Technical appendix: The impact of providing enhanced support for Sutton Homes of Care residents

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About this technical appendix

This technical appendix provides supplemental information relating to analysis conducted by the Improvement Analytics Unit, a partnership between NHS England and the Health Foundation. It supports a Health Foundation briefing considering the findings of the analysis - available from https://www.health.org.uk/publication/impact-providing-enhanced-support-sutton-homes-care-residents. This technical appendix provides supplemental results that were not published in the main briefing. For information on the methods used see the statistical analysis protocol, which is available from the link above.

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Figure A1: Data linkage process used to identify care home residents

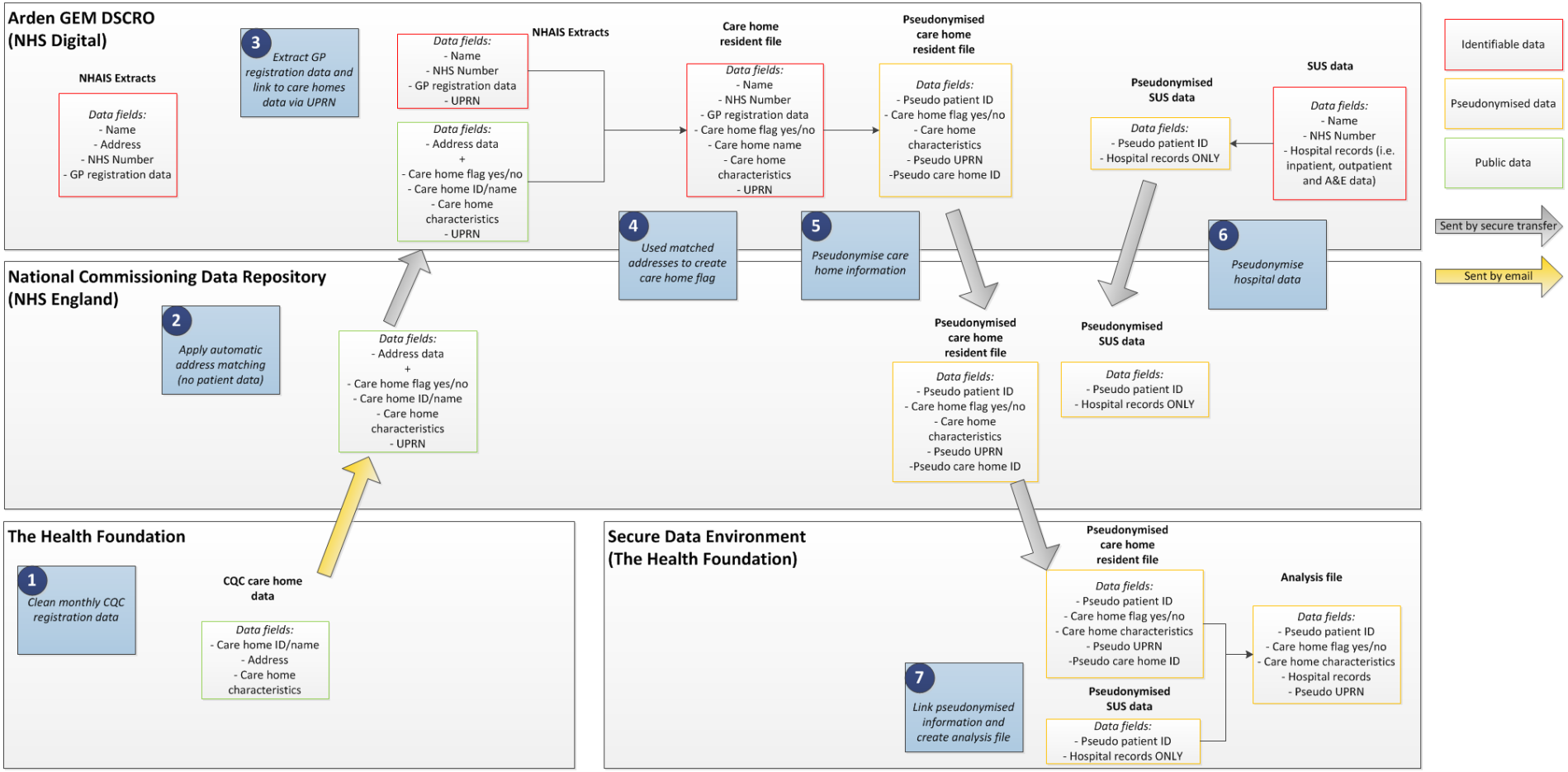

Table A1: Descriptive statistics for key characteristics of Sutton CCG and comparable CCGs in England. Quoted figures refer to data from 2015 unless otherwise stated

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Census data (2011 census)									
Persons who are female (%)	51.3	51.8	50.8	51.7	50.6	52.0	52.0	50.4	50.7
Persons aged 0–4 (%)	7.1	6.7	6.8	6.4	6.2	6.6	6.5	6.5	6.3
Persons aged 5–14 (%)	12.4	12.6	12.2	11.7	11.7	12.1	11.7	12.5	11.6

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Persons aged 15-44 (%)	40.2	38.8	38.4	37.0	38.5	37.9	38.1	38.0	39.1
Persons aged 45-64 (%)	25.2	25.3	25.5	25.9	26.0	25.8	25.4	26.1	25.3
Persons aged 65-74 (%)	8.0	8.4	9.2	9.9	9.9	9.1	9.4	9.3	9.6
Persons aged 75-89 (%)	6.3	7.3	7.1	8.2	6.9	7.4	8.1	6.8	7.2
Persons aged 90+ (%)	0.8	0.9	0.7	1.0	0.7	1.0	1.0	0.9	0.9

