Covid Vaccines Effectiveness (CoVE)

Effectiveness of heterologous and booster COVID-19 vaccination in 5 European countries, using a cohort approach in children and adults with a full primary COVID-19 vaccination regimen

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Tables A1: Description of the matching factors in the study population **before matching** for **adolescents and adults (≥12 years old)**, according to database and country

Table A1.1: SIDIAP-Spain

Characteristics	Heterologous	Homologous
	41,710	3,768,123
Homologous primary scheme		
AstraZeneca		570,096 (15%)
Moderna		461,516 (12%)
Pfizer		2,736,511 (73%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	30,171 (72%)	
Moderna	677 (1.6%)	
Pfizer	10,862 (26%)	
Female	23,336 (56%)	1,970,599 (52%)
Age at time 0 (years)		
Mean (SD)	49.0 (13.9)	50.2 (20.5)
Minimum	12.0	12.0
25%	40.0	35.0
Median	51.0	50.0
75%	61.0	66.0
Maximum	101.0	112.0
Ageband at time 0		
12-17	367 (0.9%)	265,594 (7.0%)
18-29	4,385 (11%)	436,446 (12%)
30-49	14,855 (36%)	1,134,928 (30%)
50-59	9,237 (22%)	658,542 (17%)
60-69	11,978 (29%)	523,599 (14%)
70-79	567 (1.4%)	427,667 (11%)
80+	321 (0.8%)	321,347 (8.5%)
Immunodeficiency or use of immunosuppressants at time 0	8,621 (21%)	749,937 (20%)
Cancer at time 0	1,570 (3.8%)	203,106 (5.4%)
Transplant recipient at time 0	35 (<0.1%)	8,360 (0.2%)
Severe renal disease at time 0	44 (0.1%)	10,518 (0.3%)
Down syndrome at time 0	<5	948 (<0.1%)
Prior Covid-19 at time 0	22,229 (53%)	243,619 (6.5%)

Table A1.2: BIFAP-Spain

Characteristics	Heterologous	Homologous
	160,513	7,767,428
Homologous primary scheme		
AstraZeneca		997,074 (13%)
Moderna		1,038,375 (13%)
Pfizer		5,731,979 (74%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	74,495 (46%)	
Moderna	5,882 (3.7%)	
Pfizer	80,136 (50%)	
Female	87,110 (54%)	4,145,619 (53%)
Age at time 0 (years)		
Mean (SD)	49.2 (14.3)	50.9 (20.6)
Minimum	12.0	12.0
25%	40.0	36.0
Median	51.0	51.0
75%	61.0	66.0
Maximum	105.0	112.0
Ageband at time 0		
12-17	3,387 (2.1%)	512,359 (6.6%)
18-29	15,285 (9.5%)	853,559 (11%)
30-49	55,152 (34%)	2,330,441 (30%)
50-59	33,603 (21%)	1,330,811 (17%)
60-69	49,024 (31%)	1,115,580 (14%)
70-79	3,045 (1.9%)	910,393 (12%)
80+	1,017 (0.6%)	714,285 (9.2%)
Immunodeficiency or use of immunosuppressants at time 0	24,420 (15%)	923,811 (12%)
Cancer at time 0	2,861 (1.8%)	187,298 (2.4%)
Transplant recipient at time 0	54 (<0.1%)	6,695 (<0.1%)
Severe renal disease at time 0	129 (<0.1%)	19,250 (0.2%)
Down syndrome at time 0	12 (<0.1%)	1,185 (<0.1%)
Prior Covid-19 at time 0	99,265 (62%)	505,510 (6.5%)

Table A1.3: INSPIRE-Italy

Characteristics	Heterologous	Homologous
	34,585	616,954
Homologous primary scheme		
AstraZeneca		86,143 (14%)
Moderna		79,369 (13%)
Pfizer		451,442 (73%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	25,781 (75%)	

Characteristics	Heterologous	Homologous
Moderna	89 (0.3%)	
Pfizer	8,715 (25%)	
Female	17,154 (50%)	321,094 (52%)
Age at time 0 (years)		
Mean (SD)	41.2 (15.6)	48.1 (19.9)
Minimum	16.0	12.0
25%	27.0	32.0
Median	40.0	49.0
75%	54.0	63.0
Maximum	93.0	106.0
Ageband at time 0		
12-17	5 (<0.1%)	45,460 (7.4%)
18-29	10,564 (31%)	88,713 (14%)
30-49	12,819 (37%)	180,669 (29%)
50-59	6,919 (20%)	111,892 (18%)
60-69	2,878 (8.3%)	89,582 (15%)
70-79	1,230 (3.6%)	65,361 (11%)
80+	170 (0.5%)	35,277 (5.7%)
Immunodeficiency or use of immunosuppressants at time 0	17,585 (51%)	288,994 (47%)
Cancer at time 0	925 (2.7%)	33,781 (5.5%)
Transplant recipient at time 0		
Severe renal disease at time 0	13 (<0.1%)	1,161 (0.2%)
Down syndrome at time 0	7 (<0.1%)	181 (<0.1%)
Prior Covid-19 at time 0	13,640 (39%)	25,322 (4.1%)

Table A1.4: PEDIANET-Italy

Characteristics	Heterologous	Homologous
	5	1,737
Homologous primary scheme		
Moderna		393 (23%)
Pfizer		1,344 (77%)
Heterologous primary scheme (1st dose brand)		
Moderna	<5	
Pfizer	<5	
Female	<5	837 (48%)
Age at time 0 (years)		
Mean (SD)	12.2 (0.4)	12.4 (0.5)
Minimum	12.0	12.0
25%	12.0	12.0
Median	12.0	12.0
75%	12.0	13.0
Maximum	13.0	13.0
Ageband at time 0		
12-17	5 (100%)	1,737 (100%)
Immunodeficiency or use of immunosuppressants at time 0	<5	205 (12%)
Cancer at time 0	<5	<5
Transplant recipient at time 0		
Severe renal disease at time 0		
Down syndrome at time 0	<5	<5
Prior Covid-19 at time 0	<5	32 (1.8%)

Table A1.5: PHARMO-Netherlands

Characteristics	Heterologous	Homologous
	52,543	842,582
Homologous primary scheme		
AstraZeneca		129,256 (15%)
Moderna		62,823 (7.5%)
Pfizer		650,503 (77%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	8,516 (16%)	
Moderna	3,055 (5.8%)	
Pfizer	40,972 (78%)	
Female	29,326 (56%)	427,619 (51%)
Age at time 0 (years)		
Mean (SD)	72.0 (13.9)	50.2 (20.1)
Minimum	12.0	12.0
25%	64.0	33.0
Median	76.0	55.0
75%	82.0	65.0
Maximum	102.0	108.0
Ageband at time 0		
12-17	18 (<0.1%)	67,684 (8.0%)
18-29	633 (1.2%)	108,579 (13%)
30-49	3,476 (6.6%)	176,076 (21%)
50-59	4,205 (8.0%)	154,968 (18%)
60-69	11,361 (22%)	178,852 (21%)
70-79	11,143 (21%)	128,409 (15%)
80+	21,707 (41%)	28,014 (3.3%)
Immunodeficiency or use of immunosuppressants at time 0	21,288 (41%)	210,818 (25%)
Cancer at time 0	3,900 (7.4%)	29,043 (3.4%)
Transplant recipient at time 0		
Severe renal disease at time 0		
Down syndrome at time 0		
Prior Covid-19 at time 0	5,620 (11%)	57,965 (6.9%)

Table A1.6: CPRD-UK

Characteristics	Heterologous	Homologous
	118,603	6,968,409
Homologous primary scheme		
AstraZeneca		3,698,714 (53%)
Moderna		193,679 (2.8%)
Pfizer		3,076,016 (44%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	102,044 (86%)	
Moderna	1,316 (1.1%)	
Pfizer	15,243 (13%)	
Female	62,987 (53%)	3,624,637 (52%)
Age at time 0 (years)		
Mean (SD)	61.6 (15.1)	51.2 (18.4)
Minimum	12.0	12.0
25%	53.0	37.0
Median	65.0	51.0
75%	72.0	65.0
Maximum	105.0	111.0
Ageband at time 0		
12-17	228 (0.2%)	55,535 (0.8%)
18-29	4,530 (3.8%)	945,833 (14%)
30-49	19,385 (16%)	2,239,925 (32%)
50-59	20,160 (17%)	1,382,065 (20%)
60-69	29,852 (25%)	1,048,673 (15%)
70-79	36,720 (31%)	832,171 (12%)
80+	7,728 (6.5%)	464,207 (6.7%)
Immunodeficiency or use of immunosuppressants at time 0	4,441 (3.7%)	147,323 (2.1%)
Cancer at time 0	5,434 (4.6%)	155,416 (2.2%)
Transplant recipient at time 0		
Severe renal disease at time 0	159 (0.1%)	4,677 (<0.1%)
Down syndrome at time 0		
Prior Covid-19 at time 0	5,964 (5.0%)	391,981 (5.6%)

Tables A2: Description of the matching factors in the study population in the **unmatched and matched** populations for **adults and adolescents (≥12 years old),** according to database and country.

Table A2.1: SIDIAP-Spain

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
	21,415	21,415	3,746,581
Homologous primary scheme			
AstraZeneca	16,126 (75%)		553,970 (15%)
Moderna	610 (2.8%)		460,814 (12%)
Pfizer	4,679 (22%)		2,731,797 (73%)
Heterologous primary scheme (1st dose brand)			
AstraZeneca		16,126 (75%)	
Moderna		610 (2.8%)	
Pfizer		4,679 (22%)	
Female	12,621 (59%)	12,621 (59%)	1,957,901 (52%)
Age at matching date (years)			
Mean (SD)	43.1 (12.9)	43.3 (12.8)	50.2 (20.6)
Minimum	12.0	12.0	12.0
25%	34.0	35.0	35.0
Median	44.0	44.0	50.0
75%	52.0	52.0	66.0
Maximum	97.0	99.0	112.0
Ageband at matching date			
12-17	345 (1.6%)	345 (1.6%)	265,122 (7.1%)
18-29	3,215 (15%)	3,215 (15%)	433,231 (12%)
30-49	10,814 (50%)	10,814 (50%)	1,124,114 (30%)
50-59	5,021 (23%)	5,021 (23%)	653,521 (17%)
60-69	1,768 (8.3%)	1,768 (8.3%)	521,831 (14%)
70-79	155 (0.7%)	155 (0.7%)	427,512 (11%)
80+	97 (0.5%)	97 (0.5%)	321,250 (8.6%)
Calendar month-year at matching date			
January 2021	<5	5 (<0.1%)	48,769 (1.3%)
February 2021	9 (<0.1%)	6 (<0.1%)	93,289 (2.5%)
March 2021	19 (<0.1%)	20 (<0.1%)	189,586 (5.1%)
April 2021	44 (0.2%)	47 (0.2%)	284,151 (7.6%)
May 2021	4,336 (20%)	4,990 (23%)	414,082 (11%)
June 2021	8,334 (39%)	7,578 (35%)	855,968 (23%)
July 2021	2,012 (9.4%)	2,092 (9.8%)	1,031,591 (28%)
August 2021	973 (4.5%)	980 (4.6%)	455,006 (12%)
September 2021	614 (2.9%)	621 (2.9%)	234,840 (6.3%)
October 2021	355 (1.7%)	343 (1.6%)	64,068 (1.7%)
November 2021	651 (3.0%)	562 (2.6%)	32,908 (0.9%)
December 2021	4,066 (19%)	4,171 (19%)	42,323 (1.1%)
Without prior Covid-19 at matching date	16,232 (76%)	16,232 (76%)	3,508,152 (94%)
Immunodeficiency or use of immunosuppressants at matching date	3,706 (17%)	3,706 (17%)	746,205 (20%)
Cancer at matching date	484 (2.3%)	484 (2.3%)	202,622 (5.4%)
Transplant recipient at matching date	<5	<5	8,359 (0.2%)
Severe renal disease at matching date	<5	<5	10,516 (0.3%)
Down syndrome at matching date	<5	<5	948 (<0.1%)

Table A2.2: BIFAP-Spain

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
	47,055	47,055	7,720,169
Homologous primary scheme			
AstraZeneca	18,040 (38%)		979,034 (13%)
Moderna	3,730 (7.9%)		1,034,609 (13%)
Pfizer	25,285 (54%)		5,706,526 (74%)
Heterologous primary scheme (1st dose brand)			
AstraZeneca		18,040 (38%)	
Moderna		3,730 (7.9%)	
Pfizer		25,285 (54%)	
Female	26,636 (57%)	26,636 (57%)	4,118,873 (53%)
Age at matching date (years)			
Mean (SD)	43.8 (14.3)	44.0 (14.1)	50.9 (20.6)
Minimum	12.0	12.0	12.0
25%	34.0	35.0	36.0
Median	45.0	45.0	51.0
75%	54.0	54.0	66.0
Maximum	103.0	105.0	112.0
Ageband at matching date			
12-17	1,597 (3.4%)	1,597 (3.4%)	510,565 (6.6%)
18-29	6,462 (14%)	6,462 (14%)	847,094 (11%)
30-49	21,469 (46%)	21,469 (46%)	2,308,972 (30%)
50-59	12,205 (26%)	12,205 (26%)	1,318,605 (17%)
60-69	4,006 (8.5%)	4,006 (8.5%)	1,111,574 (14%)
70-79	795 (1.7%)	795 (1.7%)	909,595 (12%)
80+	521 (1.1%)	521 (1.1%)	713,764 (9.2%)

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
Calendar month-year at matching date			
January 2021	<5	<5	78,676 (1.0%)
February 2021	9 (<0.1%)	7 (<0.1%)	277,407 (3.6%)
March 2021	49 (0.1%)	52 (0.1%)	406,740 (5.3%)
April 2021	222 (0.5%)	168 (0.4%)	388,924 (5.0%)
May 2021	2,037 (4.3%)	2,093 (4.4%)	1,126,011 (15%)
June 2021	13,013 (28%)	13,000 (28%)	1,582,539 (20%)
July 2021	2,325 (4.9%)	2,351 (5.0%)	1,804,208 (23%)
August 2021	1,360 (2.9%)	1,298 (2.8%)	1,189,089 (15%)
September 2021	819 (1.7%)	855 (1.8%)	631,561 (8.2%)
October 2021	496 (1.1%)	443 (0.9%)	95,197 (1.2%)
November 2021	1,884 (4.0%)	992 (2.1%)	56,604 (0.7%)
December 2021	20,881 (44%)	21,828 (46%)	65,250 (0.8%)
January 2022	2,354 (5.0%)	2,528 (5.4%)	12,590 (0.2%)
February 2022	1,606 (3.4%)	1,440 (3.1%)	5,373 (<0.1%)
Without prior Covid-19 at matching date	27,418 (58%)	27,418 (58%)	7,234,304 (94%)
Immunodeficiency or use of immunosuppressants at matching date	5,627 (12%)	5,627 (12%)	918,173 (12%)
Cancer at matching date	486 (1.0%)	486 (1.0%)	186,811 (2.4%)
Transplant recipient at matching date	5 (<0.1%)	5 (<0.1%)	6,690 (<0.1%)
Severe renal disease at matching date	<5	<5	19,246 (0.2%)
Down syndrome at matching date	<5	<5	1,183 (<0.1%)

