	.00	6.67	.10	.54
cf1136 DV: Mean Non-polyunsaturated cooking fat intake (g/day): ndns food group: diet diary: 61m	.00	3.67	.03	.24
cf1137 DV: Mean Ham & bacon intake (g/day): ndns food group: diet diary: 61m	.00	95.00	7.15	11.75
cf1138 DV: Mean Fried/roast potatoes & chips intake (g/day): ndns food group: diet diary: 61m	.00	200.00	39.14	33.97
cf1139 DV: Mean Other potatoes intake (g/day): ndns food group: diet diary: 61m	.00	180.00	25.07	30.14
cf1140 DV: Mean Raw carrots intake (g/day): ndns food group: diet diary: 61m	.00	57.33	1.38	5.34
cf1141 DV: Mean Cooked carrots intake (g/day): ndns food group: diet diary: 61m	.00	85.00	10.19	14.09
cf1142 DV: Mean Green leafy vegetables intake (g/day): ndns food group: diet diary: 61m	.00	126.67	8.37	14.42

(cont.) Summary statistics for average NDNS food group dietary intakes at 61 months (n=771)

	Min	Max	M	SD
cf1143 DV: Mean Peas intake (g/day): ndns food group: diet diary: 61m	.00	90.00	6.15	11.26
cf1144 DV: Mean Green & runner beans intake (g/day): ndns food group: diet diary: 61m	.00	70.00	1.79	6.64
cf1145 DV: Mean Cooked & canned tomatoes intake (g/day): ndns food group: diet diary: 61m	.00	80.00	.73	4.62
cf1146 DV: Mean Raw tomatoes intake (g/day): ndns food group: diet diary: 61m	.00	160.00	3.79	12.03
cf1147 DV: Mean Other salad & raw vegetables intake (g/day): ndns food group: diet diary: 61m	.00	130.00	5.57	13.05
cf1148 DV: Mean Other cooked vegetables intake (g/day): ndns food group: diet diary: 61m	.00	63.33	6.66	12.47
cf1149 DV: Mean Legumes intake (g/day): ndns food group: diet diary: 61m	.00	31.67	.40	2.77
cf1150 DV: Mean Vegetable dishes intake (g/day): ndns food group: diet diary: 61m	.00	113.33	3.02	12.04
cf1151 DV: Mean Cheese intake (g/day): ndns food group: diet diary: 61m	.00	77.00	10.45	13.62
cf1152 DV: Mean Fruit juice intake (g/day): ndns food group: diet diary: 61m	.00	924.00	72.58	128.19
cf1153 DV: Mean Whole milk intake (g/day): ndns food group: diet diary: 61m	.00	1064.00	173.51	189.93
cf1154 DV: Mean Semi-skimmed milk intake (g/day): ndns food group: diet diary: 61m	.00	784.00	94.10	151.66
cf1155 DV: Mean Skimmed milk intake (g/day): ndns food group: diet diary: 61m	.00	424.00	4.33	30.46
cf1156 DV: Mean Soya milk intake (g/day): ndns food group: diet diary: 61m	.00	482.67	1.65	22.03
cf1159 DV: Mean Other milk & cream intake (g/day): ndns food group: diet diary: 61m	.00	334.00	1.68	15.64
cf1160 DV: Mean Fruit canned in syrup intake (g/day): ndns food group: diet diary: 61m	.00	56.00	.55	4.45
cf1161 DV: Mean Fruit canned in juice intake (g/day): ndns food group: diet diary: 61m	.00	102.50	1.32	7.30
cf1162 DV: Mean Citrus fruit intake (g/day): ndns food group: diet diary: 61m	.00	133.33	9.67	22.44
cf1163 DV: Mean Apples & pears intake (g/day): ndns food group: diet diary: 61m	.00	303.33	33.11	43.40
cf1164 DV: Mean Bananas intake (g/day): ndns food group: diet diary: 61m	.00	200.00	21.79	32.25
cf1165 DV: Mean Other fruit intake (g/day): ndns food group: diet diary: 61m	.00	200.00	12.42	25.67
cf1166 DV: Mean Pasta, rice, pizza etc. intake (g/day): ndns food group: diet diary: 61m	.00	452.00	35.59	43.01
cf1167 DV: Mean Nuts intake (g/day): ndns food group: diet diary: 61m	.00	50.67	1.42	4.70
cf1168 DV: Vitamins: label only: ndns food group: diet diary: 61m	.00	10.00	.18	.86
cf1169 DV: Medicines: label only: ndns food group: diet diary: 61m	.00	45.33	.52	2.72
cf1170 DV: Mean Soup intake (g/day): ndns food group: diet diary: 61m	.00	220.00	4.14	18.39
cf1171 DV: Mean Normal squashes & cordials intake (g/day): ndns food group: diet diary: 61m	.00	210.00	11.82	28.42
cf1172 DV: Mean Normal fizzy drinks & made-up squash intake (g/day): ndns food group: diet diary: 61m	.00	1130.67	73.17	120.85
cf1173 DV: Mean Diet squashes & cordials intake (g/day): ndns food group: diet diary: 61m	.00	392.67	33.44	45.83
cf1174 DV: Mean Diet fizzy drinks & made-up squash intake (g/day): ndns food group: diet diary: 61m	.00	746.67	51.41	104.72
cf1175 DV: Mean Alcoholic drinks intake (g/day): ndns food group: diet diary: 61m	.00	41.67	.18	2.35
cf1176 DV: Mean Milk-based sauces intake (g/day): ndns food group: diet diary: 61m	.00	74.67	.95	4.82
cf1177 DV: Mean Water & flavoured water intake (g/day): ndns food group: diet diary: 61m	.00	1400.00	107.36	168.73
cf1178 DV: Mean Tomato-based sauces intake (g/day): ndns food group: diet diary: 61m	.00	99.00	3.21	8.15
cf1179 DV: Mean Other sauces intake (g/day): ndns food group: diet diary: 61m	.00	83.33	10.86	13.69
cf1180 DV: Mean Herbs & spices intake (g/day): ndns food group: diet diary: 61m	.00	4.50	.04	.32

