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Appendix

Table 1 - Number of records linked using each method

		2003/04 Cohort N=567,347		2013/14 N=634,293	
		N	% of Cohort	N	% of Cohort
Deterministically linked		271,111		413,870	
	Valid IMD	269,719	47.5	410,870	64.8
Probabilistically linked		210,011			
	Valid IMD	209,020	36.8	-	-
IMD – baby		37,150	6.5	165,754	26.1
Final		515,889	90.9	576,624	90.9

Table 2 - Linking Variables

Variable		Deterministic	Probabilistic
Provider Code	procode	✓	✓
GP practice	gpprac	✓	✓
Maternal Age	matage	✓	✓
Birth Weight	birweit	✓	✓
Gestation	gestat	✓	✓
Birth Order	birordr	✓	✓
Baby Sex	babysex	✓	✓
Estimated delivery date	opdte/birthdate	X	✓
First Antenatal Assessment data	anasdate	X	✓
Gestation at first antenatal assessment	anagest	X	✓
Delivery method	delmeth	X	✓
Intended delivery place	delinten	X	✓
Actual Delivery place	delplac	X	✓
Method to induce labour	delonset	X	✓
Anaesthetic given during labour/delivery	delprean	X	✓
Anaesthetic given post labour/delivery	delposan	X	✓
Status person conducting delivery	delstat	X	✓
Birth status	birstat	X	✓
Resuscitation method	biresus	X	✓
Ethnic category	ethnos	X	✓
Postcode district	postdist	X	✓
Episode start Date	epistart	X	✓
Episode end Date	epidend	X	✓

Table 3 - Completion rate of variables of important linking variables

	2003			2013		
	All N=576,347	Included N=515,889	Not Included N=51,458	All N=634,293	Included N=576,624	Not Included N=57,669
Provider Code	100%	100%	100%	100%	100%	100%
GP Practice	99.7%	99.7%	99.7%	99.9%	99.9%	98.9%
Maternal age	61.4%	64.7%	28.7%	66.3%	71.1%	18.8%
Birth Weight	58.3%	60.8%	32.7%	82.4%	82.6%	80.3%
Gestation	55.6%	58.6%	26.6%	76.7%	79.8%	45.2%
Birth Order	65.7%	68.5%	37.4%	81.9%	82.7%	73.8%
Baby Sex	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%

Table 4 – Cohort Characteristics

		2003		2013	
		Included N=515,889	Not Included N=51,458	Included N=576,624	Not Included N=57,669
Maternal age (years)	Valid N Mean (SD)	333,851 29.3 (6.0)	14,745 28.8 (6.0)	409,701 29.5 (5.8)	10,827 30.1(5.9)
Gestation (weeks)	Valid N Mean (SD)	302,030 39.1 (2.5)	13,669 38.6 (3.0)	460,297 39.0 (2.4)	26,069 39.0 (2.4)
Birth Weight (g)	Valid N Mean (SD)	313,723 3297.5 (652.2)	16,827 3130.3 (832.5)	476,423 3338.7 (597.3)	46,277 3313.6 (604.1)
Ethnicity	White Black Asian Mixed Other Missing	250,062 (48%) 13,576 (3%) 27,488 (5%) 8,384 (2%) 12,723 (2%) 203,656 (39%)	27,912 (54%) 1,438 (3%) 2,147 (4%) 1,062 (2%) 1,383 (3%) 17516 (34%)	407,586 (71%) 23,703 (4%) 60,993 (11%) 26,506 (5%) 20,383 (3.8%) 37,453(6%)	35,079 (61%) 2789 (5%) 6702 (12%) 2951 (5%) 2057 (4%) 8091 (14%)
Region of Hospital	North East North West Yorkshire and the Humber East Midlands West Midlands East of England London South East South West	25,974 (5%) 72,749 (14%) 55,564 (11%) 31,911 (6%) 60,748 (12%) 44,699 (9%) 98,439 (19%) 79,789 (15%) 46,016 (9%)	549 (1%) 2,403 (5%) 1,924 (4%) 9,109 (18%) 3,801 (7%) 14,048 (27%) 11,057 (21%) 6,969 (13%) 1,598 (3%)	29,812 (5%) 76,114 (13%) 58,455 (10%) 37,836 (7%) 55,208 (10%) 59,894 (10%) 113,207 (20%) 90,385 (16%) 55,713 (10%)	50 (<1%) 5,190 (9%) 2,373 (4%) 6,510 (11%) 15,051 (26%) 7,347 (13%) 13,805 (24%) 6,933 (12%) 410 (1%)

Table 5 - Comparison to ONS National Statistics

		2003		2013	
		ONS	Cohort	ONS	Cohort
Maternal age (Years)	Mean	29.4	29.3	30.0	29.5
Birth Weight(g)	Under 1500	1.3 %	1.9 %	1.1%	1.1%
	1500-1999	1.6 %	1.4 %	1.4%	1.4%
	2000 – 2499	4.8 %	4.7 %	4.6%	4.6%
	2500-2999	17.2 %	17.4 %	16.3%	16.6%
	3000-3499	35.6 %	35.7 %	35.3%	35.7%
	3500+	39.3 %	38.9 %	40.3%	40.7%
IMD	1 – Most deprived	14.6%	15.0%	14.3%	14.4%
	2	12.4%	12.8%	13.0%	13.2%
	3	10.9%	11.2%	12.0%	11.9%
	4	9.9%	10.0%	10.8%	10.9%
	5	9.3%	9.3%	9.6%	9.8%
	6	8.8%	8.8%	9.2%	8.9%
	7	8.5%	8.4%	8.3%	8.2%
	8	8.5%	8.3%	8.1%	7.8%
	9	8.5%	8.2%	7.7%	7.7%
	10 – Least Deprived	8.5%	7.9%	6.9%	7.2%

ONS data obtained from ONS website

ONS. Number of live births by Index of Multiple Deprivation (IMD), 2003 to 2020, England 2022

[Available from:

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/adhoc/14333numberoflivebirthsbyindexofmultipledeprivationimd2003to2020england>.

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<https://webarchive.nationalarchives.gov.uk/ukgwa/20150910114054/http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-156297>.

ONS. Characteristics of Birth 1, England and Wales, 2013 Edition 2014 [Available from:

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