Table A2.3: INSPIRE-Italy

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
	9,007	9,007	607,947
Homologous primary scheme			
AstraZeneca	6,215 (69%)		79,928 (13%)
Moderna	21 (0.2%)		79,348 (13%)
Pfizer	2,771 (31%)		448,671 (74%)
Heterologous primary scheme (1st dose brand)			
AstraZeneca		6,215 (69%)	
Moderna		21 (0.2%)	
Pfizer		2,771 (31%)	
Female	4,045 (45%)	4,045 (45%)	317,049 (52%)
Age at matching date (years)			
Mean (SD)	40.6 (14.1)	40.7 (14.2)	48.2 (19.9)
Minimum	18.0	18.0	12.0
25%	29.0	29.0	32.0
Median	39.0	40.0	49.0
75%	52.0	52.0	63.0
Maximum	97.0	91.0	106.0
Ageband at matching date			
12-17	<5	<5	45,460 (7.5%)
18-29	2,380 (26%)	2,380 (26%)	86,333 (14%)
30-49	4,043 (45%)	4,043 (45%)	176,626 (29%)
50-59	1,923 (21%)	1,923 (21%)	109,969 (18%)
60-69	420 (4.7%)	420 (4.7%)	89,162 (15%)
70-79	217 (2.4%)	217 (2.4%)	65,144 (11%)
80+	24 (0.3%)	24 (0.3%)	35,253 (5.8%)
Calendar month-year at matching date			
January 2021	<5	<5	12,881 (2.1%)
February 2021	<5	<5	6,949 (1.1%)
March 2021	<5	<5	19,689 (3.2%)
April 2021	<5	<5	42,104 (6.9%)
May 2021	<5	<5	110,295 (18%)
June 2021	2,041 (23%)	2,088 (23%)	84,190 (14%)
July 2021	3,647 (40%)	3,674 (41%)	203,827 (34%)
August 2021	443 (4.9%)	370 (4.1%)	40,376 (6.6%)
September 2021	70 (0.8%)	64 (0.7%)	28,966 (4.8%)
October 2021	13 (0.1%)	19 (0.2%)	21,700 (3.6%)
November 2021	159 (1.8%)	42 (0.5%)	13,478 (2.2%)
December 2021	1,154 (13%)	1,260 (14%)	10,685 (1.8%)
January 2022	1,477 (16%)	1,488 (17%)	12,807 (2.1%)
Without prior Covid-19 at matching date	6,231 (69%)	6,231 (69%)	585,401 (96%)
Immunodeficiency or use of immunosuppressants at matching date	4,490 (50%)	4,490 (50%)	284,504 (47%)
Cancer at matching date	174 (1.9%)	174 (1.9%)	33,607 (5.5%)
Transplant recipient at matching date			
Severe renal disease at matching date	<5	<5	1,161 (0.2%)
Down syndrome at matching date	<5	<5	181 (<0.1%)

Table A2.4: PEDIANET-Italy

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
	<5	<5	1,729
Homologous primary scheme			
Moderna	<5		388 (22%)
Pfizer	<5		1,341 (78%)
Heterologous primary scheme (1st dose brand)			
Moderna		<5	
Female	<5	<5	834 (48%)
Age at matching date (years)			
Mean (SD)	12.3 (0.6)	12.3 (0.6)	12.4 (0.5)
Minimum	12.0	12.0	12.0
25%	12.0	12.0	12.0
Median	12.0	12.0	12.0
75%	12.5	12.5	13.0
Maximum	13.0	13.0	13.0
Ageband at matching date			
12-17	<5	<5	1,729 (100%)
Calendar month-year at matching date			
June 2021	<5	<5	<5
July 2021	<5	<5	103 (6.0%)
August 2021	<5	<5	236 (14%)
September 2021	<5	<5	895 (52%)
October 2021	<5	<5	241 (14%)
November 2021	<5	<5	126 (7.3%)
December 2021	<5	<5	126 (7.3%)
Without prior Covid-19 at matching date	<5	<5	1,697 (98%)
Immunodeficiency or use of immunosuppressants at matching date	<5	<5	204 (12%)
Cancer at matching date	<5	<5	<5
Transplant recipient at matching date			
Severe renal disease at matching date			
Down syndrome at matching date			

Table A2.5: PHARMO-Netherlands

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
	12,799	12,799	826,403
Homologous primary scheme			
AstraZeneca	2,708 (21%)		126,547 (15%)
Moderna	1,175 (9.2%)		61,648 (7.5%)
Pfizer	8,916 (70%)		638,208 (77%)
Heterologous primary scheme (1st dose brand)			
AstraZeneca		2,708 (21%)	
Moderna		1,175 (9.2%)	
Pfizer		8,916 (70%)	
Female	6,808 (53%)	6,808 (53%)	419,222 (51%)
Age at matching date (years)			
Mean (SD)	66.7 (14.5)	66.9 (14.0)	50.1 (20.0)
Minimum	13.0	13.0	12.0
25%	60.0	60.0	33.0
Median	67.0	67.0	55.0
75%	79.0	79.0	65.0
Maximum	103.0	101.0	108.0
Ageband at matching date			
12-17	8 (<0.1%)	8 (<0.1%)	64,299 (7.8%)
18-29	178 (1.4%)	178 (1.4%)	108,400 (13%)
30-49	1,434 (11%)	1,434 (11%)	174,641 (21%)
50-59	1,482 (12%)	1,482 (12%)	153,485 (19%)
60-69	4,364 (34%)	4,364 (34%)	174,488 (21%)
70-79	2,242 (18%)	2,242 (18%)	126,167 (15%)
80+	3,091 (24%)	3,091 (24%)	24,923 (3.0%)
Calendar month-year at matching date			
January 2021	<5	<5	189 (<0.1%)
February 2021	7 (<0.1%)	7 (<0.1%)	16,199 (2.0%)
March 2021	66 (0.5%)	65 (0.5%)	11,689 (1.4%)
April 2021	58 (0.5%)	56 (0.4%)	18,783 (2.3%)
May 2021	429 (3.4%)	280 (2.2%)	151,297 (18%)
June 2021	552 (4.3%)	701 (5.5%)	189,122 (23%)
July 2021	2,019 (16%)	2,049 (16%)	194,070 (23%)
August 2021	305 (2.4%)	274 (2.1%)	171,968 (21%)
September 2021	141 (1.1%)	149 (1.2%)	28,804 (3.5%)
October 2021	52 (0.4%)	47 (0.4%)	16,835 (2.0%)
November 2021	858 (6.7%)	644 (5.0%)	12,938 (1.6%)
December 2021	8,312 (65%)	8,527 (67%)	14,509 (1.8%)
Without prior Covid-19 at matching date	11,345 (89%)	11,345 (89%)	769,983 (93%)
Immunodeficiency or use of immunosuppressants at matching date	4,732 (37%)	4,732 (37%)	205,975 (25%)
Cancer at matching date	760 (5.9%)	760 (5.9%)	28,281 (3.4%)
Transplant recipient at matching date			
Severe renal disease at matching date			
Down syndrome at matching date			

Table A2.6: CPRD-UK

Characteristics	Matched Homologous	Matched Heterologous	Unmatched Homologous
	31,248	31,248	6,937,161
Homologous primary scheme			
AstraZeneca	16,454 (53%)		3,682,260 (53%)
Moderna	1,151 (3.7%)		192,528 (2.8%)
Pfizer	13,643 (44%)		3,062,373 (44%)
Heterologous primary scheme (1st dose brand)			
AstraZeneca		16,454 (53%)	
Moderna		1,151 (3.7%)	
Pfizer		13,643 (44%)	
Female	16,922 (54%)	16,922 (54%)	3,607,715 (52%)
Age at matching date (years)			
Mean (SD)	54.1 (18.4)	54.1 (18.6)	51.2 (18.4)
Minimum	12.0	13.0	12.0
25%	41.0	40.0	37.0
Median	53.0	53.0	51.0
75%	68.0	68.0	65.0
Maximum	102.0	104.0	111.0
Ageband at matching date			
12-17	138 (0.4%)	138 (0.4%)	55,397 (0.8%)
18-29	2,824 (9.0%)	2,824 (9.0%)	943,009 (14%)
30-49	10,707 (34%)	10,707 (34%)	2,229,218 (32%)
50-59	5,956 (19%)	5,956 (19%)	1,376,109 (20%)
60-69	4,534 (15%)	4,534 (15%)	1,044,139 (15%)
70-79	3,534 (11%)	3,534 (11%)	828,637 (12%)
80+	3,555 (11%)	3,555 (11%)	460,652 (6.6%)
Calendar month-year at matching date			
January 2021	37 (0.1%)	26 (<0.1%)	2,093 (<0.1%)
February 2021	158 (0.5%)	188 (0.6%)	11,872 (0.2%)
March 2021	2,673 (8.6%)	2,696 (8.6%)	504,713 (7.3%)
April 2021	5,393 (17%)	5,367 (17%)	1,605,437 (23%)
May 2021	5,238 (17%)	5,263 (17%)	1,762,522 (25%)
June 2021	2,884 (9.2%)	2,790 (8.9%)	1,059,595 (15%)
July 2021	3,001 (9.6%)	3,061 (9.8%)	700,897 (10%)
August 2021	1,982 (6.3%)	1,918 (6.1%)	628,253 (9.1%)
September 2021	1,252 (4.0%)	1,261 (4.0%)	339,323 (4.9%)
October 2021	1,610 (5.2%)	1,578 (5.0%)	192,495 (2.8%)
November 2021	5,877 (19%)	5,837 (19%)	109,896 (1.6%)
December 2021	1,143 (3.7%)	1,263 (4.0%)	20,065 (0.3%)
Without prior Covid-19 at matching date	29,628 (95%)	29,628 (95%)	6,546,800 (94%)
Immunodeficiency or use of immunosuppressants at matching date	629 (2.0%)	629 (2.0%)	146,694 (2.1%)
Cancer at matching date	808 (2.6%)	808 (2.6%)	154,608 (2.2%)
Transplant recipient at matching date			
Severe renal disease at matching date	15 (<0.1%)	15 (<0.1%)	4,662 (<0.1%)
Down syndrome at matching date			

Tables A3: Distribution of different vaccine brands used in homologous and heterologous primary vaccinations **by month** of time0 (full vaccination) in the matched population for **adults (>17 years old)**, according to database and country

Table A3.1: SIDIAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	7	15	39	91	9,326	15,912	4,104	1,953	1,235	698	1,213	8,237
Homologous primary scheme												
AstraZeneca	<5	<5	<5	26 (59%)	4,310 (99%)	8,280 (99%)	1,935 (96%)	834 (86%)	516 (84%)	213 (60%)	<5	5 (0.1%)
Moderna	<5	<5	7 (37%)	6 (14%)	7 (0.2%)	24 (0.3%)	25 (1.2%)	121 (12%)	67 (11%)	124 (35%)	96 (15%)	132 (3.2%)
Pfizer	<5	8 (89%)	9 (47%)	12 (27%)	19 (0.4%)	30 (0.4%)	52 (2.6%)	18 (1.8%)	31 (5.0%)	18 (5.1%)	551 (85%)	3,929 (97%)
Heterologous primary scheme (1st dose brand)												
AstraZeneca	<5	<5	<5	31 (66%)	4,965 (99%)	7,523 (99%)	2,012 (96%)	843 (86%)	526 (85%)	211 (62%)	6 (1.1%)	6 (0.1%)
Moderna	<5	<5	7 (35%)	6 (13%)	6 (0.1%)	26 (0.3%)	25 (1.2%)	119 (12%)	65 (10%)	117 (34%)	102 (18%)	136 (3.3%)
Pfizer	5 (100%)	5 (83%)	10 (50%)	10 (21%)	19 (0.4%)	29 (0.4%)	55 (2.6%)	18 (1.8%)	30 (4.8%)	15 (4.4%)	454 (81%)	4,029 (97%)

Table A3.2: BIFAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022
	0	16	101	390	4,130	26,013	4,676	2,658	1,674	939	2,876	42,711	4,886	3,050
Homologous primary scheme														
AstraZeneca	<5	<5	<5	11 (5.0%)	1,589 (78%)	12,483 (96%)	2,099 (90%)	942 (69%)	545 (67%)	347 (70%)	9 (0.5%)	15 (<0.1%)	<5	<5
Moderna	<5	<5	9 (18%)	103 (46%)	60 (2.9%)	265 (2.0%)	108 (4.6%)	256 (19%)	205 (25%)	96 (19%)	261 (14%)	1,362 (6.5%)	503 (21%)	502 (31%)
Pfizer	<5	8 (89%)	40 (82%)	108 (49%)	388 (19%)	265 (2.0%)	118 (5.1%)	162 (12%)	69 (8.4%)	53 (11%)	1,614 (86%)	19,505 (93%)	1,853 (79%)	1,106 (69%)
Heterologous primary scheme (1st dose brand)														
AstraZeneca	<5	<5	<5	18 (11%)	1,589 (76%)	12,462 (96%)	2,108 (90%)	903 (70%)	583 (68%)	294 (66%)	66 (6.7%)	15 (<0.1%)	<5	<5
Moderna	<5	<5	8 (15%)	102 (61%)	65 (3.1%)	264 (2.0%)	131 (5.6%)	228 (18%)	201 (24%)	98 (22%)	240 (24%)	1,399 (6.4%)	580 (23%)	413 (29%)
Pfizer	<5	5 (71%)	42 (81%)	48 (29%)	439 (21%)	274 (2.1%)	112 (4.8%)	167 (13%)	71 (8.3%)	51 (12%)	686 (69%)	20,415 (94%)	1,950 (77%)	1,029 (71%)

Table A3.3: INSPIRE-Italy

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022
	<5	<5	<5	<5	5	4,129	7,321	813	134	32	201	2,414	2,965
Homologous primary scheme													
AstraZeneca	<5	<5	<5	<5	<5	2,041 (100%)	3,647 (100%)	443 (100%)	69 (99%)	12 (92%)	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	8 (0.7%)	9 (0.6%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	156 (98%)	1,146 (99%)	1,468 (99%)
Heterologous primary scheme (1st dose brand)													
AstraZeneca	<5	<5	<5	<5	<5	2,088 (100%)	3,674 (100%)	370 (100%)	63 (98%)	18 (95%)	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9 (0.7%)	8 (0.5%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	39 (93%)	1,251 (99%)	1,480 (99%)

Table A3.4: PEDIANET-Italy

Characteristics	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	<5	<5	<5	<5	<5
Homologous primary scheme							
Moderna	<5	<5	<5	<5	<5	<5	<5
Heterologous primary scheme (1st dose brand)							
Moderna	<5	<5	<5	<5	<5	<5	<5

Table A3.5: PHARMO-Netherlands

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	14	131	114	709	1,253	4,068	579	290	99	1,502	16,839
Homologous primary scheme												
AstraZeneca	<5	<5	6 (9.1%)	25 (43%)	178 (41%)	253 (46%)	1,882 (93%)	240 (79%)	70 (50%)	25 (48%)	16 (1.9%)	13 (0.2%)
Moderna	<5	5 (71%)	41 (62%)	14 (24%)	38 (8.9%)	75 (14%)	84 (4.2%)	45 (15%)	26 (18%)	26 (50%)	47 (5.5%)	774 (9.3%)
Pfizer	<5	<5	19 (29%)	19 (33%)	213 (50%)	224 (41%)	53 (2.6%)	20 (6.6%)	45 (32%)	<5	795 (93%)	7,525 (91%)
Heterologous primary scheme (1st dose brand)												
AstraZeneca	<5	<5	6 (9.2%)	22 (39%)	181 (65%)	252 (36%)	1,907 (93%)	210 (77%)	77 (52%)	24 (51%)	16 (2.5%)	13 (0.2%)
Moderna	<5	5 (71%)	40 (62%)	15 (27%)	39 (14%)	71 (10%)	89 (4.3%)	44 (16%)	28 (19%)	22 (47%)	49 (7.6%)	773 (9.1%)
Pfizer	<5	<5	19 (29%)	19 (34%)	60 (21%)	378 (54%)	53 (2.6%)	20 (7.3%)	44 (30%)	<5	579 (90%)	7,741 (91%)

Table A3.6: CPRD-UK

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	63	346	5,369	10,760	10,501	5,674	6,062	3,900	2,513	3,188	11,714	2,406
Homologous primary scheme												
AstraZeneca	<5	25 (16%)	1,095 (41%)	2,136 (40%)	3,047 (58%)	2,137 (74%)	2,079 (69%)	1,110 (56%)	848 (68%)	1,244 (77%)	2,251 (38%)	481 (42%)
Moderna	<5	<5	<5	<5	<5	61 (2.1%)	259 (8.6%)	296 (15%)	176 (14%)	132 (8.2%)	181 (3.1%)	44 (3.8%)
Pfizer	36 (97%)	133 (84%)	1,578 (59%)	3,257 (60%)	2,189 (42%)	686 (24%)	663 (22%)	576 (29%)	228 (18%)	234 (15%)	3,445 (59%)	618 (54%)
Heterologous primary scheme (1st dose brand)												
AstraZeneca	<5	40 (21%)	1,045 (39%)	2,186 (41%)	3,072 (58%)	2,050 (73%)	2,121 (69%)	1,058 (55%)	861 (68%)	1,255 (80%)	2,309 (40%)	457 (36%)
Moderna	<5	<5	<5	<5	<5	68 (2.4%)	264 (8.6%)	286 (15%)	176 (14%)	131 (8.3%)	174 (3.0%)	50 (4.0%)
Pfizer	26 (100%)	148 (79%)	1,651 (61%)	3,181 (59%)	2,189 (42%)	672 (24%)	676 (22%)	574 (30%)	224 (18%)	192 (12%)	3,354 (57%)	756 (60%)