**(cont.) Summary statistics for average NDNS food group dietary intakes at 61 months (n=771)**

	Min	Max	M	SD
cf1181 DV: Mean Sugar-free confectionery intake (g/day): ndns food group: diet diary: 61m	.00	4.67	.01	.20
cf1182 DV: Mean Savoury biscuits & crackers intake (g/day): ndns food group: diet diary: 61m	.00	53.33	2.00	5.15
cf1183 DV: Mean Powdered drinks e.g. drinking chocolate intake (g/day): ndns food group: diet diary: 61m	.00	130.00	1.60	6.84
cf1184 DV: Mean Soya products intake (g/day): ndns food group: diet diary: 61m	.00	161.67	1.01	7.79
cf1185 DV: Mean Salty flavourings intake (g/day): ndns food group: diet diary: 61m	.00	10.00	.39	1.10
cf1186 DV: Cod liver oil : label only: ndns food group: diet diary: 61m	.00	3.33	.01	.12
cf1188 DV: Mean Tea intake (g/day): ndns food group: diet diary: 61m	.00	597.33	22.11	64.44
cf1189 DV: Mean Instant coffee granules/powder intake (g/day): ndns food group: diet diary: 61m	.00	4.00	.01	.18

**Descriptive Statistics**

	N	Min	Max	M	SD
cf1201 DV: Total Energy Intake (kcal) on day 1: diet diary: 61m	771	241.08	3708.34	1520.27	375.53
cf1202 DV: Total Energy Intake (kcal) on day 2: diet diary: 61m	730	232.20	2658.04	1523.50	354.57
cf1203 DV: Total Energy Intake (kcal) on day 3: diet diary: 61m	645	247.34	2824.60	1502.97	345.69
cf1205 DV: Coefficient of variation for total energy intake (kcal): diet diary: 61m	730	.24	71.27	16.08	9.96

## 7.2 Dietary questionnaires

At 25 months, a questionnaire asking about shopping habits was sent. This covered types of supermarket (large, small) and other food shops used, as well as travelling to and from shops and the time taken to shop for food. We hope to relate this to dietary information collected about the child.

At 37 months a questionnaire about mother's attitudes towards foods was sent. This asked enquired about how the mother felt about food and cooking, whether she considered certain foods to be healthy or not, what factors influenced her choice of food for meals and questions were included about her own meal patterns. This information can be related to meals eaten by the child in food records kept at 43 months.

At 43 and 61 months, supplementary questionnaires were sent with the food diaries. These were used to expand on the food diaries and were particularly focused on behaviours which might aggravate tooth decay. Questions were also asked about foods that were specifically avoided, particularly in the light of the BSE scare, where we asked how many mothers were avoiding giving their child beef.

## 8. Parenting Measure

The Thorpe Interaction Measure (TIM) is an observation protocol which has been developed to assess both the way the parent, usually the mother, instructs her young child and the warmth of the relationship between mother and child in the standard situation of sharing a picture book. The measure has been developed over the last 7 years. During this time, associations between both mother's mental health and child development outcomes have been explored on small samples. The data on these small samples suggest that the measure is sensitive to differences in behaviour of mothers who are depressed vs. non-depressed and is also predictive of child language outcomes. Work on the psychometric properties and predicting validity of the measure is on-going.

Advice and support was given by our collaborator Professor Sir Michael Rutter, Institute of Psychiatry, London.