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Persons who are white (%)	78.6	81.9	87.0	82.6	82.6	84.3	87.7	90.3	85.4
Persons who are Black/African/ Caribbean/Black British (%)	4.8	8.5	2.9	4.1	3.0	6.0	4.8	1.2	3.5
Persons who are Asian/Asian British: Indian/Pakistani/ Bangladeshi (%)	11.6	6.6	7.0	9.1	10.5	5.2	4.9	6.2	7.8
Persons who have mixed ethnicity or are from multiple ethnic groups (%)	3.8	2.3	2.0	2.9	3.0	3.5	2.1	1.8	2.3
Persons who are from another ethnic group (%)	1.3	0.8	1.1	1.2	0.9	0.9	0.6	0.5	1.0

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Average rural/urban indicator	1.00	1.00	1.98	1.85	1.92	1.16	1.01	3.18	2.77
Individuals day-to-day activities limited a lot or a little	79.37	87.15	86.87	93.85	97.53	81.78	94.18	71.53	96.81
English indices of deprivation (2015)									
IMD 2015 (rank of average score)	1	2	4	4	5	2	3	0	5
Health Deprivation and Disability 2015 (rank of average score)	2	1	2	5	4	1	2	1	5

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Income Deprivation Affecting Older People (IDAOPI)	3	2	3	5	4	2	3	2	5
Hospital use									
A&E attendances (ages 65+)	30,715	34,986	38,334	28,099	30,015	43,978	42,560	26,528	7,613,913
Elective admissions (ages 65+)	25,658	39,546	35,660	29,865	29,400	49,892	40,831	30,293	8,233,235
Emergency admissions (ages 65+)	17,188	19,090	20,998	18,627	19,591	26,817	22,008	17,576	4,692,214

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Emergency hospital admissions: chronic	118	136	175	170	147	208	137	123	40,002
Emergency hospital admissions: acute conditions usually	1,349	1,422	1,393	1,157	1,440	1,973	2,232	1,320	344,799
Outpatient attendances (ages 65+)	384,852	309,068	351,820	255,522	252,518	441,583	329,680	357,694	70,581,310
Other sources									
Proportion of care home beds available (ages 65+) from CQC	0.007	0.005	0.007	0.008	0.009	0.006	0.008	0.008	0.009