Tables A4: Distribution of different vaccine brands used in homologous and heterologous primary vaccinations **by month** of time0 (full vaccination) in the matched population for **adolescents (12-17 years old)**, according to database and country

Table A4.1: SIDIAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	0	0	0	0	4	32	682	31,140	89,632	17,972	6,282	7,606
Homologous primary scheme												
Moderna	<5	<5	<5	<5	<5	<5	22 (3.9%)	1,157 (5.1%)	5,455 (9.4%)	2,594 (25%)	637 (19%)	1,548 (41%)
Pfizer	<5	<5	<5	<5	<5	21 (91%)	549 (96%)	21,409 (95%)	52,664 (91%)	7,760 (75%)	2,720 (81%)	2,206 (59%)
Heterologous primary scheme (1st dose brand)												
Moderna	<5	<5	<5	<5	<5	<5	<5	8 (50%)	20 (33%)	14 (48%)	7 (25%)	7 (12%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	8 (50%)	41 (67%)	15 (52%)	21 (75%)	51 (88%)

Table A4.2: BIFAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022
	<5	<5	16	8	8	82	654	25,832	237,940	29,150	9,878	10,834	2,658	52,816
Homologous primary scheme														
Moderna	<5	<5	<5	<5	<5	<5	13 (2.4%)	1,966 (11%)	11,425 (8.1%)	2,681 (17%)	385 (7.4%)	513 (11%)	749 (59%)	263 (1.0%)
Pfizer	<5	<5	14 (93%)	<5	8 (100%)	65 (94%)	520 (98%)	15,750 (89%)	128,902 (92%)	13,118 (83%)	4,831 (93%)	4,210 (89%)	526 (41%)	26,040 (99%)
Heterologous primary scheme (1st dose brand)														
AstraZeneca	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5	33 (53%)	68 (13%)	17 (20%)	11 (26%)	20 (2.4%)	18 (26%)	94 (90%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	27 (44%)	457 (87%)	67 (80%)	31 (74%)	824 (98%)	51 (74%)	10 (9.5%)

Table A4.3: INSPIRE-Italy

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022
	<5	<5	<5	<5	<5	276	4,764	4,054	5,302	2,572	1,170	1,696	9,148
Homologous primary scheme													
Moderna	<5	<5	<5	<5	<5	<5	53 (1.4%)	50 (1.7%)	140 (4.1%)	66 (4.2%)	40 (5.7%)	61 (6.7%)	240 (5.2%)
Pfizer	<5	<5	<5	<5	<5	207 (99%)	3,642 (99%)	2,938 (98%)	3,248 (96%)	1,504 (96%)	666 (94%)	848 (93%)	4,336 (95%)
Heterologous primary scheme (1st dose brand)													

Table A4.4: PEDIANET-Italy

Characteristics	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	176	414	1,640	456	254	260
Homologous primary scheme							
Moderna	<5	<5	12 (5.0%)	207 (23%)	99 (42%)	55 (43%)	29 (23%)
Pfizer	<5	103 (96%)	228 (95%)	674 (77%)	134 (58%)	73 (57%)	98 (77%)
Heterologous primary scheme (1st dose brand)							
AstraZeneca	<5	<5	<5	<5	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5
Pfizer	<5	<5	<5	<5	<5	<5	<5

Table A4.5: PHARMO-Netherlands

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	<5	<5	<5	<5	184	16,644	8,976	4,432	2,842	2,658
Homologous primary scheme												
AstraZeneca	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Pfizer	<5	<5	<5	<5	<5	<5	118 (100%)	10,391 (100%)	5,367 (100%)	2,515 (100%)	1,508 (100%)	1,332 (100%)
Heterologous primary scheme (1st dose brand)												
Pfizer	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Tables A5: Baseline characteristics among compared primary vaccination **matched cohorts** for patients without prior Covid-19 (main population) for **adults (>17 years old)**, according to database and country

Table A5.1: SIDIAP-Spain

Characteristics	Heterologous	Homologous
	16,011	16,011
Homologous primary scheme		
AstraZeneca		14,606 (91%)
Moderna		343 (2.1%)
Pfizer		1,062 (6.6%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	14,606 (91%)	
Moderna	343 (2.1%)	
Pfizer	1,062 (6.6%)	
Date final censoring (days)		
Mean (SD)	179.0 (49.9)	179.0 (49.9)
Minimum	1.0	1.0
25%	176.0	176.0
Median	198.0	198.0
75%	207.0	207.0
Maximum	326.0	326.0
Reason for final censoring		
Censoring of the other member of the pair	9,541 (60%)	5,492 (34%)
Censoring by 3rd dose	2,504 (16%)	6,583 (41%)
Study exit date	3,966 (25%)	3,936 (25%)
Female	9,543 (60%)	9,543 (60%)
Age at matching date (years)		
Mean (SD)	43.1 (12.1)	42.9 (12.2)
Minimum	18.0	18.0
25%	35.0	34.0
Median	44.0	43.0
75%	51.0	51.0
Maximum	99.0	97.0
Ageband at matching date		
18-29	2,470 (15%)	2,470 (15%)
30-49	8,744 (55%)	8,744 (55%)
50-59	3,538 (22%)	3,538 (22%)
60-69	1,048 (6.5%)	1,048 (6.5%)
70-79	122 (0.8%)	122 (0.8%)
80+	89 (0.6%)	89 (0.6%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	5 (<0.1%)
March 2021	17 (0.1%)	16 (<0.1%)
April 2021	45 (0.3%)	42 (0.3%)
May 2021	4,753 (30%)	4,131 (26%)
June 2021	7,203 (45%)	7,924 (49%)
July 2021	1,958 (12%)	1,875 (12%)
August 2021	643 (4.0%)	637 (4.0%)
September 2021	254 (1.6%)	248 (1.5%)
October 2021	121 (0.8%)	128 (0.8%)
November 2021	250 (1.6%)	261 (1.6%)
December 2021	760 (4.7%)	742 (4.6%)
Without prior Covid-19 at matching date	16,011 (100%)	16,011 (100%)
Immunodeficiency or use of immunosuppressants at matching date	2,554 (16%)	2,554 (16%)
Cancer at matching date	379 (2.4%)	379 (2.4%)
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Analgesics at matching date	2,790 (17%)	2,468 (15%)
Corticosteroids at matching date	456 (2.8%)	398 (2.5%)
Nonsteroidal anti-inflammatory drugs at matching date	3,121 (19%)	2,844 (18%)
Psychotropics Psycholeptics at matching date	2,133 (13%)	1,778 (11%)
Statins at matching date	667 (4.2%)	629 (3.9%)
Vaccines at matching date		
Antibiotics at matching date	2,176 (14%)	1,996 (12%)
Antiviral medications at matching date	99 (0.6%)	102 (0.6%)
More than 5 drugs prescribed	47 (0.3%)	45 (0.3%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	9,657 (61%)	10,195 (64%)

Characteristics	Heterologous	Homologous
1	2,819 (18%)	2,610 (16%)
2	1,832 (12%)	1,726 (11%)
3	1,020 (6.4%)	868 (5.5%)
4	380 (2.4%)	286 (1.8%)
5	120 (0.8%)	111 (0.7%)
6	40 (0.3%)	40 (0.3%)
7	7 (<0.1%)	5 (<0.1%)
Influenza vaccination (in the previous 4 years)	3,686 (23%)	3,215 (20%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	1.6 (1.9)	1.6 (1.8)
Minimum	0.0	0.0
25%	0.0	0.0
Median	1.0	1.0
75%	2.0	2.0
Maximum	32.0	31.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A5.2: BIFAP-Spain

Characteristics	Heterologous	Homologous
	26,451	26,451
Homologous primary scheme		
AstraZeneca		16,501 (62%)
Moderna		1,480 (5.6%)
Pfizer		8,470 (32%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	16,501 (62%)	
Moderna	1,480 (5.6%)	
Pfizer	8,470 (32%)	
Date final censoring (days)		
Mean (SD)	140.9 (80.1)	140.9 (80.1)
Minimum	1.0	1.0
25%	56.0	56.0
Median	181.0	181.0
75%	197.0	197.0
Maximum	395.0	395.0
Reason for final censoring		
Censoring of the other member of the pair	12,429 (47%)	11,885 (45%)
Censoring by 3rd dose	3,917 (15%)	7,022 (27%)
Study exit date	10,105 (38%)	7,544 (29%)
Female	15,686 (59%)	15,686 (59%)
Age at matching date (years)		
Mean (SD)	45.5 (13.6)	45.3 (13.8)
Minimum	18.0	18.0
25%	36.0	35.0
Median	45.0	45.0
75%	54.0	54.0
Maximum	105.0	103.0
Ageband at matching date		
18-29	3,371 (13%)	3,371 (13%)
30-49	13,255 (50%)	13,255 (50%)
50-59	6,145 (23%)	6,145 (23%)
60-69	2,474 (9.4%)	2,474 (9.4%)
70-79	726 (2.7%)	726 (2.7%)
80+	480 (1.8%)	480 (1.8%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	5 (<0.1%)	6 (<0.1%)
March 2021	51 (0.2%)	49 (0.2%)
April 2021	158 (0.6%)	205 (0.8%)
May 2021	1,925 (7.3%)	1,884 (7.1%)
June 2021	12,427 (47%)	12,425 (47%)
July 2021	2,152 (8.1%)	2,135 (8.1%)
August 2021	1,049 (4.0%)	1,088 (4.1%)
September 2021	488 (1.8%)	470 (1.8%)
October 2021	183 (0.7%)	196 (0.7%)
November 2021	574 (2.2%)	851 (3.2%)
December 2021	6,742 (25%)	6,452 (24%)
January 2022	434 (1.6%)	422 (1.6%)
February 2022	263 (1.0%)	268 (1.0%)
Without prior Covid-19 at matching date	26,451 (100%)	26,451 (100%)
Immunodeficiency or use of immunosuppressants at matching date	2,649 (10%)	2,649 (10%)
Cancer at matching date	343 (1.3%)	343 (1.3%)
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Analgesics at matching date	5,682 (21%)	5,522 (21%)
Corticosteroids at matching date	894 (3.4%)	777 (2.9%)
Nonsteroidal anti-inflammatory drugs at matching date	5,712 (22%)	5,600 (21%)
Psychotropics Psycholeptics at matching date	4,407 (17%)	4,136 (16%)
Statins at matching date	2,357 (8.9%)	2,294 (8.7%)
Vaccines at matching date		
Antibiotics at matching date	3,658 (14%)	3,576 (14%)
Antiviral medications at matching date	185 (0.7%)	177 (0.7%)
More than 5 drugs prescribed	141 (0.5%)	106 (0.4%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		

Characteristics	Heterologous	Homologous
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	14,293 (54%)	14,506 (55%)
1	5,390 (20%)	5,423 (21%)
2	3,548 (13%)	3,566 (13%)
3	2,051 (7.8%)	1,897 (7.2%)
4	739 (2.8%)	702 (2.7%)
5	289 (1.1%)	251 (0.9%)
6	117 (0.4%)	85 (0.3%)
7	24 (<0.1%)	20 (<0.1%)
8	<5	<5
Influenza vaccination (in the previous 4 years)	6,158 (23%)	5,543 (21%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	0.8 (1.2)	0.8 (1.2)
Minimum	0.0	0.0
25%	0.0	0.0
Median	0.0	0.0
75%	1.0	1.0
Maximum	30.0	27.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A5.3: INSPIRE-Italy

Characteristics	Heterologous	Homologous
	6,231	6,231
Homologous primary scheme		
AstraZeneca		6,168 (99%)
Moderna		<5
Pfizer		60 (1.0%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	6,168 (99%)	
Moderna	<5	
Pfizer	60 (1.0%)	
Date final censoring (days)		
Mean (SD)	165.1 (19.3)	165.1 (19.3)
Minimum	5.0	5.0
25%	157.0	157.0
Median	164.0	164.0
75%	172.0	172.0
Maximum	243.0	243.0
Reason for final censoring		
Censoring of the other member of the pair	3,093 (50%)	2,944 (47%)
Censoring by 3rd dose	2,969 (48%)	3,136 (50%)
Study exit date	169 (2.7%)	151 (2.4%)
Female	2,658 (43%)	2,658 (43%)
Age at matching date (years)		
Mean (SD)	38.1 (13.5)	38.6 (13.3)
Minimum	18.0	18.0
25%	27.0	27.0
Median	36.0	37.0
75%	49.0	49.0
Maximum	79.0	79.0
Ageband at matching date		
18-29	1,977 (32%)	1,977 (32%)
30-49	2,790 (45%)	2,790 (45%)
50-59	1,235 (20%)	1,235 (20%)
60-69	146 (2.3%)	146 (2.3%)
70-79	83 (1.3%)	83 (1.3%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	2,084 (33%)	2,037 (33%)
July 2021	3,654 (59%)	3,628 (58%)
August 2021	366 (5.9%)	438 (7.0%)
September 2021	56 (0.9%)	56 (0.9%)
October 2021	7 (0.1%)	7 (0.1%)
November 2021	<5	<5
December 2021	24 (0.4%)	27 (0.4%)
January 2022	38 (0.6%)	35 (0.6%)
Without prior Covid-19 at matching date	6,231 (100%)	6,231 (100%)
Immunodeficiency or use of immunosuppressants at matching date	2,461 (39%)	2,461 (39%)
Cancer at matching date	89 (1.4%)	89 (1.4%)
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Analgesics at matching date	128 (2.1%)	123 (2.0%)

Characteristics	Heterologous	Homologous
Corticosteroids at matching date	532 (8.5%)	478 (7.7%)
Nonsteroidal anti-inflammatory drugs at matching date	730 (12%)	731 (12%)
Psychotropics Psycholeptics at matching date	32 (0.5%)	31 (0.5%)
Statins at matching date	286 (4.6%)	279 (4.5%)
Vaccines at matching date		
Antibiotics at matching date	1,708 (27%)	1,692 (27%)
Antiviral medications at matching date	46 (0.7%)	43 (0.7%)
More than 5 drugs prescribed	7 (0.1%)	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	1,300 (58%)	1,344 (60%)
2	418 (19%)	431 (19%)
3	314 (14%)	298 (13%)
4	150 (6.7%)	135 (6.0%)
5	56 (2.5%)	39 (1.7%)
6	6 (0.3%)	<5
7	<5	<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A5.4: PHARMO-Netherlands

Characteristics	Heterologous	Homologous
	11,337	11,337
Homologous primary scheme		
AstraZeneca		2,265 (20%)
Moderna		1,004 (8.9%)
Pfizer		8,068 (71%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	2,265 (20%)	
Moderna	1,004 (8.9%)	
Pfizer	8,068 (71%)	
Date final censoring (days)		
Mean (SD)	39.8 (58.1)	39.8 (58.1)
Minimum	1.0	1.0
25%	4.0	4.0
Median	11.0	11.0
75%	34.0	34.0
Maximum	319.0	319.0
Reason for final censoring		
Censoring of the other member of the pair	5,035 (44%)	5,476 (48%)
Censoring by 3rd dose	859 (7.6%)	512 (4.5%)
Study exit date	5,443 (48%)	5,349 (47%)
Female	6,041 (53%)	6,041 (53%)
Age at matching date (years)		
Mean (SD)	67.6 (13.9)	67.4 (14.3)
Minimum	18.0	18.0
25%	60.0	61.0
Median	68.0	68.0
75%	80.0	80.0
Maximum	101.0	102.0
Ageband at matching date		
18-29	123 (1.1%)	123 (1.1%)
30-49	1,270 (11%)	1,270 (11%)
50-59	1,192 (11%)	1,192 (11%)
60-69	3,774 (33%)	3,774 (33%)
70-79	2,046 (18%)	2,046 (18%)
80+	2,932 (26%)	2,932 (26%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	6 (<0.1%)	6 (<0.1%)
March 2021	62 (0.5%)	63 (0.6%)
April 2021	55 (0.5%)	57 (0.5%)
May 2021	262 (2.3%)	400 (3.5%)
June 2021	644 (5.7%)	505 (4.5%)
July 2021	1,741 (15%)	1,713 (15%)
August 2021	201 (1.8%)	232 (2.0%)
September 2021	95 (0.8%)	88 (0.8%)
October 2021	36 (0.3%)	40 (0.4%)
November 2021	592 (5.2%)	797 (7.0%)
December 2021	7,643 (67%)	7,436 (66%)