### Method

A picture book was specifically developed for use with 12 month olds to control for familiarity of materials. The book contains a set of stimulus pictures, which are photographs of children of like age to those of the test population in situations which are typically familiar to children of this age. Each picture serves as a trial over which the interaction is rated and scores generated. The primary focus of the rating is the mother's teaching behaviour (cognitive scaffolding) in showing the book to the child. Six categories of behaviour are rated: (1) labelling, (2) short elaboration - summarising the content of the picture, (3) long elaboration - including both extension and inference, (4) concept structuring - drawing out concepts such as colour, size, (5) linking - connecting the content of the picture to the child's own world and experience, (6) child involvement - a range of activities encouraging the active participation of the child. Additionally, the quality of verbal and non-verbal communication between the mother and child, and the warmth of the relationship is rated.

Ratings of the mother's behaviour are made while the child and mother look at the picture book together. Though it is not essential to use video to obtain scores from the interaction, the TIMs at the Children in Focus clinics are all video-recorded to allow a data base for future analysis and to allow multiple ratings to assess reliability between observers.

Further scores were created, summarising the behaviour of the mother- Please see the end of this section for details.

### 8.1 Parenting 12 months

cf930 Parenting video done 12 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	1162	81.1	93.6	93.6
	2 No	79	5.5	6.4	100.0
	Total	1241	86.7	100.0	
Missing	-2 Did not attend	191	13.3		
	Total	1432	100.0		

cf931 Parenting observer 12 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1162	81.1	100.0	100.0
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	Total	270	18.9		
		1432	100.0		

cf932 Notes 12 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	69	4.8	5.9	5.9
	1	1007	70.3	86.7	92.6
	2	67	4.7	5.8	98.4
	3	13	.9	1.1	99.5
	7	6	.4	.5	100.0
	Total	1162	81.1	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	Total	270	18.9		
		1432	100.0		

The table below (table 7.1) shows the frequencies of the presence of each maternal behaviour for each picture. The names for each variable are given at the top of each column, with the suffix added for each behaviour, e.g. Concept structuring for Picture 1 – sandpit is cf933d.

Table 7.1 Frequencies of presence of each maternal behaviour

	Picture 1 Sandpit CF933	Picture 2 Child in wardrobe CF934	Picture 3 Child feeding dog CF935	Picture 4 Siblings on bike CF936	Picture 5 Bath CF937
<b>Labelling (a)</b>	825 (71.4%)	644 (56.7%)	987 (86.4%)	762 (67.0%)	483 (43.2%)
<b>Short Elab (b)</b>	568 (49.2%)	479 (42.2%)	247 (21.6%)	435 (38.2%)	814 (72.7%)
<b>Long Elab (c)</b>	59 (5.1%)	77 (6.8%)	69 (6.0%)	32 (2.8%)	42 (3.8%)
<b>Concept Stuc (d)</b>	46 (4.0%)	27 (2.4%)	8 (0.7%)	114 (10.0%)	21 (1.9%)
<b>Linking (e)</b>	277 (24.0%)	236 (20.8%)	229 (20.1%)	353 (31.0%)	359 (32.1%)
<b>Involving 1 (f)</b>	623 (53.9%)	489 (43.0%)	759 (66.5%)	312 (34.4%)	344 (30.7%)
<b>Involving 2 (g)</b>	7 (0.6%)	11 (0.8%)	16 (1.4%)	8 (0.7%)	9 (0.8%)
<b>Picture not seen</b>	7	26	20	24	43
	Picture 6 Rocking horse CF938	Picture 7 Clothes basket CF939	Picture 8 Swing CF940	Picture 9 Family reading CF941	Picture 10 Boy looking tired CF942
<b>Labelling (a)</b>	835 (73.7%)	369 (33.0%)	604 (55.7%)	581 (53.1%)	400 (37.7%)
<b>Short Elab (b)</b>	397 (35.0%)	562 (50.3%)	537 (49.5%)	466 (42.6%)	376 (35.5%)
<b>Long Elab (c)</b>	33 (2.9%)	65 (5.8%)	30 (2.8%)	23 (2.1%)	54 (5.1%)
<b>Concept Stuc (d)</b>	23 (2.0%)	23 (2.1%)	23 (2.1%)	76 (6.9%)	24 (2.3%)
<b>Linking (e)</b>	169 (14.9%)	409 (36.6%)	418 (38.5%)	146 (13.3%)	79 (7.5%)
<b>Involving 1 (f)</b>	421 (37.2%)	316 (28.3%)	260 (24.0%)	266 (24.3%)	228 (21.5%)
<b>Involving 2 (g)</b>	14 (1.2%)	18 (1.6%)	13 (1.2%)	8 (0.7%)	8 (0.8%)
<b>Picture not seen</b>	29	45	77	67	102

**cf945 Physical proximity Parenting 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 distant	49	3.4	4.3	4.3
	2 moderate	85	5.9	7.4	11.7
	3 close	1010	70.5	88.3	100.0
	Total	1144	79.9	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	18	1.3		
	Total	288	20.1		
Total		1432	100.0		

**cf946 Non verbal communication parenting: 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 negative	22	1.5	1.9	1.9
	2 neutral	499	34.8	43.6	45.5
	3 positive	623	43.5	54.5	100.0
	Total	1144	79.9	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	18	1.3		
	Total	288	20.1		
Total		1432	100.0		

