Technical Appendix A
Selection of wards for comparison analysis
Produced by BPSR

In total 121 wards were selected in CVC case study areas: 12 per LA, but 13 in the combined Kensington & Chelsea/Westminster area.

There were 3,998 wards from which to draw the comparison sample of 121 wards. But the highest vaccination rate in the selected CVC wards is 89%, so any wards in the 'comparison pool' with a vaccination rate of above 89% could be set aside. This reduced the comparison pool to 2,072 wards.

The distribution of vaccination rates in the CVC-funded and comparison pools was quite different, as Table 1 below shows. The table divides the vaccination rate into six groups (roughly quintiles, with an extra split of the top quintile). Based on this, it is quite clear that it is impossible to select 121 comparison wards with exactly the same vaccination distribution – there are too few in the comparison pool with very low vaccination rates. For example, from the first row, there are 27 CVC wards with vaccination rates of 62% or below, but just 7 in the comparison pool. Therefore, the only option was to select <u>all</u> of the wards in the comparison pool with the lowest vaccination rates (the first two rows of the table), and then to select a fairly high proportion of the other comparison wards from the third row of the table (the 67%-72% row).

Table 1: Numbers by vaccination rate

Vaccination rate	CVC wards	Numbers in comparison pool
Up to 62%	27	7
>62%-67%	22	18
>67%-72%	25	80
>72%-77%	23	159
>77%-85%	21	815
>85%	3	993
Total	*121*	*2,072*

After a bit of trial and error, I opted to select a comparison group distributed as follows.

Table 2: Numbers selected per vaccination rate group

Vaccination rate	CVC wards	Numbers in comparison pool	Number selected for comparison group
Up to 62%	27	7	7
>62%-67%	22	18	18
>67%-72%	25	80	60

>72%-77%	23	159	23
>77%-85%	21	815	12
>85%	3	993	1
Total	*121*	*2,072*	*121*

In practice, the selection was more complex than this. London wards in favour of non-London were selected, as were wards with higher-than-average percentages of BAME groups in favour of wards with lower percentage BAME. To achieve this, the CVC-funded and comparison pool was divided into 36 'strata' based on vaccination rate, percentage BAME, and whether or not a London ward, and then selected comparison wards from within each stratum. Table 4 presents the strata and how many selected within each of them.

Table 3 shows the profile of the CVC wards (first column of data) next to the profile of the comparison pool (second column), and then the selected comparison wards (final column). On most of the variables the CVC and selected comparison wards looks similar. Residual differences were dealt with at the analysis stage by weighting the data.

Table 3: Profile of CVC and comparison wards

	CVC wards	Comparison pool	Selected comparison areas	Comments
Mean vaccination rate	69.8	83.6	71.0	Mean is almost the same even though the distribution varied (see further down table).
Mean percentage not white British	30.5	9.0	26.6	
Mean percentage Asian	15.2	5.2	17.4	
Mean percentage black African or black Caribbean	8.1	1.4	5.1	Selected comparison areas have a slightly lower proportion than in CVC wards, corrected by weighting
Mean percentage aged 16-24	17.6	12.7	18.4	
Mean % households with at least one person with disability or with long-term health condition	25.6	26.5	26.7	
Mean % not in seg 1 or 2	72.4	71.6	78.1	Selected comparison wards are slightly more deprived than the CVC wards
London %	31%	3%	17%	CVC wards much higher, but likely best fit given prevalence of London wards in CVC

	CVC wards	Comparison pool	Selected comparison areas	Comments
				areas. Corrected by weighting.
CCI funding %	30%	23%	32%	
Vaccination rate:				
Up to 62%	22%	<1%	6%	
>62%-67%	18%	1%	15%	
>67%-72%	21%	4%	50%	
>72%-77%	19%	8%	19%	
>77%-85%	17%	39%	10%	
>85%	3%	48%	1%	
BAME %:				
Up to 18%	34%	89%	35%	
>18%-36%	36%	8%	42%	
>36%	31%	3%	23%	
Total	121	2072	121	