Characteristics	Heterologous	Homologous
Without prior Covid-19 at matching date	11,337 (100%)	11,337 (100%)
Immunodeficiency or use of immunosuppressants at matching date	4,220 (37%)	4,220 (37%)
Cancer at matching date	709 (6.3%)	709 (6.3%)
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Analgesics at matching date	1,663 (15%)	1,645 (15%)
Corticosteroids at matching date	967 (8.5%)	1,018 (9.0%)
Nonsteroidal anti-inflammatory drugs at matching date	1,737 (15%)	1,667 (15%)
Psychotropics Psycholeptics at matching date	1,571 (14%)	1,628 (14%)
Statins at matching date	3,550 (31%)	3,408 (30%)
Vaccines at matching date		
Antibiotics at matching date	2,424 (21%)	2,399 (21%)
Antiviral medications at matching date	79 (0.7%)	90 (0.8%)
More than 5 drugs prescribed	67 (0.6%)	91 (0.8%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	1,989 (22%)	2,091 (23%)
1	3,606 (40%)	3,448 (39%)
2	1,883 (21%)	1,768 (20%)
3	913 (10%)	900 (10%)
4	411 (4.5%)	429 (4.8%)
5	186 (2.1%)	211 (2.4%)
6	57 (0.6%)	84 (0.9%)
7	10 (0.1%)	6 (<0.1%)
8	<5	<5
Influenza vaccination (in the previous 4 years)	1,561 (14%)	1,493 (13%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A5.5: CPRD-UK

Characteristics	Heterologous	Homologous
	29,498	29,498
Homologous primary scheme		
AstraZeneca		15,474 (52%)
Moderna		1,075 (3.6%)
Pfizer		12,949 (44%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	15,474 (52%)	
Moderna	1,075 (3.6%)	
Pfizer	12,949 (44%)	
Date final censoring (days)		
Mean (SD)	119.8 (74.7)	119.8 (74.7)
Minimum	1.0	1.0
25%	36.0	36.0
Median	144.0	144.0
75%	187.0	187.0
Maximum	299.0	299.0
Reason for final censoring		
Censoring of the other member of the pair	12,556 (43%)	15,306 (52%)
Censoring by 3rd dose	5,704 (19%)	5,274 (18%)
Study exit date	11,238 (38%)	8,918 (30%)
Female	15,890 (54%)	15,890 (54%)
Age at matching date (years)		
Mean (SD)	54.6 (18.5)	54.6 (18.3)
Minimum	18.0	18.0
25%	41.0	41.0
Median	53.0	53.0
75%	68.0	68.0
Maximum	104.0	102.0
Ageband at matching date		
18-29	2,607 (8.8%)	2,607 (8.8%)
30-49	9,987 (34%)	9,987 (34%)
50-59	5,603 (19%)	5,603 (19%)
60-69	4,368 (15%)	4,368 (15%)
70-79	3,458 (12%)	3,458 (12%)
80+	3,475 (12%)	3,475 (12%)
Calendar month-year at matching date		
January 2021	25 (<0.1%)	35 (0.1%)
February 2021	177 (0.6%)	149 (0.5%)
March 2021	2,571 (8.7%)	2,552 (8.7%)

Characteristics	Heterologous	Homologous
April 2021	5,171 (18%)	5,195 (18%)
May 2021	4,897 (17%)	4,866 (16%)
June 2021	2,594 (8.8%)	2,686 (9.1%)
July 2021	2,862 (9.7%)	2,805 (9.5%)
August 2021	1,789 (6.1%)	1,850 (6.3%)
September 2021	1,185 (4.0%)	1,177 (4.0%)
October 2021	1,500 (5.1%)	1,531 (5.2%)
November 2021	5,535 (19%)	5,586 (19%)
December 2021	1,192 (4.0%)	1,066 (3.6%)
Without prior Covid-19 at matching date	29,498 (100%)	29,498 (100%)
Immunodeficiency or use of immunosuppressants at matching date	606 (2.1%)	606 (2.1%)
Cancer at matching date	790 (2.7%)	790 (2.7%)
Transplant recipient at matching date		
Severe renal disease at matching date	15 (<0.1%)	15 (<0.1%)
Down syndrome at matching date		
Analgesics at matching date		
Corticosteroids at matching date	260 (0.9%)	238 (0.8%)
Nonsteroidal anti-inflammatory drugs at matching date		
Psychotropics Psycholeptics at matching date		
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date		
Antiviral medications at matching date	13 (<0.1%)	10 (<0.1%)
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	52 (17%)	67 (22%)
2	260 (83%)	238 (78%)
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Tables A6: Baseline characteristics among compared primary vaccination **matched cohorts** for patients without prior Covid-19 (main population) for **adolescent (12-17years old)**, according to database and country

Table A6.1: SIDIAP-Spain

Characteristics	Heterologous	Homologous
	221	221
Homologous primary scheme		
Moderna		72 (33%)
Pfizer		149 (67%)
Heterologous primary scheme (1st dose brand)		
Moderna	72 (33%)	
Pfizer	149 (67%)	
Date final censoring (days)		
Mean (SD)	43.1 (39.4)	43.1 (39.4)
Minimum	1.0	1.0
25%	13.0	13.0
Median	29.0	29.0
75%	73.0	73.0
Maximum	175.0	175.0
Reason for final censoring		
Censoring of the other member of the pair	78 (35%)	121 (55%)
Censoring by 3rd dose	<5	<5
Study exit date	140 (63%)	100 (45%)
Female	116 (52%)	116 (52%)
Age at matching date (years)		
Mean (SD)	14.2 (1.8)	13.8 (1.7)
Minimum	12.0	12.0
25%	12.0	12.0
Median	14.0	13.0
75%	16.0	15.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	221 (100%)	221 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	6 (2.7%)	6 (2.7%)
September 2021	24 (11%)	27 (12%)
October 2021	31 (14%)	32 (14%)
November 2021	41 (19%)	39 (18%)
December 2021	115 (52%)	113 (51%)
Without prior Covid-19 at matching date	221 (100%)	221 (100%)
Immunodeficiency or use of immunosuppressants at matching date	39 (18%)	39 (18%)
Cancer at matching date	<5	<5
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	65 (29%)	53 (24%)
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	28 (13%)	24 (11%)
Corticosteroids at matching date	5 (2.3%)	9 (4.1%)
Nonsteroidal anti-inflammatory drugs at matching date	38 (17%)	36 (16%)
Psychotropics Psycholeptics at matching date	<5	<5
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	33 (15%)	21 (9.5%)
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		

Characteristics	Heterologous	Homologous
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	153 (70%)	157 (72%)
1	31 (14%)	33 (15%)
2	24 (11%)	19 (8.7%)
3	10 (4.6%)	6 (2.8%)
4	<5	<5
5	<5	<5
Influenza vaccination (in the previous 4 years)	25 (11%)	23 (10%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	2.1 (1.9)	1.9 (1.5)
Minimum	0.0	0.0
25%	1.0	1.0
Median	2.0	2.0
75%	3.0	3.0
Maximum	9.0	7.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A6.2: BIFAP-Spain

Characteristics	Heterologous	Homologous
	967	967
Homologous primary scheme		
AstraZeneca		8 (0.8%)
Moderna		148 (15%)
Pfizer		811 (84%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	8 (0.8%)	
Moderna	148 (15%)	
Pfizer	811 (84%)	
Date final censoring (days)		
Mean (SD)	45.7 (55.5)	45.7 (55.5)
Minimum	1.0	1.0
25%	10.0	10.0
Median	18.0	18.0
75%	74.0	74.0
Maximum	330.0	330.0
Reason for final censoring		
Censoring of the other member of the pair	265 (27%)	627 (65%)
Censoring by 3rd dose	8 (0.8%)	<5
Study exit date	694 (72%)	339 (35%)
Female	468 (48%)	468 (48%)
Age at matching date (years)		
Mean (SD)	14.2 (1.8)	14.1 (1.8)
Minimum	12.0	12.0
25%	12.0	12.0
Median	14.0	14.0
75%	16.0	16.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	967 (100%)	967 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	6 (0.6%)	7 (0.7%)
July 2021	<5	<5
August 2021	23 (2.4%)	29 (3.0%)
September 2021	64 (6.6%)	58 (6.0%)
October 2021	16 (1.7%)	17 (1.8%)
November 2021	22 (2.3%)	42 (4.3%)
December 2021	697 (72%)	678 (70%)
January 2022	73 (7.5%)	72 (7.4%)
February 2022	63 (6.5%)	62 (6.4%)
Without prior Covid-19 at matching date	967 (100%)	967 (100%)
Immunodeficiency or use of immunosuppressants at matching date	58 (6.0%)	58 (6.0%)
Cancer at matching date	<5	<5
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date	<5	<5

Characteristics	Heterologous	Homologous
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	7 (0.7%)
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	109 (11%)	104 (11%)
Corticosteroids at matching date	16 (1.7%)	12 (1.2%)
Nonsteroidal anti-inflammatory drugs at matching date	132 (14%)	139 (14%)
Psychotropics Psycholeptics at matching date	34 (3.5%)	25 (2.6%)
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	75 (7.8%)	70 (7.2%)
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	723 (75%)	728 (75%)
1	146 (15%)	139 (14%)
2	68 (7.0%)	80 (8.3%)
3	21 (2.2%)	16 (1.7%)
4	8 (0.8%)	<5
5	<5	<5
6	<5	<5
Influenza vaccination (in the previous 4 years)	49 (5.1%)	61 (6.3%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	0.8 (1.1)	0.8 (1.2)
Minimum	0.0	0.0
25%	0.0	0.0
Median	0.0	0.0
75%	1.0	1.0
Maximum	7.0	10.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A6.3: PEDIANET-Italy

Characteristics	Heterologous	Homologous
	<5	<5
Homologous primary scheme		
Moderna		<5
Heterologous primary scheme (1st dose brand)		
Moderna	<5	
Date final censoring (days)		
Mean (SD)	24.7 (24.7)	24.7 (24.7)
Minimum	4.0	4.0
25%	11.0	11.0
Median	18.0	18.0
75%	35.0	35.0
Maximum	52.0	52.0
Reason for final censoring		
Censoring of the other member of the pair	<5	<5
Study exit date	<5	<5
Female	<5	<5
Age at matching date (years)		
Mean (SD)	12.3 (0.6)	12.3 (0.6)
Minimum	12.0	12.0
25%	12.0	12.0
Median	12.0	12.0
75%	12.5	12.5
Maximum	13.0	13.0
Ageband at matching date		
12-17	<5	<5
Calendar month-year at matching date		
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5

Characteristics	Heterologous	Homologous
October 2021	<5	<5
November 2021	<5	<5
December 2021	<5	<5
Without prior Covid-19 at matching date	<5	<5
Immunodeficiency or use of immunosuppressants at matching date	<5	<5
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date		
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date		
Sepsis at matching date		
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date		
Alcohol abuse at matching date		
Cerebrovascular diseases at matching date		
Dementia at matching date		
Parkinson disease at matching date		
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date		
Chronic liver disease at matching date		
Analgesics at matching date	<5	<5
Corticosteroids at matching date	<5	<5
Nonsteroidal anti-inflammatory drugs at matching date	<5	<5
Psychotropics Psycholeptics at matching date	<5	<5
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date	<5	<5
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	<5	<5
1	<5	<5
Influenza vaccination (in the previous 4 years)	<5	<5
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	2.0 (1.0)	2.7 (1.2)
Minimum	1.0	2.0
25%	1.5	2.0
Median	2.0	2.0
75%	2.5	3.0
Maximum	3.0	4.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A6.4: PHARMO-Netherlands

Characteristics	Heterologous	Homologous
	8	8
Homologous primary scheme		
Moderna		<5
Pfizer		7 (88%)
Heterologous primary scheme (1st dose brand)		
Moderna	<5	
Pfizer	7 (88%)	
Date final censoring (days)		
Mean (SD)	89.6 (52.1)	89.6 (52.1)
Minimum	3.0	3.0
25%	71.8	71.8
Median	106.0	106.0
75%	125.8	125.8
Maximum	138.0	138.0
Reason for final censoring		
Censoring of the other member of the pair	<5	<5
Study exit date	<5	5 (62%)
Female	<5	<5
Age at matching date (years)		
Mean (SD)	15.1 (1.2)	14.6 (1.4)

Characteristics	Heterologous	Homologous
Minimum	13.0	13.0
25%	14.8	13.8
Median	15.0	14.5
75%	16.0	15.2
Maximum	17.0	17.0
Ageband at matching date		
12-17	8 (100%)	8 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	5 (62%)	<5
September 2021	<5	<5
October 2021	<5	<5
November 2021	<5	<5
December 2021	<5	<5
Without prior Covid-19 at matching date	8 (100%)	8 (100%)
Immunodeficiency or use of immunosuppressants at matching date	<5	<5
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date		
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date		
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date		
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	<5	<5
Corticosteroids at matching date	<5	<5
Nonsteroidal anti-inflammatory drugs at matching date	<5	<5
Psychotropics Psycholeptics at matching date	<5	<5
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	<5	<5
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	<5	<5
2	<5	<5
Influenza vaccination (in the previous 4 years)	<5	<5
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A6.5: CPRD-UK

Characteristics	Heterologous	Homologous
	130	130
Homologous primary scheme		
AstraZeneca		65 (50%)
Pfizer		65 (50%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	65 (50%)	

Characteristics	Heterologous	Homologous
Pfizer	65 (50%)	
Date final censoring (days)		
Mean (SD)	148.9 (68.6)	148.9 (68.6)
Minimum	1.0	1.0
25%	121.2	121.2
Median	179.0	179.0
75%	192.8	192.8
Maximum	253.0	253.0
Reason for final censoring		
Censoring of the other member of the pair	60 (46%)	59 (45%)
Censoring by 3rd dose	22 (17%)	17 (13%)
Study exit date	48 (37%)	54 (42%)
Female	58 (45%)	58 (45%)
Age at matching date (years)		
Mean (SD)	16.5 (0.7)	16.6 (0.7)
Minimum	13.0	12.0
25%	16.0	16.0
Median	17.0	17.0
75%	17.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	130 (100%)	130 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	12 (9.2%)	12 (9.2%)
May 2021	58 (45%)	58 (45%)
June 2021	32 (25%)	32 (25%)
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	<5	<5
November 2021	12 (9.2%)	11 (8.5%)
December 2021	8 (6.2%)	8 (6.2%)
Without prior Covid-19 at matching date	130 (100%)	130 (100%)
Immunodeficiency or use of immunosuppressants at matching date	<5	<5
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date		
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date		
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date		
Alcohol abuse at matching date		
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date		
Parkinson disease at matching date		
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date		
Corticosteroids at matching date	<5	<5
Nonsteroidal anti-inflammatory drugs at matching date		
Psychotropics Psycholeptics at matching date		
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date		
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
2	<5	<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		

Characteristics	Heterologous	Homologous
25%		
Median		
75%		
Maximum		

Tables A7: Baseline characteristics among compared boosted and non-boosted matched cohorts for patients with homologous primary scheme and **homologous booster** without prior Covid-19 (main population) for **adults (>17 years old)**, according to database and country