**cf947 Verbal communication parenting: 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 negative	19	1.3	1.7	1.7
	2 neutral	285	19.9	24.9	26.6
	3 positive	840	58.7	73.4	100.0
	Total	1144	79.9	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	18	1.3		
	Total	288	20.1		
Total		1432	100.0		

**cf948 Control Parenting 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 mum much more	172	12.0	15.0	15.0
	2 mum more	509	35.5	44.4	59.4
	3 mutual	363	25.3	31.6	91.0
	4 child more	97	6.8	8.5	99.5
	5 child much more	6	.4	.5	100.0
	Total	1147	80.1	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	15	1.0		
	Total	285	19.9		
Total		1432	100.0		

**cf949 Warmth Parenting 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 very warm	199	13.9	17.4	17.4
	2 warm	817	57.1	71.3	88.7
	3 neutral	114	8.0	9.9	98.6
	4 cool	15	1.0	1.3	99.9
	5 very cool	1	.1	.1	100.0
	Total	1146	80.0	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	16	1.1		
	Total	286	20.0		
Total		1432	100.0		

**cf950 Mother motivated parenting: 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 very	121	8.4	10.6	10.6
	2 positive	709	49.5	62.2	72.8
	3 neutral	250	17.5	21.9	94.7
	4 hesitant	52	3.6	4.6	99.3
	5 negative	8	.6	.7	100.0
	Total	1140	79.6	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	22	1.5		
	Total	292	20.4		
Total		1432	100.0		

**cf951 Mother reaction to study child parenting: 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 awkward	30	2.1	2.6	2.6
	2 not positive	233	16.3	20.3	22.9
	3 some positive reaction	647	45.2	56.4	79.3
	4 positive	238	16.6	20.7	100.0
	Total	1148	80.2	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	14	1.0		
	Total	284	19.8		
Total		1432	100.0		

**cf952 Familiarity with task Parenting 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 strong	219	15.3	19.1	19.1
	2 moderate	797	55.7	69.4	88.5
	3 weak	132	9.2	11.5	100.0
	Total	1148	80.2	100.0	
Missing	-3 Task not done	79	5.5		
	-2 Did not attend	191	13.3		
	-1 Missing	14	1.0		
	Total	284	19.8		
Total		1432	100.0		

**cf960 Labelling/describing pictures Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	20	1.4	2.1	2.1
	1	20	1.4	2.1	4.3
	2	45	3.1	4.8	9.1
	3	76	5.3	8.1	17.2
	4	99	6.9	10.6	27.7
	5	103	7.2	11.0	38.7
	6	169	11.8	18.0	56.8
	7	147	10.3	15.7	72.5
	8	135	9.4	14.4	86.9
	9	85	5.9	9.1	95.9
	10	38	2.7	4.1	100.0
Total		937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

**cf961 Short elaboration of pictures Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	91	6.4	9.7	9.7
	1	94	6.6	10.0	19.7
	2	113	7.9	12.1	31.8
	3	85	5.9	9.1	40.9
	4	92	6.4	9.8	50.7
	5	98	6.8	10.5	61.2
	6	90	6.3	9.6	70.8
	7	86	6.0	9.2	79.9
	8	79	5.5	8.4	88.4
	9	74	5.2	7.9	96.3
	10	35	2.4	3.7	100.0
Total		937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

**cf962 Long elaboration of pictures Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	682	47.6	72.8	72.8
	1	161	11.2	17.2	90.0
	2	48	3.4	5.1	95.1
	3	25	1.7	2.7	97.8
	4	12	.8	1.3	99.0
	5	5	.3	.5	99.6
	6	3	.2	.3	99.9
	8	1	.1	.1	100.0
	Total	937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

**cf963 Concept structuring of pictures Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	710	49.6	75.8	75.8
	1	153	10.7	16.3	92.1
	2	44	3.1	4.7	96.8
	3	21	1.5	2.2	99.0
	4	6	.4	.6	99.7
	5	3	.2	.3	100.0
	Total	937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

**cf964 Linking pictures to child's experiences Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	172	12.0	18.4	18.4
	1	192	13.4	20.5	38.8
	2	162	11.3	17.3	56.1
	3	154	10.8	16.4	72.6
	4	107	7.5	11.4	84.0
	5	64	4.5	6.8	90.8
	6	53	3.7	5.7	96.5
	7	21	1.5	2.2	98.7
	8	10	.7	1.1	99.8
	9	2	.1	.2	100.0
	Total	937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

**cf965 Involving child 1 Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	91	6.4	9.7	9.7
	1	104	7.3	11.1	20.8
	2	125	8.7	13.3	34.2
	3	134	9.4	14.3	48.5
	4	145	10.1	15.5	63.9
	5	119	8.3	12.7	76.6
	6	84	5.9	9.0	85.6
	7	58	4.1	6.2	91.8
	8	48	3.4	5.1	96.9
	9	22	1.5	2.3	99.3
	10	7	.5	.7	100.0
	Total	937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