	NHS Sutton CCG	NHS Bexley CCG	NHS Dartford, Gravesham and Swanley CCG	NHS Leeds North CCG	NHS Greater Huddersfield CCG	NHS Bromley CCG	NHS Havering CCG	NHS North East Hampshire and Farnham	England
Number of GPs (full time equivalent) from NHS Digital	0.128	0.127	0.135	0.157	0.167	0.229	0.156	0.150	38.760
Population density (number of persons per square km) from	4564.3	3998.4	963.3	767.7	775.9	2163.5	2216.8	1122.3	420.5
Population density from ONS	791,708	806,932	576,937	413,785	401,499	919,456	700,004	445,686	145,422,846

Figure A2: Selection of care home and individual cohorts participating in the evaluation

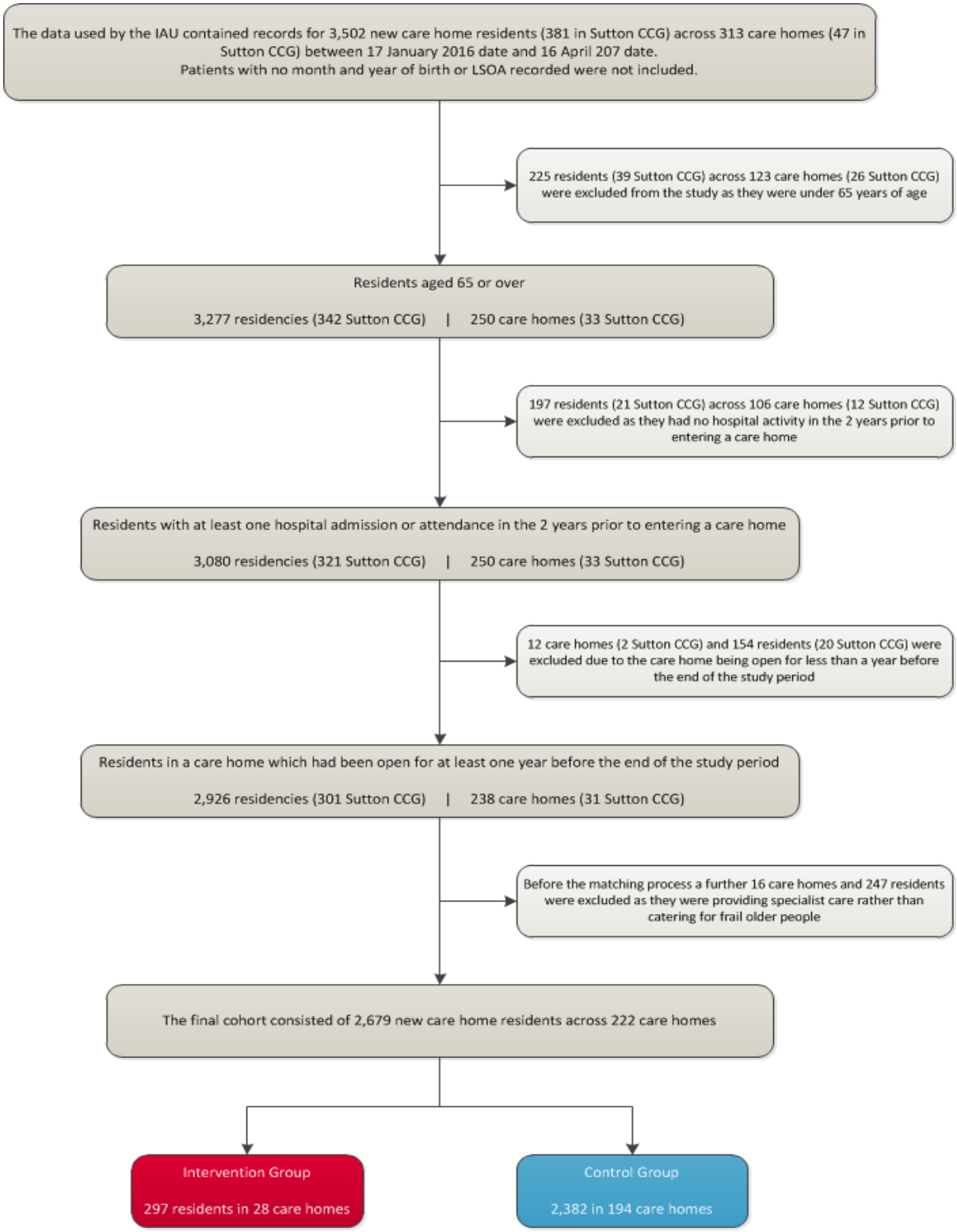