Table A7.1: SIDIAP-Spain

Characteristics	No-Booster	Homologous Booster
	356,790	356,790
Homologous primary scheme		
AstraZeneca	26 (<0.1%)	26 (<0.1%)
Moderna	78,708 (22%)	78,708 (22%)
Pfizer	278,056 (78%)	278,056 (78%)
Date final censoring (days)		
Mean (SD)	22.1 (20.3)	22.1 (20.3)
Minimum	0.0	0.0
25%	7.0	7.0
Median	16.0	16.0
75%	33.0	33.0
Maximum	234.0	234.0
Reason for final censoring		
Censoring of the other member of the pair	861 (0.2%)	273,596 (77%)
Censoring by 4th dose	<5	54 (<0.1%)
Censoring by 3rd dose	270,728 (76%)	<5
Study exit date	85,201 (24%)	83,140 (23%)
Female	206,308 (58%)	206,308 (58%)
Age at matching date (years)		
Mean (SD)	74.4 (14.7)	74.6 (14.7)
Minimum	18.0	18.0
25%	71.0	71.0
Median	78.0	78.0
75%	84.0	84.0
Maximum	109.0	109.0
Ageband at matching date		
18-29	5,384 (1.5%)	5,384 (1.5%)
30-49	21,695 (6.1%)	21,695 (6.1%)
50-59	34,620 (9.7%)	34,620 (9.7%)
60-69	14,802 (4.1%)	14,802 (4.1%)
70-79	128,010 (36%)	128,010 (36%)
80+	152,279 (43%)	152,279 (43%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	11 (<0.1%)	11 (<0.1%)
June 2021	16 (<0.1%)	16 (<0.1%)
July 2021	21 (<0.1%)	21 (<0.1%)
August 2021	30 (<0.1%)	30 (<0.1%)
September 2021	23,846 (6.7%)	23,846 (6.7%)
October 2021	56,135 (16%)	56,135 (16%)
November 2021	205,435 (58%)	205,435 (58%)
December 2021	71,294 (20%)	71,294 (20%)
Without prior Covid-19 at matching date	356,790 (100%)	356,790 (100%)
Immunodeficiency or use of immunosuppressants at matching date	123,193 (35%)	123,193 (35%)
Cancer at matching date	59,946 (17%)	59,946 (17%)
Transplant recipient at matching date	4,129 (1.2%)	4,129 (1.2%)
Severe renal disease at matching date	4,698 (1.3%)	4,698 (1.3%)
Down syndrome at matching date	175 (<0.1%)	175 (<0.1%)
Coagulation disorders at matching date		
Heart failure at matching date	31,740 (8.9%)	32,908 (9.2%)
Diabetes (types 1 and 2) at matching date	63,182 (18%)	65,965 (18%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	61,619 (17%)	67,618 (19%)
Chronic kidney disease at matching date	63,836 (18%)	65,234 (18%)
Sepsis at matching date	8,866 (2.5%)	8,722 (2.4%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	181,800 (51%)	187,265 (52%)
Osteoarthritis at matching date	79,837 (22%)	83,332 (23%)
Alcohol abuse at matching date	11,476 (3.2%)	10,971 (3.1%)
Cerebrovascular diseases at matching date	30,106 (8.4%)	31,421 (8.8%)
Dementia at matching date	25,817 (7.2%)	28,747 (8.1%)
Parkinson disease at matching date	5,944 (1.7%)	6,484 (1.8%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	37,849 (11%)	37,052 (10%)
Chronic respiratory disease at matching date		
Hypertension at matching date	146,865 (41%)	152,309 (43%)
Coronary artery disease at matching date	28,533 (8.0%)	29,208 (8.2%)
Chronic liver disease at matching date		
Analgesics at matching date	181,630 (51%)	190,866 (53%)
Corticosteroids at matching date	31,676 (8.9%)	32,470 (9.1%)
Nonsteroidal anti-inflammatory drugs at matching date	60,629 (17%)	62,147 (17%)
Psychotropics Psycholeptics at matching date	120,437 (34%)	128,176 (36%)

Characteristics	No-Booster	Homologous Booster
Statins at matching date	119,093 (33%)	124,941 (35%)
Vaccines at matching date		
Antibiotics at matching date	84,648 (24%)	91,126 (26%)
Antiviral medications at matching date	4,530 (1.3%)	4,867 (1.4%)
More than 5 drugs prescribed	5,360 (1.5%)	5,582 (1.6%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	78,104 (22%)	68,972 (19%)
1	85,361 (24%)	83,221 (23%)
2	86,312 (24%)	89,832 (25%)
3	59,538 (17%)	64,396 (18%)
4	27,614 (7.8%)	29,962 (8.5%)
5	11,672 (3.3%)	12,494 (3.5%)
6	4,457 (1.3%)	4,713 (1.3%)
7	865 (0.2%)	835 (0.2%)
8	38 (<0.1%)	34 (<0.1%)
Influenza vaccination (in the previous 4 years)	225,730 (63%)	269,341 (75%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	1.7 (3.4)	1.8 (3.4)
Minimum	0.0	0.0
25%	0.0	0.0
Median	1.0	1.0
75%	2.0	2.0
Maximum	67.0	74.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A7.2: BIFAP-Spain

Characteristics	No-Booster	Homologous Booster
	1,522,416	1,522,416
Homologous primary scheme		
AstraZeneca	130 (<0.1%)	130 (<0.1%)
Moderna	197,976 (13%)	197,976 (13%)
Pfizer	1,324,310 (87%)	1,324,310 (87%)
Date final censoring (days)		
Mean (SD)	27.5 (38.7)	27.5 (38.7)
Minimum	0.0	0.0
25%	5.0	5.0
Median	13.0	13.0
75%	31.0	31.0
Maximum	339.0	339.0
Reason for final censoring		
Censoring of the other member of the pair	2,459 (0.2%)	1,111,847 (73%)
Censoring by 4th dose	<5	113 (<0.1%)
Censoring by 3rd dose	1,082,199 (71%)	<5
Study exit date	437,758 (29%)	410,456 (27%)
Female	890,950 (59%)	890,950 (59%)
Age at matching date (years)		
Mean (SD)	72.0 (15.0)	72.1 (14.9)
Minimum	18.0	18.0
25%	68.0	68.0
Median	75.0	75.0
75%	82.0	82.0
Maximum	112.0	111.0
Ageband at matching date		
18-29	33,184 (2.2%)	33,184 (2.2%)
30-49	91,120 (6.0%)	91,120 (6.0%)
50-59	171,938 (11%)	171,938 (11%)
60-69	143,263 (9.4%)	143,263 (9.4%)
70-79	591,719 (39%)	591,719 (39%)
80+	491,192 (32%)	491,192 (32%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	7 (<0.1%)	7 (<0.1%)
April 2021	11 (<0.1%)	11 (<0.1%)
May 2021	26 (<0.1%)	26 (<0.1%)
June 2021	68 (<0.1%)	68 (<0.1%)
July 2021	42 (<0.1%)	42 (<0.1%)
August 2021	49 (<0.1%)	49 (<0.1%)
September 2021	37,227 (2.4%)	37,227 (2.4%)
October 2021	129,475 (8.5%)	129,475 (8.5%)
November 2021	757,804 (50%)	757,804 (50%)
December 2021	531,284 (35%)	531,284 (35%)
January 2022	50,632 (3.3%)	50,632 (3.3%)
February 2022	15,791 (1.0%)	15,791 (1.0%)
Without prior Covid-19 at matching date	1,522,416 (100%)	1,522,416 (100%)

Characteristics	No-Booster	Homologous Booster
Immunodeficiency or use of immunosuppressants at matching date	274,354 (18%)	274,354 (18%)
Cancer at matching date	93,165 (6.1%)	93,165 (6.1%)
Transplant recipient at matching date	3,038 (0.2%)	3,038 (0.2%)
Severe renal disease at matching date	11,734 (0.8%)	11,734 (0.8%)
Down syndrome at matching date	216 (<0.1%)	216 (<0.1%)
Coagulation disorders at matching date		
Heart failure at matching date	65,943 (4.3%)	63,951 (4.2%)
Diabetes (types 1 and 2) at matching date	80,409 (5.3%)	82,633 (5.4%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	47,434 (3.1%)	46,026 (3.0%)
Chronic kidney disease at matching date	72,014 (4.7%)	73,916 (4.9%)
Sepsis at matching date	15,032 (1.0%)	15,137 (1.0%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	137,458 (9.0%)	144,671 (9.5%)
Osteoarthritis at matching date	75,352 (4.9%)	79,670 (5.2%)
Alcohol abuse at matching date	17,082 (1.1%)	16,156 (1.1%)
Cerebrovascular diseases at matching date	42,292 (2.8%)	41,397 (2.7%)
Dementia at matching date	37,037 (2.4%)	37,176 (2.4%)
Parkinson disease at matching date	9,484 (0.6%)	10,035 (0.7%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	89,373 (5.9%)	89,227 (5.9%)
Chronic respiratory disease at matching date		
Hypertension at matching date	221,973 (15%)	227,378 (15%)
Coronary artery disease at matching date	55,371 (3.6%)	55,877 (3.7%)
Chronic liver disease at matching date		
Analgesics at matching date	700,114 (46%)	724,859 (48%)
Corticosteroids at matching date	101,917 (6.7%)	101,274 (6.7%)
Nonsteroidal anti-inflammatory drugs at matching date	319,091 (21%)	328,030 (22%)
Psychotropics Psycholeptics at matching date	476,563 (31%)	488,210 (32%)
Statins at matching date	505,305 (33%)	537,619 (35%)
Vaccines at matching date		
Antibiotics at matching date	317,848 (21%)	329,417 (22%)
Antiviral medications at matching date	15,929 (1.0%)	16,405 (1.1%)
More than 5 drugs prescribed	18,443 (1.2%)	18,744 (1.2%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	372,620 (24%)	340,991 (22%)
1	388,645 (26%)	389,054 (26%)
2	365,314 (24%)	375,925 (25%)
3	233,414 (15%)	246,525 (16%)
4	103,940 (6.8%)	109,789 (7.2%)
5	40,040 (2.6%)	41,388 (2.7%)
6	15,040 (1.0%)	15,277 (1.0%)
7	3,315 (0.2%)	3,385 (0.2%)
8	88 (<0.1%)	82 (<0.1%)
Influenza vaccination (in the previous 4 years)	476,711 (31%)	551,165 (36%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	1.0 (1.8)	1.0 (1.7)
Minimum	0.0	0.0
25%	0.0	0.0
Median	0.0	0.0
75%	1.0	1.0
Maximum	46.0	47.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A7.3: INSPIRE-Italy

Characteristics	No-Booster	Homologous Booster
	218,106	218,106
Homologous primary scheme		
Moderna	43,466 (20%)	43,466 (20%)
Pfizer	174,640 (80%)	174,640 (80%)
Date final censoring (days)		
Mean (SD)	23.9 (25.2)	23.9 (25.2)
Minimum	0.0	0.0
25%	4.0	4.0
Median	16.0	16.0
75%	35.0	35.0
Maximum	144.0	144.0
Reason for final censoring		
Censoring of the other member of the pair	155 (<0.1%)	163,666 (75%)
Censoring by 3rd dose	163,436 (75%)	<5
Study exit date	54,515 (25%)	54,440 (25%)
Female	113,911 (52%)	113,911 (52%)
Age at matching date (years)		
Mean (SD)	52.6 (20.7)	52.2 (20.8)
Minimum	18.0	18.0
25%	35.0	34.0
Median	53.0	53.0
75%	70.0	70.0
Maximum	106.0	107.0
Ageband at matching date		
18-29	41,341 (19%)	41,341 (19%)
30-49	57,424 (26%)	57,424 (26%)
50-59	33,717 (15%)	33,717 (15%)
60-69	28,588 (13%)	28,588 (13%)
70-79	31,849 (15%)	31,849 (15%)
80+	25,187 (12%)	25,187 (12%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	3,485 (1.6%)	3,485 (1.6%)
October 2021	42,071 (19%)	42,071 (19%)
*Ç0		
November 2021	54,323 (25%)	54,323 (25%)
December 2021	46,871 (21%)	46,871 (21%)
January 2022	71,356 (33%)	71,356 (33%)
Without prior Covid-19 at matching date	218,106 (100%)	218,106 (100%)
Immunodeficiency or use of immunosuppressants at matching date	105,715 (48%)	105,715 (48%)
Cancer at matching date	18,190 (8.3%)	18,190 (8.3%)
Transplant recipient at matching date		
Severe renal disease at matching date	612 (0.3%)	612 (0.3%)
Down syndrome at matching date	63 (<0.1%)	63 (<0.1%)
Coagulation disorders at matching date		
Heart failure at matching date	6,329 (2.9%)	5,678 (2.6%)
Diabetes (types 1 and 2) at matching date	29,042 (13%)	29,623 (14%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	394 (0.2%)	331 (0.2%)
Chronic kidney disease at matching date	3,561 (1.6%)	3,523 (1.6%)
Sepsis at matching date	321 (0.1%)	288 (0.1%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	17,263 (7.9%)	17,954 (8.2%)
Osteoarthritis at matching date	8,174 (3.7%)	8,304 (3.8%)
Alcohol abuse at matching date	3,355 (1.5%)	3,150 (1.4%)
Cerebrovascular diseases at matching date	9,233 (4.2%)	8,503 (3.9%)
Dementia at matching date	4,776 (2.2%)	4,324 (2.0%)
Parkinson disease at matching date	738 (0.3%)	641 (0.3%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	18,123 (8.3%)	18,133 (8.3%)
Chronic respiratory disease at matching date		
Hypertension at matching date	41,329 (19%)	41,929 (19%)
Coronary artery disease at matching date	16,425 (7.5%)	16,018 (7.3%)
Chronic liver disease at matching date		
Analgesics at matching date	12,494 (5.7%)	11,484 (5.3%)
Corticosteroids at matching date	29,833 (14%)	27,050 (12%)
Nonsteroidal anti-inflammatory drugs at matching date	55,081 (25%)	51,852 (24%)
Psychotropics Psycholeptics at matching date	6,347 (2.9%)	5,613 (2.6%)
Statins at matching date	42,599 (20%)	44,124 (20%)
Vaccines at matching date		
Antibiotics at matching date	93,438 (43%)	89,498 (41%)
Antiviral medications at matching date	2,663 (1.2%)	2,491 (1.1%)
More than 5 drugs prescribed	1,610 (0.7%)	1,280 (0.6%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		

Characteristics	No-Booster	Homologous Booster
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	55,082 (43%)	56,381 (44%)
2	33,219 (26%)	32,727 (26%)
3	21,728 (17%)	20,963 (16%)
4	12,086 (9.3%)	10,799 (8.5%)
5	5,789 (4.5%)	5,081 (4.0%)
6	1,494 (1.2%)	1,151 (0.9%)
7	114 (<0.1%)	119 (<0.1%)
8	<5	10 (<0.1%)
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A7.4: PHARMO-Netherlands