**cf966 Involving child 2 Score 12 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	870	60.8	92.8	92.8
	1	45	3.1	4.8	97.7
	2	14	1.0	1.5	99.1
	3	5	.3	.5	99.7
	4	1	.1	.1	99.8
	5	1	.1	.1	99.9
	6	1	.1	.1	100.0
	Total	937	65.4	100.0	
Missing	-4 Did not see all pictures	225	15.7		
	-3 Task not done	79	5.5		
	-2 Did not attend clinic	191	13.3		
	Total	495	34.6		
Total		1432	100.0		

## 8.2 Parenting 61 months

A further version of the test was developed for use with 5 year old children in collaboration with Dr Julia Berryman and Dr Kate Windridge at the University of Leicester and Dr Sara Meadows at the Graduate School of Education in Bristol. This was used at Children in Focus at 61 months.

**cf1030 Parenting video done 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	541	37.8	54.4	54.4
	2 No	453	31.6	45.6	100.0
	Total	994	69.4	100.0	
Missing	-2 Did not attend	438	30.6		
	Total	1432	100.0		

cf1031 Parenting video coder 61 mth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	.6	1.5	1.5
	2	84	5.9	15.5	17.0
	3	40	2.8	7.4	24.4
	4	84	5.9	15.5	39.9
	5	9	.6	1.7	41.6
	6	11	.8	2.0	43.6
	7	204	14.2	37.7	81.3
	8	5	.3	.9	82.3
	9	41	2.9	7.6	89.8
	10	55	3.8	10.2	100.0
Total		541	37.8	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	Total	891	62.2		
Total		1432	100.0		

Table 7.2 below shows the frequencies of the presence of each maternal behaviour for each picture. The names for each variable are given at the top of each column, with the suffix added for each behaviour, e.g. Concept structuring for Picture 1 – sandpit is CF933d.

Table 7.2: Frequency of each Thorpe Interaction Measure of maternal behaviour.

	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5
	Seaside	Painting	Birthday	Rocks	Garden
	cf933	cf1034	cf1035	cf1036	cf1037
<b>Labelling (a)</b>	257 (-47.5%)	177 (-32.7%)	167 (-30.9%)	92 (-17%)	153 (-28.3%)
<b>Short Elab (b)</b>	266 (-49.2%)	297 (-54.9%)	283 (-52.3%)	332 (-61.4%)	346 (-64%)
<b>Long Elab (c)</b>	33 (-6.1%)	32 (-5.9%)	49 (-9.1%)	85 (-15.7%)	56 (-10.4%)
<b>Concept Stuc (d)</b>	11 (-2%)	12 (-2.2%)	216 (-39.9%)	54 (-10%)	30 (-5.5%)
<b>Linking (e)</b>	212 (-39.2%)	142 (-26.2%)	149 (-27.5%)	137 (-25.3%)	49 (-9.1%)
<b>Involving 1 (f)</b>	356 (-65.8%)	357 (-66%)	388 (-71.7%)	290 (-53.6%)	327 (-60.4%)
<b>Involving 2 (g)</b>	36 (-6.5%)	26 (-4.8%)	377 (-62.3%)	13 (-2.4%)	25 (-4.8%)

	Picture 6
	Puzzle
	cf1038
<b>Labelling (a)</b>	156 (-28.8%)
<b>Short Elab (b)</b>	245 (-45.3%)
<b>Long Elab (c)</b>	34 (-6.3%)
<b>Concept Stuc (d)</b>	13 (-2.4%)
<b>Linking (e)</b>	106 (-19.6%)
<b>Involving 1 (f)</b>	274 (-50.6%)
<b>Involving (g)</b>	50 (-9.2%)

**cf1045 Physical proximity Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 distant	24	1.7	4.5	4.5
	2 moderate	234	16.3	44.1	48.6
	3 close	272	19.0	51.2	99.8
	88 unable to code	1	.1	.2	
	Total	531	37.1	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	10	.7		
	Total	901	62.9		
Total		1432	100.0		

**cf1046 Non verbal communication parenting: 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 negative	3	.2	.6	.6
	2 neutral	118	8.2	22.3	22.8
	3 positive	362	25.3	68.3	91.1
	4 cant say	47	3.3	8.9	
	Total	530	37.0	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	11	.8		
	Total	902	63.0		
Total		1432	100.0		

**cf1047 Verbal communication parenting: 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 negative	1	.1	.2	.2
	2 neutral	169	11.8	31.9	32.1
	3 positive	359	25.1	67.9	100.0
	Total	529	36.9	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	903	63.1		
Total		1432	100.0		

**cf1048 Control Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 carer dominated	113	7.9	21.3	21.3
	2 more carer	236	16.5	44.5	65.8
	3 mutual	119	8.3	22.5	88.3
	4 more child	50	3.5	9.4	97.7
	5 child dominated	12	.8	2.3	
	Total	530	37.0	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	11	.8		
	Total	902	63.0		
Total		1432	100.0		