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Figure A2: Standardised Mean Difference statistics between new Sutton and control care home residents from the matched sample (blue circles) and wider control pool (red squares). Points relying on less than 10 individuals have been removed to avoid the risk of disclosing the identity of their underlying residents

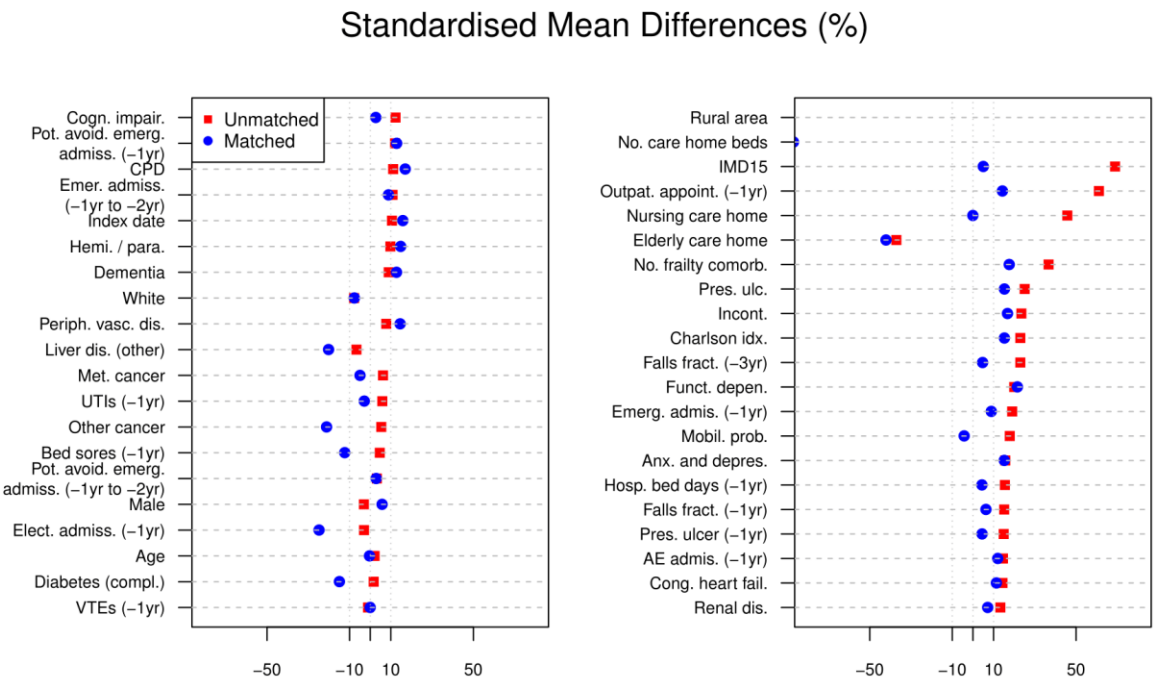

Table A2: Distribution of the 297 care home residents in the matched control group by CCG responsible

Comparable CCG	Matched control individuals
NHS Bromley CCG	76 (25.59%)
NHS Havering CCG	62 (20.88%)
NHS Leeds North CCG	43 (14.48%)
NHS Greater Huddersfield CCG	41 (13.80%)
NHS Dartford, Gravesham and Swanley CCG	35 (11.78%)
NHS North East Hampshire and Farnham CCG	26 (8.75%)
NHS Bexley CCG	14 (4.71%)