Characteristics	No-Booster	Homologous Booster
	40,739	40,739
Homologous primary scheme		
AstraZeneca	14,083 (35%)	14,083 (35%)
Moderna	3,968 (9.7%)	3,968 (9.7%)
Pfizer	22,688 (56%)	22,688 (56%)
Date final censoring (days)		
Mean (SD)	48.0 (65.7)	48.0 (65.7)
Minimum	0.0	0.0
25%	5.0	5.0
Median	11.0	11.0
75%	69.0	69.0
Maximum	295.0	295.0
Reason for final censoring		
Censoring of the other member of the pair	4,667 (11%)	17,614 (43%)
Censoring by 4th dose	<5	2,480 (6.1%)
Censoring by 3rd dose	13,679 (34%)	<5
Study exit date	22,393 (55%)	20,645 (51%)
Female	21,665 (53%)	21,665 (53%)
Age at matching date (years)		
Mean (SD)	61.7 (13.8)	61.8 (13.9)
Minimum	18.0	18.0
25%	56.0	56.0
Median	63.0	63.0
75%	70.0	70.0
Maximum	102.0	106.0
Ageband at matching date		
18-29	1,321 (3.2%)	1,321 (3.2%)
30-49	4,886 (12%)	4,886 (12%)
50-59	7,206 (18%)	7,206 (18%)
60-69	16,628 (41%)	16,628 (41%)
70-79	7,571 (19%)	7,571 (19%)
80+	3,127 (7.7%)	3,127 (7.7%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	51 (0.1%)	51 (0.1%)
April 2021	408 (1.0%)	408 (1.0%)
May 2021	1,652 (4.1%)	1,652 (4.1%)
June 2021	5,621 (14%)	5,621 (14%)
July 2021	7,103 (17%)	7,103 (17%)
August 2021	1,018 (2.5%)	1,018 (2.5%)
September 2021	705 (1.7%)	705 (1.7%)
October 2021	1,047 (2.6%)	1,047 (2.6%)
November 2021	3,107 (7.6%)	3,107 (7.6%)
December 2021	20,027 (49%)	20,027 (49%)
Without prior Covid-19 at matching date	40,739 (100%)	40,739 (100%)
Immunodeficiency or use of immunosuppressants at matching date	14,750 (36%)	14,750 (36%)
Cancer at matching date	2,888 (7.1%)	2,888 (7.1%)
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	419 (1.0%)	448 (1.1%)
Diabetes (types 1 and 2) at matching date		
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	3,846 (9.4%)	3,867 (9.5%)
Chronic kidney disease at matching date		
Sepsis at matching date	1,337 (3.3%)	1,478 (3.6%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	8,277 (20%)	8,598 (21%)

Characteristics	No-Booster	Homologous Booster
Osteoarthritis at matching date	6,622 (16%)	6,886 (17%)
Alcohol abuse at matching date	460 (1.1%)	413 (1.0%)
Cerebrovascular diseases at matching date	1,287 (3.2%)	1,423 (3.5%)
Dementia at matching date		
Parkinson disease at matching date	138 (0.3%)	158 (0.4%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	2,334 (5.7%)	2,229 (5.5%)
Chronic respiratory disease at matching date		
Hypertension at matching date	7,239 (18%)	7,328 (18%)
Coronary artery disease at matching date	1,642 (4.0%)	1,803 (4.4%)
Chronic liver disease at matching date		
Analgesics at matching date	4,924 (12%)	5,855 (14%)
Corticosteroids at matching date	2,828 (6.9%)	3,572 (8.8%)
Nonsteroidal anti-inflammatory drugs at matching date	5,945 (15%)	6,916 (17%)
Psychotropics Psycholeptics at matching date	4,869 (12%)	5,436 (13%)
Statins at matching date	10,347 (25%)	10,429 (26%)
Vaccines at matching date		
Antibiotics at matching date	6,703 (16%)	8,238 (20%)
Antiviral medications at matching date	283 (0.7%)	396 (1.0%)
More than 5 drugs prescribed	184 (0.5%)	299 (0.7%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	8,209 (27%)	7,258 (23%)
1	12,217 (40%)	12,135 (39%)
2	5,533 (18%)	6,093 (20%)
3	2,586 (8.5%)	3,100 (10.0%)
4	1,184 (3.9%)	1,568 (5.0%)
5	498 (1.6%)	670 (2.2%)
6	152 (0.5%)	245 (0.8%)
7	30 (<0.1%)	54 (0.2%)
8	<5	<5
Influenza vaccination (in the previous 4 years)	3,514 (8.6%)	2,323 (5.7%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A7.5: CPRD-UK

Characteristics	No-Booster	Homologous Booster
	1,029,806	1,029,806
Homologous primary scheme		
AstraZeneca	4,393 (0.4%)	4,393 (0.4%)
Moderna	214 (<0.1%)	214 (<0.1%)
Pfizer	1,025,199 (100%)	1,025,199 (100%)
Date final censoring (days)		
Mean (SD)	17.7 (16.8)	17.7 (16.8)
Minimum	0.0	0.0
25%	5.0	5.0
Median	12.0	12.0
75%	25.0	25.0
Maximum	239.0	239.0
Reason for final censoring		
Censoring of the other member of the pair	49,155 (4.8%)	756,433 (73%)
Censoring by 4th dose	<5	483 (<0.1%)
Censoring by 3rd dose	710,182 (69%)	<5
Study exit date	270,469 (26%)	272,890 (26%)
Female	598,210 (58%)	598,210 (58%)
Age at matching date (years)		
Mean (SD)	65.3 (16.5)	65.4 (16.2)
Minimum	18.0	18.0
25%	55.0	55.0
Median	68.0	68.0
75%	78.0	78.0
Maximum	109.0	109.0
Ageband at matching date		
18-29	30,751 (3.0%)	30,751 (3.0%)
30-49	143,271 (14%)	143,271 (14%)
50-59	164,334 (16%)	164,334 (16%)
60-69	205,346 (20%)	205,346 (20%)
70-79	281,940 (27%)	281,940 (27%)
80+	204,164 (20%)	204,164 (20%)
Calendar month-year at matching date		
January 2021	<5	<5

Characteristics	No-Booster	Homologous Booster
February 2021	<5	<5
March 2021	67 (<0.1%)	67 (<0.1%)
April 2021	132 (<0.1%)	132 (<0.1%)
May 2021	248 (<0.1%)	248 (<0.1%)
June 2021	338 (<0.1%)	338 (<0.1%)
July 2021	269 (<0.1%)	269 (<0.1%)
August 2021	298 (<0.1%)	298 (<0.1%)
September 2021	81,659 (7.9%)	81,659 (7.9%)
October 2021	548,318 (53%)	548,318 (53%)
November 2021	368,960 (36%)	368,960 (36%)
December 2021	29,517 (2.9%)	29,517 (2.9%)
Without prior Covid-19 at matching date	1,029,806 (100%)	1,029,806 (100%)
Immunodeficiency or use of immunosuppressants at matching date	40,805 (4.0%)	40,805 (4.0%)
Cancer at matching date	50,632 (4.9%)	50,632 (4.9%)
Transplant recipient at matching date		
Severe renal disease at matching date	813 (<0.1%)	813 (<0.1%)
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	22 (<0.1%)	22 (<0.1%)
Diabetes (types 1 and 2) at matching date	5,283 (0.5%)	6,407 (0.6%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date		
Chronic kidney disease at matching date	52,638 (5.1%)	51,809 (5.0%)
Sepsis at matching date		
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	19,832 (1.9%)	20,368 (2.0%)
Osteoarthritis at matching date		
Alcohol abuse at matching date		
Cerebrovascular diseases at matching date	20,286 (2.0%)	18,869 (1.8%)
Dementia at matching date		
Parkinson disease at matching date		
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	50,059 (4.9%)	50,124 (4.9%)
Chronic respiratory disease at matching date		
Hypertension at matching date	165,247 (16%)	169,988 (17%)
Coronary artery disease at matching date	41,411 (4.0%)	40,060 (3.9%)
Chronic liver disease at matching date		
Analgesics at matching date		
Corticosteroids at matching date	17,369 (1.7%)	16,514 (1.6%)
Nonsteroidal anti-inflammatory drugs at matching date		
Psychotropics Psycholeptics at matching date		
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date		
Antiviral medications at matching date	251 (<0.1%)	334 (<0.1%)
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	3,145 (15%)	3,975 (19%)
2	17,378 (85%)	16,519 (81%)
3	6 (<0.1%)	5 (<0.1%)
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Tables A8: Baseline characteristics among compared boosted and non-boosted matched cohorts for patients with heterologous primary scheme (derived heterologous booster) without prior Covid-19 (main population) for **adults (>17 years old)**, according to database and country

Table A8.1: SIDIAP-Spain

Characteristics	No-Booster	Heterologous Booster
	3,414	3,414
Heterologous primary scheme (1st dose brand)		
AstraZeneca	3,383 (99%)	3,383 (99%)
Moderna	<5	<5
Pfizer	27 (0.8%)	27 (0.8%)
Type of booster		
AstraZeneca	<5	<5
Moderna	675 (92%)	3,108 (91%)
Pfizer	60 (8.2%)	304 (8.9%)
Date final censoring (days)		
Mean (SD)	10.0 (11.5)	10.0 (11.5)
Minimum	0.0	0.0
25%	3.0	3.0
Median	9.0	9.0
75%	14.0	14.0
Maximum	173.0	173.0
Reason for final censoring		
Censoring of the other member of the pair	<5	736 (22%)
Censoring by 4th dose	<5	<5
Censoring by 3rd dose	734 (21%)	<5
Study exit date	2,676 (78%)	2,676 (78%)
Female	2,090 (61%)	2,090 (61%)
Age at matching date (years)		
Mean (SD)	46.1 (10.7)	46.6 (10.9)
Minimum	18.0	18.0
25%	40.0	40.0
Median	48.0	48.0
75%	53.0	54.0
Maximum	75.0	75.0
Ageband at matching date		
18-29	313 (9.2%)	313 (9.2%)
30-49	1,574 (46%)	1,574 (46%)
50-59	1,235 (36%)	1,235 (36%)
60-69	243 (7.1%)	243 (7.1%)
70-79	49 (1.4%)	49 (1.4%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	5 (0.1%)	5 (0.1%)
October 2021	31 (0.9%)	31 (0.9%)
November 2021	52 (1.5%)	52 (1.5%)
December 2021	3,321 (97%)	3,321 (97%)
Without prior Covid-19 at matching date	3,414 (100%)	3,414 (100%)
Immunodeficiency or use of immunosuppressants at matching date	583 (17%)	583 (17%)
Cancer at matching date	105 (3.1%)	105 (3.1%)
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	10 (0.3%)	16 (0.5%)
Diabetes (types 1 and 2) at matching date	88 (2.6%)	114 (3.3%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	91 (2.7%)	73 (2.1%)
Chronic kidney disease at matching date	33 (1.0%)	31 (0.9%)
Sepsis at matching date	13 (0.4%)	10 (0.3%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	958 (28%)	918 (27%)
Osteoarthritis at matching date	129 (3.8%)	135 (4.0%)
Alcohol abuse at matching date	56 (1.6%)	67 (2.0%)
Cerebrovascular diseases at matching date	33 (1.0%)	40 (1.2%)
Dementia at matching date	<5	6 (0.2%)
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	69 (2.0%)	85 (2.5%)
Chronic respiratory disease at matching date		
Hypertension at matching date	273 (8.0%)	282 (8.3%)
Coronary artery disease at matching date	27 (0.8%)	50 (1.5%)
Chronic liver disease at matching date		
Analgesics at matching date	652 (19%)	591 (17%)

Characteristics	No-Booster	Heterologous Booster
Corticosteroids at matching date	101 (3.0%)	115 (3.4%)
Nonsteroidal anti-inflammatory drugs at matching date	729 (21%)	614 (18%)
Psychotropics Psycholeptics at matching date	517 (15%)	484 (14%)
Statins at matching date	155 (4.5%)	192 (5.6%)
Vaccines at matching date		
Antibiotics at matching date	485 (14%)	459 (13%)
Antiviral medications at matching date	25 (0.7%)	20 (0.6%)
More than 5 drugs prescribed	7 (0.2%)	12 (0.4%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	1,925 (57%)	2,055 (60%)
1	681 (20%)	626 (18%)
2	446 (13%)	364 (11%)
3	248 (7.3%)	219 (6.4%)
4	76 (2.2%)	86 (2.5%)
5	23 (0.7%)	36 (1.1%)
6	7 (0.2%)	12 (0.4%)
Influenza vaccination (in the previous 4 years)	905 (27%)	1,116 (33%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	2.1 (2.1)	2.1 (2.7)
Minimum	0.0	0.0
25%	1.0	1.0
Median	2.0	1.0
75%	3.0	3.0
Maximum	31.0	32.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A8.2: BIFAP-Spain

Characteristics	No-Booster	Heterologous Booster
	5,801	5,801
Heterologous primary scheme (1st dose brand)		
AstraZeneca	5,022 (87%)	5,022 (87%)
Moderna	218 (3.8%)	218 (3.8%)
Pfizer	561 (9.7%)	561 (9.7%)
Type of booster		
AstraZeneca	<5	13 (0.2%)
Moderna	1,327 (61%)	3,421 (59%)
Pfizer	836 (39%)	2,367 (41%)
Date final censoring (days)		
Mean (SD)	36.3 (49.5)	36.3 (49.5)
Minimum	0.0	0.0
25%	4.0	4.0
Median	11.0	11.0
75%	43.0	43.0
Maximum	324.0	324.0
Reason for final censoring		
Censoring of the other member of the pair	11 (0.2%)	2,194 (38%)
Censoring by 4th dose	<5	<5
Censoring by 3rd dose	2,161 (37%)	<5
Study exit date	3,629 (63%)	3,604 (62%)
Female	3,619 (62%)	3,619 (62%)
Age at matching date (years)		
Mean (SD)	50.0 (13.8)	50.3 (13.8)
Minimum	18.0	18.0
25%	41.0	41.0
Median	50.0	50.0
75%	58.0	59.0
Maximum	101.0	101.0
Ageband at matching date		
18-29	398 (6.9%)	398 (6.9%)
30-49	2,368 (41%)	2,368 (41%)
50-59	1,708 (29%)	1,708 (29%)
60-69	863 (15%)	863 (15%)
70-79	202 (3.5%)	202 (3.5%)
80+	262 (4.5%)	262 (4.5%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	5 (<0.1%)	5 (<0.1%)
July 2021	11 (0.2%)	11 (0.2%)
August 2021	12 (0.2%)	12 (0.2%)
September 2021	14 (0.2%)	14 (0.2%)
October 2021	48 (0.8%)	48 (0.8%)

Characteristics	No-Booster	Heterologous Booster
November 2021	508 (8.8%)	508 (8.8%)
December 2021	4,237 (73%)	4,237 (73%)
January 2022	882 (15%)	882 (15%)
February 2022	84 (1.4%)	84 (1.4%)
Without prior Covid-19 at matching date	5,801 (100%)	5,801 (100%)
Immunodeficiency or use of immunosuppressants at matching date	789 (14%)	789 (14%)
Cancer at matching date	74 (1.3%)	74 (1.3%)
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	32 (0.6%)	26 (0.4%)
Diabetes (types 1 and 2) at matching date	53 (0.9%)	50 (0.9%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	19 (0.3%)	33 (0.6%)
Chronic kidney disease at matching date	38 (0.7%)	46 (0.8%)
Sepsis at matching date	17 (0.3%)	13 (0.2%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	194 (3.3%)	227 (3.9%)
Osteoarthritis at matching date	72 (1.2%)	66 (1.1%)
Alcohol abuse at matching date	27 (0.5%)	18 (0.3%)
Cerebrovascular diseases at matching date	40 (0.7%)	28 (0.5%)
Dementia at matching date	10 (0.2%)	7 (0.1%)
Parkinson disease at matching date	6 (0.1%)	5 (<0.1%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	73 (1.3%)	73 (1.3%)
Chronic respiratory disease at matching date		
Hypertension at matching date	148 (2.6%)	152 (2.6%)
Coronary artery disease at matching date	55 (0.9%)	49 (0.8%)
Chronic liver disease at matching date		
Analgesics at matching date	1,477 (25%)	1,482 (26%)
Corticosteroids at matching date	277 (4.8%)	304 (5.2%)
Nonsteroidal anti-inflammatory drugs at matching date	1,445 (25%)	1,461 (25%)
Psychotropics Psycholeptics at matching date	1,243 (21%)	1,216 (21%)
Statins at matching date	788 (14%)	766 (13%)
Vaccines at matching date		
Antibiotics at matching date	1,052 (18%)	1,040 (18%)
Antiviral medications at matching date	41 (0.7%)	55 (0.9%)
More than 5 drugs prescribed	61 (1.1%)	67 (1.2%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	2,609 (45%)	2,637 (45%)
1	1,317 (23%)	1,269 (22%)
2	958 (17%)	946 (16%)
3	518 (8.9%)	538 (9.3%)
4	230 (4.0%)	247 (4.3%)
5	108 (1.9%)	97 (1.7%)
6	51 (0.9%)	51 (0.9%)
7	10 (0.2%)	16 (0.3%)
Influenza vaccination (in the previous 4 years)	1,746 (30%)	2,154 (37%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	0.9 (1.3)	1.0 (1.6)
Minimum	0.0	0.0
25%	0.0	0.0
Median	1.0	1.0
75%	1.0	2.0
Maximum	14.0	32.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A8.3: INSPIRE-Italy