Table 4: Selection across strata

Stratum		Vaccgroup		Notwhite	London (1=yes)	Number of selected CVC wards	Comparison wards available	Number selected for comparison group	% selected
110	1	Up to 62%	1	Up to 18%	0	4	3	3	100%
120	1	Up to 62%	2	>18%-36%	0	4	4	4	100%
130	1	Up to 62%	3	>36%	0	2	0	0	
111	1	Up to 62%	1	Up to 18%	1	0	0	0	
121	1	Up to 62%	2	>18%-36%	1	5	0	0	
131	1	Up to 62%	3	>36%	1	12	0	0	
210	2	>62%-67%	1	Up to 18%	0	1	10	10	100%
220	2	>62%-67%	2	>18%-36%	0	1	5	5	100%
230	2	>62%-67%	3	>36%	0	3	3	3	100%
211	2	>62%-67%	1	Up to 18%	1	0	0	0	
221	2	>62%-67%	2	>18%-36%	1	5	0	0	
231	2	>62%-67%	3	>36%	1	12	0	0	
310	3	>67%-72%	1	Up to 18%	0	10	39	19	49%
320	3	>67%-72%	2	>18%-36%	0	6	24	24	100%
330	3	>67%-72%	3	>36%	0	6	16	16	100%
311	3	>67%-72%	1	Up to 18%	1	0	0	0	
321	3	>67%-72%	2	>18%-36%	1	3	0	0	
331	3	>67%-72%	3	>36%	1	0	1	1	100%
410	4	>72%-77%	1	Up to 18%	0	8	102	3	3%
420	4	>72%-77%	2	>18%-36%	0	13	25	4	16%
430	4	>72%-77%	3	>36%	0	2	20	4	20%
411	4	>72%-77%	1	Up to 18%	1	0	3	3	100%
421	4	>72%-77%	2	>18%-36%	1	0	7	7	100%
431	4	>72%-77%	3	>36%	1	0	2	2	100%
510	5	>77%-85%	1	Up to 18%	0	15	703	2	0%
520	5	>77%-85%	2	>18%-36%	0	6	67	2	3%
530	5	>77%-85%	3	>36%	0	0	11	2	18%
511	5	>77%-85%	1	Up to 18%	1	0	21	2	10%
521	5	>77%-85%	2	>18%-36%	1	0	13	4	31%
531	5	>77%-85%	3	>36%	1	0	0	0	
610	6	>85%	1	Up to 18%	0	3	951	0	0%
620	6	>85%	2	>18%-36%	0	0	19	0	0%
630	6	>85%	3	>36%	0	0	3	0	0%

611	6	>85%	1	Up to 18%	1	0	17	0	0%
621	6	>85%	2	>18%-36%	1	0	3	1	33%
631	6	>85%	3	>36%	1	0	0	0	
Total						121	2072	121	

Exclusions

Four non-targeted CVC wards have subsequently been removed to better align vaccination rates in targeted CVC wards (the removed being the four with the highest vaccination rates). The comparison group has been reduced by four in line with this: taking out three comparison wards with vaccination rates above 82% that are not in London and one London ward with a vaccination rate of above 85%.

Tables 3 and 4 are replicated below with these exclusions.

Table 3 revised: Profile of CVC and comparison wards

	CVC wards	Comparison pool	Selected comparison areas
Mean vaccination rate	69.2	83.6	70.5
Mean percentage not white British	31.5	9.0	27.0
Mean percentage Asian	15.7	5.2	17.7
Mean percentage black African or black Caribbean	8.3	1.4	5.1
Mean percentage aged 16-24	17.9	12.7	18.6
Mean % households with at least one person with disability or with long-term health condition	25.5	26.5	26.9
Mean % not in seg 1 or 2	72.4	71.6	78.6
London %	32%	3%	16%
CCI funding %	29%	23%	33%
Vaccination rate:			
Up to 62%	23%	<1%	6%
>62%-67%	19%	1%	15%
>67%-72%	21%	4%	51%
>72%-77%	20%	8%	20%
>77%-85%	17%	39%	8%
>85%	0%	48%	0%
BAME %:			
Up to 18%	32%	89%	34%
>18%-36%	37%	8%	42%
>36%	32%	3%	24%
Total	117	2072	117

Table 4 revised: Selection across strata

Stratum		Vaccgroup		Notwhite	London (1=yes)	Number of selected CVC wards	Comparison wards available	Number selected for comparison group	% selected
110	1	Up to 62%	1	Up to 18%	0	4	3	3	100%
120	1	Up to 62%	2	>18%-36%	0	4	4	4	100%
130	1	Up to 62%	3	>36%	0	2	0	0	
111	1	Up to 62%	1	Up to 18%	1	0	0	0	
121	1	Up to 62%	2	>18%-36%	1	5	0	0	
131	1	Up to 62%	3	>36%	1	12	0	0	
210	2	>62%-67%	1	Up to 18%	0	1	10	10	100%
220	2	>62%-67%	2	>18%-36%	0	1	5	5	100%
230	2	>62%-67%	3	>36%	0	3	3	3	100%
211	2	>62%-67%	1	Up to 18%	1	0	0	0	
221	2	>62%-67%	2	>18%-36%	1	5	0	0	
231	2	>62%-67%	3	>36%	1	12	0	0	
310	3	>67%-72%	1	Up to 18%	0	10	39	19	49%
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330	3	>67%-72%	3	>36%	0	6	16	16	100%
311	3	>67%-72%	1	Up to 18%	1	0	0	0	
321	3	>67%-72%	2	>18%-36%	1	3	0	0	
331	3	>67%-72%	3	>36%	1	0	1	1	100%
410	4	>72%-77%	1	Up to 18%	0	8	102	3	3%
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430	4	>72%-77%	3	>36%	0	2	20	4	20%
411	4	>72%-77%	1	Up to 18%	1	0	3	3	100%
421	4	>72%-77%	2	>18%-36%	1	0	7	7	100%
431	4	>72%-77%	3	>36%	1	0	2	2	100%
510	5	>77%-85%	1	Up to 18%	0	14	703	0	0%
520	5	>77%-85%	2	>18%-36%	0	6	67	1	3%
530	5	>77%-85%	3	>36%	0	0	11	2	18%
511	5	>77%-85%	1	Up to 18%	1	0	21	2	10%
521	5	>77%-85%	2	>18%-36%	1	0	13	4	31%
531	5	>77%-85%	3	>36%	1	0	0	0	
Total						117	2072	117	