Table A.3: Comparison of hospital utilisation between the Sutton residents and the matched control residents. Figures relying on less than 10 individuals (marked with –) have been removed to avoid the risk of disclosing the identity of their underlying residents

	Crude rates for Sutton residents in the study (number per person per year)	Crude rates for matched control residents (number per person per year)	Relative difference from matched comparison group (adjusted rate ratio)	95% confidence interval	P-value
Falls and significant fractures	0.26	0.2	46% higher for Sutton	17% lower to 164% higher for Sutton	0.196
UTIs	0.13	–	237% higher for Sutton	30% lower to 2,364 higher for Sutton	0.163

Table A.4: Distribution of care home residents in the Sutton and matched control subgroups for each subgroup analysis scenario. Percent figures are relative to the corresponding cohort size

Subgroup	Sutton residents	Matched control residents
Nursing care home residents	220 (74.07%)	220 (74.32%)
Residential care home residents	77 (25.93%)	76 (25.68%)
Early care home entrants	65 (21.89%)	80 (27.03%)
Late care home entrants	147 (49.49%)	130 (43.92%)

Table A5: Comparison of hospital utilisation between the Sutton residents and the matched control residents for each subgroup analysis scenario. Figures relying on less than 10 individuals (marked with (marked with –) have been removed to avoid the risk of disclosing the identity of their underlying residents; estimates from models that could not be fitted due to unduly small sample sizes or counts have also been omitted.

	Subgroup	Crude rates for new Sutton residents (number per person per year)	Crude rates for matched control residents (number per person per year)	Relative difference from matched comparison group (adjusted rate ratio)	95% confidence interval	P-value
Hospital bed days (mean, standard deviation)	Residential care home residents	7 (16.3)	6.2 (13.9)	92% higher for Sutton	43% lower to 544% higher for Sutton	0.294
	Nursing care home residents	3.9 (9.6)	2.8 (9.9)	56% higher for Sutton	16% lower to 189% higher for Sutton	0.162
	Early care home entrants	4.9 (9.6)	4.1 (12.1)	73% higher in Sutton	28% lower to 315% higher for Sutton	0.217
	Late care home entrants	2.9 (10.8)	2.6 (11.2)	5% lower for Sutton	51% lower to 83% higher for Sutton	0.869
Falls and significant fractures	Residential care home residents	0.54	0.44	132% higher for Sutton	53% lower to 1,052% higher for Sutton	0.304

	Subgroup	Crude rates for new Sutton residents (number per person per year)	Crude rates for matched control residents (number per person per year)	Relative difference from matched comparison group (adjusted rate ratio)	95% confidence interval	P-value
	Nursing care home residents	0.14	0.1	133% higher for Sutton	43% lower to 1,092% higher for Sutton	0.270
	Early care home entrants	–	–	–	–	–
	Late care home entrants	0.44	0.33	21% higher for Sutton	57% lower to 265% higher for Sutton	0.719

Table A6: Percentage of deaths occurring outside hospital for each subgroup analysis scenario. Figures relying on less than 10 individuals (marked with –) have been removed to avoid the risk of disclosing the identity of their underlying residents; estimates from models that could not be fitted due to unduly small sample sizes or counts have also been omitted

	Subgroup	Sutton residents in the study	Matched control residents	Relative difference from matched comparison (adjusted odds ratio)	95% confidence interval	P-value
Percentage of deaths outside hospital (number of deaths outside hospital/total deaths)	Residential care home residents	–	–	–	–	–
	Nursing care home residents	73.40% (58/79)	84.70% (61/72)	221% higher for Sutton	19% lower to 1,618% higher for Sutton	0.115
	Early care home entrants	73.30% (33/45)	78.30% (36/46)	–	–	–
	Late care home entrants	69.20% (18/26)	83.30% (20/24)	–	–	–

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