**cf1049 Warmth Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 very cool/neg	2	.1	.4	.4
	2 cool	12	.8	2.3	2.6
	3 moderate	170	11.9	32.0	34.7
	4 warm	294	20.5	55.4	90.0
	5 very warm/pos	53	3.7	10.0	100.0
	Total	531	37.1	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	10	.7		
	Total	901	62.9		
Total		1432	100.0		

**cf1050 Mother motivated Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 negative	6	.4	1.1	.1
	2 hesitant	50	3.5	9.4	10.6
	3 neutral	166	11.6	31.3	41.9
	4 positive	274	19.1	51.7	93.6
	5 very positive	34	2.4	6.4	100.0
	Total	530	37.0	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	11	.8		
	Total	902	63.0		
Total		1432	100.0		

**cf1051a Mothers reaction to task Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 awkward	30	2.1	5.7	.7
	2 got on	153	10.7	28.9	34.5
	3 positive	302	21.1	57.0	91.5
	4 very positive	45	3.1	8.5	100.0
	Total	530	37.0	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	11	.8		
	Total	902	63.0		
Total		1432	100.0		

**cf1051b Childs reaction to task Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 awkward	43	3.0	8.1	8.1
	2 got on	210	14.7	39.7	47.8
	3 positive	261	18.2	49.3	97.2
	4 very positive	15	1.0	2.8	100.0
	Total	529	36.9	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	12	.8		
	Total	903	63.1		
Total		1432	100.0		

**cf1054 Background noise Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 high	7	.5	1.3	1.3
	2 moderate	40	2.8	7.5	8.8
	3 low	217	15.2	40.6	49.4
	4 none	270	18.9	50.6	100.0
	Total	534	37.3	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	7	.5		
	Total	898	62.7		
Total		1432	100.0		

**cf1055 Distracting Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 high	4	.3	.7	.7
	2 moderate	27	1.9	5.1	5.8
	3 low	69	4.8	12.9	18.7
	4 none	434	30.3	81.3	100.0
	Total	534	37.3	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	7	.5		
	Total	898	62.7		
Total		1432	100.0		

**cf1056a Other siblings present Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	49	3.4	9.2	9.2
	2 no	485	33.9	90.8	100.0
	Total	534	37.3	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	7	.5		
	Total	898	62.7		
Total		1432	100.0		

**cf1056b Activity for other sibling Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 yes	8	.6	16.7	16.7
	2 no	40	2.8	83.3	100.0
	Total	48	3.4	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	493	34.4		
Total		1384	96.6		
Total		1432	100.0		

**cf1056c Both children participated Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	25	1.7	52.1	52.1
	2 no	23	1.6	47.9	100.0
	Total	48	3.4	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	493	34.4		
Total		1384	96.6		
Total		1432	100.0		

**cf1056d One child dominated Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 yes, target	23	1.6	48.9	48.9
	2 yes, other	5	.3	10.6	59.6
	3 no, mutual	9	.6	19.1	78.7
	4 no, carer	7	.5	14.9	93.6
	5 no, mutual carer/child	3	.2	6.4	100.0
	Total	47	3.3	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	494	34.5		
	Total	1385	96.7		
Total		1432	100.0		

**cf1056e Mother actively incl both children Parenting 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	.6	17.0	17.0
	2 no	39	2.7	83.0	100.0
	Total	47	3.3	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend	438	30.6		
	-1 Missing	494	34.5		
	Total	1385	96.7		
Total		1432	100.0		

**cf1060 Labelling/describing pictures Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	127	8.9	23.5	23.5
	1	134	9.4	24.8	48.2
	2	110	7.7	20.3	68.6
	3	86	6.0	15.9	84.5
	4	43	3.0	7.9	92.4
	5	28	2.0	5.2	97.6
	6	13	.9	2.4	100.0
	Total	541	37.8	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
	Total	891	62.2		
Total		1432	100.0		

**cf1061 Short elaboration of pictures Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	55	3.8	10.2	10.2
	1	56	3.9	10.4	20.5
	2	62	4.3	11.5	32.0
	3	111	7.8	20.5	52.5
	4	100	7.0	18.5	71.0
	5	86	6.0	15.9	86.9
	6	71	5.0	13.1	100.0
	Total	541	37.8	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
	Total	891	62.2		
Total		1432	100.0		

**cf1062 Long elaboration of pictures Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	362	25.3	66.9	66.9
	1	111	7.8	20.5	87.4
	2	40	2.8	7.4	94.8
	3	19	1.3	3.5	98.3
	4	6	.4	1.1	99.4
	5	1	.1	.2	99.6
	6	2	.1	.4	100.0
	Total	541	37.8	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
	Total	891	62.2		
Total		1432	100.0		