Characteristics	No-Booster	Heterologous Booster
	15,236	15,236
Heterologous primary scheme (1st dose brand)		
AstraZeneca	15,236 (100%)	15,236 (100%)
Type of booster		
Moderna	374 (3.2%)	989 (6.5%)
Pfizer	11,278 (97%)	14,247 (94%)
Date final censoring (days)		
Mean (SD)	14.8 (15.1)	14.8 (15.1)
Minimum	0.0	0.0
25%	3.0	3.0
Median	9.0	9.0
75%	23.0	23.0
Maximum	140.0	140.0
Reason for final censoring		
Censoring of the other member of the pair	8 (<0.1%)	11,664 (77%)

Characteristics	No-Booster	Heterologous Booster
Censoring by 3rd dose	11,650 (76%)	<5
Study exit date	3,578 (23%)	3,572 (23%)
Female	7,374 (48%)	7,374 (48%)
Age at matching date (years)		
Mean (SD)	36.1 (12.8)	36.3 (13.0)
Minimum	18.0	18.0
25%	25.0	25.0
Median	33.0	34.0
75%	46.0	47.0
Maximum	79.0	79.0
Ageband at matching date		
18-29	6,067 (40%)	6,067 (40%)
30-49	6,087 (40%)	6,087 (40%)
50-59	2,175 (14%)	2,175 (14%)
60-69	866 (5.7%)	866 (5.7%)
70-79	41 (0.3%)	41 (0.3%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	5 (<0.1%)	5 (<0.1%)
November 2021	250 (1.6%)	250 (1.6%)
December 2021	7,962 (52%)	7,962 (52%)
January 2022	7,018 (46%)	7,018 (46%)
Without prior Covid-19 at matching date	15,236 (100%)	15,236 (100%)
Immunodeficiency or use of immunosuppressants at matching date	5,928 (39%)	5,928 (39%)
Cancer at matching date	153 (1.0%)	153 (1.0%)
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	16 (0.1%)	10 (<0.1%)
Diabetes (types 1 and 2) at matching date	115 (0.8%)	117 (0.8%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	10 (<0.1%)	6 (<0.1%)
Chronic kidney disease at matching date	22 (0.1%)	16 (0.1%)
Sepsis at matching date	7 (<0.1%)	5 (<0.1%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	613 (4.0%)	555 (3.6%)
Osteoarthritis at matching date	68 (0.4%)	64 (0.4%)
Alcohol abuse at matching date	66 (0.4%)	76 (0.5%)
Cerebrovascular diseases at matching date	24 (0.2%)	26 (0.2%)
Dementia at matching date	80 (0.5%)	85 (0.6%)
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	152 (1.0%)	152 (1.0%)
Chronic respiratory disease at matching date		
Hypertension at matching date	404 (2.7%)	426 (2.8%)
Coronary artery disease at matching date	93 (0.6%)	78 (0.5%)
Chronic liver disease at matching date		
Analgesics at matching date	282 (1.9%)	268 (1.8%)
Corticosteroids at matching date	1,279 (8.4%)	1,159 (7.6%)
Nonsteroidal anti-inflammatory drugs at matching date	1,684 (11%)	1,624 (11%)
Psychotropics Psycholeptics at matching date	95 (0.6%)	101 (0.7%)
Statins at matching date	521 (3.4%)	563 (3.7%)
Vaccines at matching date		
Antibiotics at matching date	4,479 (29%)	4,349 (29%)
Antiviral medications at matching date	100 (0.7%)	91 (0.6%)
More than 5 drugs prescribed	25 (0.2%)	16 (0.1%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	3,564 (62%)	3,400 (61%)
2	933 (16%)	985 (18%)
3	790 (14%)	760 (14%)
4	353 (6.2%)	299 (5.4%)
5	74 (1.3%)	78 (1.4%)
6	19 (0.3%)	14 (0.3%)
7	6 (0.1%)	<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		

Characteristics	No-Booster	Heterologous Booster
Minimum		
25%		
Median		
75%		
Maximum		

Table A8.4: PHARMO-Netherlands

Characteristics	No-Booster	Heterologous Booster
	993	993
Heterologous primary scheme (1st dose brand)		
AstraZeneca	630 (63%)	630 (63%)
Moderna	141 (14%)	141 (14%)
Pfizer	222 (22%)	222 (22%)
Type of booster		
AstraZeneca	<5	25 (2.5%)
Moderna	350 (74%)	616 (62%)
Pfizer	121 (26%)	352 (35%)
Date final censoring (days)		
Mean (SD)	21.9 (42.0)	21.9 (42.0)
Minimum	0.0	0.0
25%	3.0	3.0
Median	7.0	7.0
75%	12.0	12.0
Maximum	230.0	230.0
Reason for final censoring		
Censoring of the other member of the pair	99 (10.0%)	456 (46%)
Censoring by 4th dose	<5	16 (1.6%)
Censoring by 3rd dose	424 (43%)	<5
Study exit date	470 (47%)	521 (52%)
Female	537 (54%)	537 (54%)
Age at matching date (years)		
Mean (SD)	67.1 (10.1)	66.9 (9.9)
Minimum	21.0	22.0
25%	61.0	61.0
Median	63.0	63.0
75%	75.0	75.0
Maximum	98.0	98.0
Ageband at matching date		
18-29	<5	<5
30-49	22 (2.2%)	22 (2.2%)
50-59	35 (3.5%)	35 (3.5%)
60-69	622 (63%)	622 (63%)
70-79	167 (17%)	167 (17%)
80+	143 (14%)	143 (14%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	38 (3.8%)	38 (3.8%)
July 2021	55 (5.5%)	55 (5.5%)
August 2021	72 (7.3%)	72 (7.3%)
September 2021	18 (1.8%)	18 (1.8%)
October 2021	6 (0.6%)	6 (0.6%)
November 2021	38 (3.8%)	38 (3.8%)
December 2021	760 (77%)	760 (77%)
Without prior Covid-19 at matching date	993 (100%)	993 (100%)
Immunodeficiency or use of immunosuppressants at matching date	351 (35%)	351 (35%)
Cancer at matching date	30 (3.0%)	30 (3.0%)
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	9 (0.9%)	5 (0.5%)
Diabetes (types 1 and 2) at matching date		
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	111 (11%)	111 (11%)
Chronic kidney disease at matching date		
Sepsis at matching date	37 (3.7%)	37 (3.7%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	225 (23%)	259 (26%)
Osteoarthritis at matching date	179 (18%)	205 (21%)
Alcohol abuse at matching date	7 (0.7%)	17 (1.7%)
Cerebrovascular diseases at matching date	43 (4.3%)	44 (4.4%)
Dementia at matching date		
Parkinson disease at matching date	12 (1.2%)	6 (0.6%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	24 (2.4%)	27 (2.7%)
Chronic respiratory disease at matching date		
Hypertension at matching date	191 (19%)	180 (18%)
Coronary artery disease at matching date	39 (3.9%)	46 (4.6%)
Chronic liver disease at matching date		
Analgesics at matching date	140 (14%)	153 (15%)
Corticosteroids at matching date	65 (6.5%)	76 (7.7%)
Nonsteroidal anti-inflammatory drugs at matching date	143 (14%)	158 (16%)
Psychotropics Psycholeptics at matching date	128 (13%)	118 (12%)

Characteristics	No-Booster	Heterologous Booster
Statins at matching date	252 (25%)	272 (27%)
Vaccines at matching date		
Antibiotics at matching date	177 (18%)	206 (21%)
Antiviral medications at matching date	<5	7 (0.7%)
More than 5 drugs prescribed	<5	5 (0.5%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	224 (28%)	218 (26%)
1	325 (41%)	318 (39%)
2	135 (17%)	169 (21%)
3	60 (7.6%)	71 (8.6%)
4	31 (3.9%)	31 (3.8%)
5	15 (1.9%)	11 (1.3%)
6	<5	<5
7	<5	<5
Influenza vaccination (in the previous 4 years)	170 (17%)	150 (15%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A8.5: CPRD-UK

Characteristics	No-Booster	Heterologous Booster
	7,248	7,248
Heterologous primary scheme (1st dose brand)		
AstraZeneca	3,710 (51%)	3,710 (51%)
Moderna	7 (<0.1%)	7 (<0.1%)
Pfizer	3,531 (49%)	3,531 (49%)
Type of booster		
AstraZeneca	93 (2.2%)	526 (7.3%)
Moderna	400 (9.7%)	555 (7.7%)
Pfizer	3,649 (88%)	6,167 (85%)
Date final censoring (days)		
Mean (SD)	19.1 (24.9)	19.1 (24.9)
Minimum	0.0	0.0
25%	5.0	5.0
Median	11.0	11.0
75%	24.0	24.0
Maximum	208.0	208.0
Reason for final censoring		
Censoring of the other member of the pair	480 (6.6%)	4,499 (62%)
Censoring by 4th dose	<5	30 (0.4%)
Censoring by 3rd dose	4,118 (57%)	<5
Study exit date	2,650 (37%)	2,719 (38%)
Female	4,107 (57%)	4,107 (57%)
Age at matching date (years)		
Mean (SD)	66.2 (16.1)	66.1 (15.7)
Minimum	18.0	18.0
25%	56.0	56.0
Median	67.0	67.0
75%	78.0	78.0
Maximum	103.0	102.0
Ageband at matching date		
18-29	119 (1.6%)	119 (1.6%)
30-49	938 (13%)	938 (13%)
50-59	1,375 (19%)	1,375 (19%)
60-69	1,519 (21%)	1,519 (21%)
70-79	1,701 (23%)	1,701 (23%)
80+	1,596 (22%)	1,596 (22%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	13 (0.2%)	13 (0.2%)
April 2021	22 (0.3%)	22 (0.3%)
May 2021	54 (0.7%)	54 (0.7%)
June 2021	45 (0.6%)	45 (0.6%)
July 2021	47 (0.6%)	47 (0.6%)
August 2021	37 (0.5%)	37 (0.5%)
September 2021	385 (5.3%)	385 (5.3%)
October 2021	2,744 (38%)	2,744 (38%)
November 2021	3,402 (47%)	3,402 (47%)
December 2021	499 (6.9%)	499 (6.9%)
Without prior Covid-19 at matching date	7,248 (100%)	7,248 (100%)

Characteristics	No-Booster	Heterologous Booster
Immunodeficiency or use of immunosuppressants at matching date	76 (1.0%)	76 (1.0%)
Cancer at matching date	141 (1.9%)	141 (1.9%)
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	45 (0.6%)	41 (0.6%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date		
Chronic kidney disease at matching date	344 (4.7%)	367 (5.1%)
Sepsis at matching date		
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	120 (1.7%)	144 (2.0%)
Osteoarthritis at matching date		
Alcohol abuse at matching date		
Cerebrovascular diseases at matching date	166 (2.3%)	166 (2.3%)
Dementia at matching date		
Parkinson disease at matching date		
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	140 (1.9%)	140 (1.9%)
Chronic respiratory disease at matching date		
Hypertension at matching date	1,153 (16%)	1,185 (16%)
Coronary artery disease at matching date	246 (3.4%)	257 (3.5%)
Chronic liver disease at matching date		
Analgesics at matching date		
Corticosteroids at matching date	35 (0.5%)	36 (0.5%)
Nonsteroidal anti-inflammatory drugs at matching date		
Psychotropics Psycholeptics at matching date		
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date		
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	5 (12%)	6 (14%)
2	35 (88%)	36 (86%)
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Tables A9: Baseline characteristics among compared boosted and non-boosted matched cohorts for patients with **homologous primary scheme and heterologous booster** without prior Covid-19 (main population) for **adults (>17 years old)**, according to database and country.

Table A9.1: SIDIAP-Spain

Characteristics	No-Booster	Heterologous Booster
	850,525	850,525
Homologous primary scheme		
AstraZeneca	377,908 (44%)	377,908 (44%)
Moderna	2,026 (0.2%)	2,026 (0.2%)
Pfizer	470,591 (55%)	470,591 (55%)
Type of booster		
AstraZeneca	16 (<0.1%)	18 (<0.1%)
Moderna	469,561 (95%)	838,957 (99%)
Pfizer	23,774 (4.8%)	11,550 (1.4%)
Date final censoring (days)		
Mean (SD)	9.8 (8.9)	9.8 (8.9)
Minimum	0.0	0.0
25%	3.0	3.0
Median	8.0	8.0
75%	14.0	14.0
Maximum	212.0	212.0
Reason for final censoring		
Censoring of the other member of the pair	246 (<0.1%)	494,922 (58%)
Censoring by 4th dose	<5	37 (<0.1%)
Censoring by 3rd dose	493,253 (58%)	<5
Study exit date	357,026 (42%)	355,566 (42%)
Female	472,804 (56%)	472,804 (56%)
Age at matching date (years)		
Mean (SD)	64.5 (13.5)	64.6 (13.4)
Minimum	18.0	18.0
25%	59.0	59.0
Median	65.0	66.0
75%	73.0	73.0
Maximum	107.0	109.0
Ageband at matching date		
18-29	20,566 (2.4%)	20,566 (2.4%)
30-49	77,269 (9.1%)	77,269 (9.1%)
50-59	117,060 (14%)	117,060 (14%)
60-69	339,953 (40%)	339,953 (40%)
70-79	201,818 (24%)	201,818 (24%)
80+	93,859 (11%)	93,859 (11%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	12 (<0.1%)	12 (<0.1%)
August 2021	17 (<0.1%)	17 (<0.1%)
September 2021	473 (<0.1%)	473 (<0.1%)
October 2021	1,721 (0.2%)	1,721 (0.2%)
November 2021	112,658 (13%)	112,658 (13%)
December 2021	735,635 (86%)	735,635 (86%)
Without prior Covid-19 at matching date	850,525 (100%)	850,525 (100%)
Immunodeficiency or use of immunosuppressants at matching date	208,170 (24%)	208,170 (24%)
Cancer at matching date	74,656 (8.8%)	74,656 (8.8%)
Transplant recipient at matching date	575 (<0.1%)	575 (<0.1%)
Severe renal disease at matching date	1,377 (0.2%)	1,377 (0.2%)
Down syndrome at matching date	136 (<0.1%)	136 (<0.1%)
Coagulation disorders at matching date		
Heart failure at matching date	29,419 (3.5%)	27,315 (3.2%)
Diabetes (types 1 and 2) at matching date	102,714 (12%)	100,974 (12%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	63,721 (7.5%)	60,755 (7.1%)
Chronic kidney disease at matching date	60,883 (7.2%)	60,721 (7.1%)
Sepsis at matching date	9,192 (1.1%)	8,307 (1.0%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	367,687 (43%)	368,658 (43%)
Osteoarthritis at matching date	127,114 (15%)	130,923 (15%)
Alcohol abuse at matching date	27,670 (3.3%)	23,764 (2.8%)
Cerebrovascular diseases at matching date	37,044 (4.4%)	35,532 (4.2%)
Dementia at matching date	18,285 (2.1%)	15,787 (1.9%)
Parkinson disease at matching date	5,652 (0.7%)	5,348 (0.6%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	47,531 (5.6%)	46,743 (5.5%)
Chronic respiratory disease at matching date		
Hypertension at matching date	230,765 (27%)	232,269 (27%)
Coronary artery disease at matching date	39,904 (4.7%)	40,051 (4.7%)
Chronic liver disease at matching date		