**cf1063 Concept structuring of pictures Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	281	19.6	51.9	51.9
	1	195	13.6	36.0	88.0
	2	57	4.0	10.5	98.5
	3	5	.3	.9	99.4
	4	3	.2	.6	100.0
	Total	541	37.8	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
	Total	891	62.2		
Total		1432	100.0		

**cf1064 Linking pictures to child's experiences Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	162	11.3	29.9	29.9
	1	140	9.8	25.9	55.8
	2	115	8.0	21.3	77.1
	3	84	5.9	15.5	92.6
	4	28	2.0	5.2	97.8
	5	11	.8	2.0	99.8
	6	1	.1	.2	100.0
Missing	Total	541	37.8	100.0	
	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
Total		891	62.2		
Total		1432	100.0		

**cf1065 Involving child 1 Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	43	3.0	7.9	7.9
	1	44	3.1	8.1	16.1
	2	70	4.9	12.9	29.0
	3	63	4.4	11.6	40.7
	4	105	7.3	19.4	60.1
	5	97	6.8	17.9	78.0
	6	119	8.3	22.0	100.0
Missing	Total	541	37.8	100.0	
	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
Total		891	62.2		
Total		1432	100.0		

**cf1066 Involving child 2 Score 61 mth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	180	12.6	33.3	33.3
	1	274	19.1	50.6	83.9
	2	62	4.3	11.5	95.4
	3	17	1.2	3.1	98.5
	4	5	.3	.9	99.4
	5	1	.1	.2	99.6
	6	2	.1	.4	100.0
Total		541	37.8	100.0	
Missing	-3 Task not done	453	31.6		
	-2 Did not attend clinic	438	30.6		
	Total	891	62.2		
Total		1432	100.0		

## 9. Personnel and funding

### 9.1 Management Structure

ALSPAC Director	Professor Jean Golding
Clinic Manager	Sue Sadler
Clinic Administrators	Pauline Morgan (Paula Merrifield for part of 4- month clinic only)
Data Administrator	Amanda Carmichael (was Grimshaw)
Assistant Administrators	Tricia Hutchinson Hazel Blake (Fiona Macaskill for part of 4- month clinic only)

### 9.2 Clinic staff

**Reception staff:** Hazel Blake, Marian Boon, Sarah Boon, Julie Brooks, Sue Cooper, Sue Dowe, Susan Greer, Isabelle Henry, Cathy Hicks, Tricia Hutchinson, Jean Lines, Samantha Morgan, Alex Portch, Charlotte Purches, Kaija Turvey, Florence Walker, Nicola Way.

**Measuring team:** Raghda Alatia, Carol Billinghurst, Hazel Blake, Sarah Boon, (Julie Brooks, Sarah Brown, Amanda Carmichael, Pauline Church, Susan Greer, Linda Lee, Elizabeth Miller, Pauline Morgan, Sheilagh Murray, Terri Portch, Jenny Shine, Carol Smith, Miriam Walls.

Staff were trained by Dr. Maria Bredow, paediatrician, then at Southmead Hospital, who also validated these measurements. Specific training for arm circumference measurements was given by Les Cox from the Department of Growth and Development at the Institute of Child Health, London, who also trained staff to calculate inter-measurer reliability for all growth measurements. Professor M. Preece, Head of the Department of Growth and Development, advised on growth measurements.

**Blood pressure:** Raghda Alatia, Patrick Bell, Carol Billinghurst, Hazel Blake, Sarah Brown, Pauline Church, Steve Gibbs, Susan Greer, Linda Lee, Elizabeth Miller, Pauline Morgan, Terri Portch, Charlotte Purches,

Dr. Peter Whincup, Department of Public Health, Royal Free Hospital School of Medicine, University of London, advised the project.

**Skin observations at 49 months:** Raghda Alatia, Hazel Blake, Carol Billinghurst, Pauline Church, Elizabeth Miller, Pauline Morgan, Terri Portch;

Dr Ian Harvey and Dr Cameron Kennedy advised on the science.

**Skin observations at 61 months:** Carol Billinghurst, Hazel Blake, Sarah Boon, Elizabeth Miller, Pauline Morgan.

**Allergy - skin testing:** Pauline Church, Rosie Hoggett, Katie Hunt, Terri Portch, Jan Wardle.

Trained by Sr Deborah Fox (St Mary's Hospital, London). Dr Gideon Lack (St Mary's Hospital, London) was in charge of science.

**Dental observations:** Hazel Blake, Marion Boon, Sarah Brown, Steve Gibbs, Susan Greer, Lyn Harradine, Cathy Hicks), Veronica Mardon, Terri Portch.

Training, supervision and validation by Karen Duncan, Bristol Dental Hospital. She and Mr. Peter Crawford, also of BDH, were in charge of science.

**Vision:** Dr. Cathy Williams, ophthalmologist, (in charge of science) and Penny Warnes, Cath Miller, Julie Parker, Sarah Deeves, orthoptists.

**Tympanometry and hearing test to 43 months:** Hazel Blake, Sarah Brown, Steve Gibbs, Susan Greer, Lyn Harradine, Cathy Hicks, Adrian Jones, Veronica Marden, Judy Matthews.

Elizabeth Midgeley, audiological scientist at the Bristol Royal Hospital for Sick Children, advised this project and coded the tympanograms. Advice and assistance was given by Mr. Richard Maw, Bristol Royal Hospital for Sick Children.

**Tympanometry at 49 months:** as skin observations at 49 months.

**Tympanometry, audiometry and hearing at 61 months:** Richard Edwards, Sally Jones, qualified audiologists.

**Speech and language assessment at 25 months:** Steve Gibbs, Adrian Jones.

Sue Roulstone (Head Speech Therapist, Bristol Royal Hospital for Sick Children) and Sue Loader (Speech Therapist, Southmead District) were in charge of science. They trained, supervised and validated the testers. Professor Sir Michael Rutter, Institute of Psychiatry, London UK, advised the project.

**Speech and language assessment at 61 months:** Lucienne Green, Mary Pears, Grace Windle who are all qualified speech therapists, trained specifically for this role by Sue Roulstone as above.

**Habituation Task:** Clare Bell (in charge of science), Patrick Bell, Robert Yeung. Dr. Alan Slater Department of Psychology, Exeter University, U.K. and his team helped in the setting up of the test and training the staff. Significant assistance was also given by John Barratt, Department of Psychology, University of Bristol.

**Laterality:** Sarah Brown, Steve Gibbs, Susan Greer, Lyn Harradine, Adrian Jones, Veronica Marden. Dr. Cathy Williams and Dr. Maggie Redshaw advised on science.

**Griffiths testers:** Sophie Borsanyi, Shashi Chaudhry, Simon Coulton, Reethah Desai, Sarah Forsey, Steve Gibbs, Adrian Jones, Catherine Paula.

**WPPSI test:** Steve Gibbs (also on-going training), Lorna Goodfellow, Katie Hargreaves, Gemma Harris, Adrian Jones, (Sarah Lewis - one month only), Fiona McAllister, Miriam Walls; Dr Sara Meadows advised on science, Dr Sue Pickering carried out initial training.

**Blood taking at 8-18 months:** Hazel Blake, Pauline Church, Beth Connock, Suzanne Connor, Jane Greenaway, Sheilagh Murray, Terri Portch, Jenny Shine, Carol Smith, Vera Thorne, Kathy Wedlock; at 31,43, 61 months: Lyn Booth, Pauline Church, Terri Portch, Lindy Tovey. Miriam Walls helped to hold and distract the children at 43 months. Dr. Alan Emond, consultant community paediatrician, Avon Health, Bristol, advised on the technicalities.

**Dietary investigations:** Pauline Emmett, nutritionist (in charge of science), Sian Morris and Imogen Rogers full-time researchers and part-time dietitian Carol Symes.

**Exhaled carbon monoxide study:** Sarah Brown, Susan Greer, Lyn Harradine, Veronica Marden.

**Parenting measure at 12 months:** Patrick Bell, under the supervision of Dr. Karen Thorpe, head of science.

**Day-care (questionnaire data collected at clinic and not put on general release):** Claire Dewey with Sara Meadows in charge of science. At the clinic - . tympanometry team at 25 and 37 months, blood takers at 31 and 43 months, receptionists at 49 months. Interviewers for questionnaires -Sue Cooper, Jenny Cross, (also co-ordinator of day-care data collection), Tricia Hutchinson, Veronica Marden, Charlotte Purches, Caroline Saunders, Nicola Way.

**Lung function and exercise:** Patrick Bell, Steve Gibbs, Charlotte Purches; trained by Dr. John Henderson, Sally Ranson and Amanda Wyatt. Dr. John Henderson and Dr. Chris Riddock in charge of science.

## 10. Funding secured

Funder	Project
1. Medical Research Council	Vision screening (up to age 3) Parenting assessment (12mths) Air pollution (N02) Short-term memory (at 5 years) Genetics of foetal growth
2. South West Regional Health Authority	Infant anaemia Vision screening Dental amalgam Helicobacter infection
3. Cow and Gate	Dietary diaries Infant anaemia
4. Meat and Livestock Commission	Infant anaemia
5. British Gas	Air pollution
6. Milupa	4-month diet Vision
7. Department of Health and later DfEE	Day-care
8. Clothworkers Guild	Glue ear
9. British Heart Foundation	Fingerprints Placental studies Blood pressure
10. Northern Region Research and Development Directorate	Cholesterol Blood pressure Diet
11. National Institutes of Health, U.S.A.	Hearing (at 31 mo)
12. Department of the Environment	Lead
13. Smith's Charities	Glue ear
14. Wellcome Trust	Genetics of growth in first 2 yrs
15. Remedi	Speech and language 2½ years
16. MAFF	Food allergy
17. Special Trustees of UBHT	Factor V Leiden and pre-eclampsia
18. ScaRF	Skin observations

Contributions in kind from:

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