Analgesics at matching date	304,891 (36%)	301,643 (35%)
Corticosteroids at matching date	44,820 (5.3%)	43,026 (5.1%)
Nonsteroidal anti-inflammatory drugs at matching date	175,796 (21%)	175,602 (21%)
Psychotropics Psycholeptics at matching date	206,277 (24%)	209,199 (25%)
Statins at matching date	205,190 (24%)	215,908 (25%)
Vaccines at matching date		
Antibiotics at matching date	154,890 (18%)	150,807 (18%)
Antiviral medications at matching date	7,944 (0.9%)	7,998 (0.9%)
More than 5 drugs prescribed	7,587 (0.9%)	7,273 (0.9%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	301,067 (36%)	299,599 (36%)
1	203,473 (24%)	205,685 (24%)
2	163,010 (19%)	163,697 (19%)
3	101,915 (12%)	102,697 (12%)
4	44,885 (5.3%)	45,145 (5.4%)
5	17,269 (2.1%)	16,881 (2.0%)
6	6,264 (0.7%)	6,037 (0.7%)
7	1,277 (0.2%)	1,207 (0.1%)
8	46 (<0.1%)	29 (<0.1%)
Influenza vaccination (in the previous 4 years)	384,159 (45%)	457,628 (54%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	1.8 (4.2)	1.8 (4.2)
Minimum	0.0	0.0
25%	0.0	0.0
Median	1.0	1.0
75%	2.0	2.0
Maximum	83.0	103.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A9.2: BIFAP-Spain

Characteristics	No-Booster	Heterologous Booster
	1,303,411	1,303,411
Homologous primary scheme		
AstraZeneca	630,730 (48%)	630,730 (48%)
Moderna	49,313 (3.8%)	49,313 (3.8%)
Pfizer	623,368 (48%)	623,368 (48%)
Type of booster		
AstraZeneca	11 (<0.1%)	30 (<0.1%)
Moderna	461,865 (63%)	974,360 (75%)
Pfizer	275,201 (37%)	329,021 (25%)
Date final censoring (days)		
Mean (SD)	28.7 (42.5)	28.7 (42.5)
Minimum	0.0	0.0
25%	4.0	4.0
Median	10.0	10.0
75%	24.0	24.0
Maximum	292.0	292.0
Reason for final censoring		
Censoring of the other member of the pair	1,034 (<0.1%)	743,623 (57%)
Censoring by 4th dose	<5	12 (<0.1%)
Censoring by 3rd dose	736,946 (57%)	<5
Study exit date	565,431 (43%)	559,776 (43%)
Female	718,501 (55%)	718,501 (55%)
Age at matching date (years)		
Mean (SD)	59.1 (13.6)	59.3 (13.5)
Minimum	18.0	18.0
25%	52.0	53.0
Median	62.0	62.0
75%	66.0	66.0
Maximum	107.0	106.0
Ageband at matching date		
18-29	46,356 (3.6%)	46,356 (3.6%)
30-49	229,097 (18%)	229,097 (18%)
50-59	219,317 (17%)	219,317 (17%)
60-69	607,595 (47%)	607,595 (47%)
70-79	130,975 (10%)	130,975 (10%)
80+	70,071 (5.4%)	70,071 (5.4%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5

Characteristics	No-Booster	Heterologous Booster
July 2021	10 (<0.1%)	10 (<0.1%)
August 2021	6 (<0.1%)	6 (<0.1%)
September 2021	424 (<0.1%)	424 (<0.1%)
October 2021	4,341 (0.3%)	4,341 (0.3%)
November 2021	162,239 (12%)	162,239 (12%)
December 2021	924,366 (71%)	924,366 (71%)
January 2022	188,794 (14%)	188,794 (14%)
February 2022	23,227 (1.8%)	23,227 (1.8%)
Without prior Covid-19 at matching date	1,303,411 (100%)	1,303,411 (100%)
Immunodeficiency or use of immunosuppressants at matching date	218,580 (17%)	218,580 (17%)
Cancer at matching date	38,363 (2.9%)	38,363 (2.9%)
Transplant recipient at matching date	261 (<0.1%)	261 (<0.1%)
Severe renal disease at matching date	1,562 (0.1%)	1,562 (0.1%)
Down syndrome at matching date	37 (<0.1%)	37 (<0.1%)
Coagulation disorders at matching date		
Heart failure at matching date	12,216 (0.9%)	10,566 (0.8%)
Diabetes (types 1 and 2) at matching date	23,819 (1.8%)	21,696 (1.7%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	8,522 (0.7%)	7,683 (0.6%)
Chronic kidney disease at matching date	19,434 (1.5%)	18,784 (1.4%)
Sepsis at matching date	3,505 (0.3%)	2,987 (0.2%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	70,533 (5.4%)	69,934 (5.4%)
Osteoarthritis at matching date	30,883 (2.4%)	30,845 (2.4%)
Alcohol abuse at matching date	11,916 (0.9%)	9,223 (0.7%)
Cerebrovascular diseases at matching date	11,753 (0.9%)	10,524 (0.8%)
Dementia at matching date	5,670 (0.4%)	4,635 (0.4%)
Parkinson disease at matching date	1,905 (0.1%)	1,817 (0.1%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	37,381 (2.9%)	37,543 (2.9%)
Chronic respiratory disease at matching date		
Hypertension at matching date	69,907 (5.4%)	68,462 (5.3%)
Coronary artery disease at matching date	20,581 (1.6%)	20,279 (1.6%)
Chronic liver disease at matching date		
Analgesics at matching date	446,148 (34%)	436,951 (34%)
Corticosteroids at matching date	70,619 (5.4%)	69,168 (5.3%)
Nonsteroidal anti-inflammatory drugs at matching date	352,549 (27%)	353,681 (27%)
Psychotropics Psycholeptics at matching date	326,388 (25%)	327,470 (25%)
Statins at matching date	312,332 (24%)	335,153 (26%)
Vaccines at matching date		
Antibiotics at matching date	247,436 (19%)	241,354 (19%)
Antiviral medications at matching date	10,322 (0.8%)	10,408 (0.8%)
More than 5 drugs prescribed	15,293 (1.2%)	15,113 (1.2%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	459,556 (35%)	452,197 (35%)
1	313,146 (24%)	318,947 (24%)
2	248,644 (19%)	249,907 (19%)
3	159,821 (12%)	160,240 (12%)
4	76,617 (5.9%)	76,864 (5.9%)
5	30,334 (2.3%)	30,143 (2.3%)
6	12,112 (0.9%)	11,847 (0.9%)
7	3,093 (0.2%)	3,178 (0.2%)
8	88 (<0.1%)	88 (<0.1%)
Influenza vaccination (in the previous 4 years)	354,443 (27%)	426,139 (33%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	0.9 (1.7)	0.9 (1.6)
Minimum	0.0	0.0
25%	0.0	0.0
Median	0.0	0.0
75%	1.0	1.0
Maximum	47.0	41.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A9.3: INSPIRE-Italy

Characteristics	No-Booster	Heterologous Booster
	186,775	186,775
Homologous primary scheme		
AstraZeneca	72,207 (39%)	72,207 (39%)
Moderna	1,952 (1.0%)	1,952 (1.0%)
Pfizer	112,616 (60%)	112,616 (60%)
Type of booster		
Moderna	91,597 (66%)	160,891 (86%)
Pfizer	46,246 (34%)	25,884 (14%)
Date final censoring (days)		
Mean (SD)	18.8 (18.5)	18.8 (18.5)
Minimum	0.0	0.0
25%	3.0	3.0
Median	14.0	14.0
75%	27.0	27.0
Maximum	144.0	144.0
Reason for final censoring		
Censoring of the other member of the pair	174 (<0.1%)	138,024 (74%)
Censoring by 3rd dose	137,801 (74%)	<5
Study exit date	48,800 (26%)	48,751 (26%)
Female	98,891 (53%)	98,891 (53%)
Age at matching date (years)		
Mean (SD)	53.0 (14.3)	53.5 (13.9)
Minimum	18.0	18.0
25%	43.0	45.0
Median	54.0	54.0
75%	63.0	63.0
Maximum	103.0	103.0
Ageband at matching date		
18-29	10,751 (5.8%)	10,751 (5.8%)
30-49	60,129 (32%)	60,129 (32%)
50-59	51,599 (28%)	51,599 (28%)
60-69	40,623 (22%)	40,623 (22%)
70-79	20,565 (11%)	20,565 (11%)
80+	3,108 (1.7%)	3,108 (1.7%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	30 (<0.1%)	30 (<0.1%)
October 2021	977 (0.5%)	977 (0.5%)
November 2021	18,065 (9.7%)	18,065 (9.7%)
December 2021	117,935 (63%)	117,935 (63%)
January 2022	49,768 (27%)	49,768 (27%)
Without prior Covid-19 at matching date	186,775 (100%)	186,775 (100%)
Immunodeficiency or use of immunosuppressants at matching date	91,686 (49%)	91,686 (49%)
Cancer at matching date	8,302 (4.4%)	8,302 (4.4%)
Transplant recipient at matching date		
Severe renal disease at matching date	46 (<0.1%)	46 (<0.1%)
Down syndrome at matching date	5 (<0.1%)	5 (<0.1%)
Coagulation disorders at matching date		
Heart failure at matching date	1,891 (1.0%)	1,734 (0.9%)
Diabetes (types 1 and 2) at matching date	10,577 (5.7%)	10,753 (5.8%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	228 (0.1%)	219 (0.1%)
Chronic kidney disease at matching date	872 (0.5%)	849 (0.5%)
Sepsis at matching date	123 (<0.1%)	126 (<0.1%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	12,094 (6.5%)	11,964 (6.4%)
Osteoarthritis at matching date	4,745 (2.5%)	4,829 (2.6%)
Alcohol abuse at matching date	1,743 (0.9%)	1,627 (0.9%)
Cerebrovascular diseases at matching date	3,147 (1.7%)	2,905 (1.6%)
Dementia at matching date	2,204 (1.2%)	2,494 (1.3%)
Parkinson disease at matching date	211 (0.1%)	199 (0.1%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	8,266 (4.4%)	8,270 (4.4%)
Chronic respiratory disease at matching date		
Hypertension at matching date	22,201 (12%)	22,142 (12%)
Coronary artery disease at matching date	6,867 (3.7%)	6,325 (3.4%)
Chronic liver disease at matching date		
Analgesics at matching date	8,311 (4.4%)	7,895 (4.2%)
Corticosteroids at matching date	24,576 (13%)	22,427 (12%)
Nonsteroidal anti-inflammatory drugs at matching date	49,129 (26%)	48,166 (26%)
Psychotropics Psycholeptics at matching date	3,191 (1.7%)	3,160 (1.7%)
Statins at matching date	28,173 (15%)	28,997 (16%)
Vaccines at matching date		
Antibiotics at matching date	76,216 (41%)	74,530 (40%)
Antiviral medications at matching date	1,776 (1.0%)	1,643 (0.9%)
More than 5 drugs prescribed	925 (0.5%)	787 (0.4%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		

Characteristics	No-Booster	Heterologous Booster
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	48,121 (45%)	49,852 (47%)
2	27,020 (25%)	27,116 (26%)
3	16,445 (15%)	15,486 (15%)
4	9,833 (9.2%)	9,018 (8.5%)
5	4,035 (3.8%)	3,656 (3.5%)
6	843 (0.8%)	723 (0.7%)
7	82 (<0.1%)	64 (<0.1%)
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A9.4: PHARMO-Netherlands

Characteristics	No-Booster	Heterologous Booster
	87,485	87,485
Homologous primary scheme		
AstraZeneca	17,121 (20%)	17,121 (20%)
Moderna	2,288 (2.6%)	2,288 (2.6%)
Pfizer	68,076 (78%)	68,076 (78%)
Type of booster		
AstraZeneca	48 (0.2%)	317 (0.4%)
Moderna	25,601 (85%)	78,571 (90%)
Pfizer	4,595 (15%)	8,597 (9.8%)
Date final censoring (days)		
Mean (SD)	8.9 (12.5)	8.9 (12.5)
Minimum	0.0	0.0
25%	3.0	3.0
Median	6.0	6.0
75%	12.0	12.0
Maximum	270.0	270.0
Reason for final censoring		
Censoring of the other member of the pair	3,789 (4.3%)	32,737 (37%)
Censoring by 4th dose	<5	130 (0.1%)
Censoring by 3rd dose	29,548 (34%)	<5
Study exit date	54,148 (62%)	54,618 (62%)
Female	45,789 (52%)	45,789 (52%)
Age at matching date (years)		
Mean (SD)	69.7 (10.7)	70.0 (10.6)
Minimum	18.0	18.0
25%	63.0	63.0
Median	72.0	73.0
75%	77.0	77.0
Maximum	104.0	104.0
Ageband at matching date		
18-29	405 (0.5%)	405 (0.5%)
30-49	2,721 (3.1%)	2,721 (3.1%)
50-59	9,204 (11%)	9,204 (11%)
60-69	25,053 (29%)	25,053 (29%)
70-79	37,676 (43%)	37,676 (43%)
80+	12,426 (14%)	12,426 (14%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	24 (<0.1%)	24 (<0.1%)
May 2021	24 (<0.1%)	24 (<0.1%)
June 2021	106 (0.1%)	106 (0.1%)
July 2021	281 (0.3%)	281 (0.3%)
August 2021	67 (<0.1%)	67 (<0.1%)
September 2021	161 (0.2%)	161 (0.2%)
October 2021	245 (0.3%)	245 (0.3%)
November 2021	2,358 (2.7%)	2,358 (2.7%)
December 2021	84,218 (96%)	84,218 (96%)
Without prior Covid-19 at matching date	87,485 (100%)	87,485 (100%)
Immunodeficiency or use of immunosuppressants at matching date	33,229 (38%)	33,229 (38%)
Cancer at matching date	6,158 (7.0%)	6,158 (7.0%)
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	1,430 (1.6%)	1,158 (1.3%)
Diabetes (types 1 and 2) at matching date		
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	9,955 (11%)	10,390 (12%)

Characteristics	No-Booster	Heterologous Booster
Chronic kidney disease at matching date		
Sepsis at matching date	3,430 (3.9%)	3,744 (4.3%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	23,949 (27%)	24,627 (28%)
Osteoarthritis at matching date	19,644 (22%)	20,508 (23%)
Alcohol abuse at matching date	1,001 (1.1%)	830 (0.9%)
Cerebrovascular diseases at matching date	3,852 (4.4%)	3,888 (4.4%)
Dementia at matching date		
Parkinson disease at matching date	575 (0.7%)	502 (0.6%)
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	5,016 (5.7%)	4,950 (5.7%)
Chronic respiratory disease at matching date		
Hypertension at matching date	19,055 (22%)	18,799 (21%)
Coronary artery disease at matching date	4,964 (5.7%)	4,756 (5.4%)
Chronic liver disease at matching date		
Analgesics at matching date	10,595 (12%)	11,826 (14%)
Corticosteroids at matching date	6,352 (7.3%)	7,536 (8.6%)
Nonsteroidal anti-inflammatory drugs at matching date	10,909 (12%)	13,511 (15%)
Psychotropics Psycholeptics at matching date	10,326 (12%)	11,820 (14%)
Statins at matching date	29,601 (34%)	29,975 (34%)
Vaccines at matching date		
Antibiotics at matching date	14,522 (17%)	18,698 (21%)
Antiviral medications at matching date	431 (0.5%)	586 (0.7%)
More than 5 drugs prescribed	313 (0.4%)	519 (0.6%)
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	19,579 (28%)	17,340 (24%)
1	28,445 (40%)	28,786 (39%)
2	13,016 (18%)	14,601 (20%)
3	6,049 (8.5%)	7,188 (9.8%)
4	2,688 (3.8%)	3,285 (4.5%)
5	1,022 (1.4%)	1,391 (1.9%)
6	280 (0.4%)	441 (0.6%)
7	33 (<0.1%)	76 (0.1%)
8	<5	<5
Influenza vaccination (in the previous 4 years)	13,150 (15%)	13,524 (15%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Tables A10: Distribution of different vaccine brands used in booster among homologous and heterologous primary vaccinations **by month of booster-time0** in the matched population for **adults (>17 years old)**, according to database and country.

Table A10.1: SIDIAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	<5	6	12	22	24	42	37,086	65,277	228,669	82,574
Type of booster												
AstraZeneca	<5	<5	<5	<5	<5	<5	5 (21%)	<5	<5	<5	<5	7 (<0.1%)
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	7,405 (20%)	15,622 (24%)	10,751 (4.7%)	55,804 (68%)
Pfizer	<5	<5	<5	6 (100%)	11 (92%)	17 (77%)	17 (71%)	37 (88%)	29,679 (80%)	49,652 (76%)	217,916 (95%)	26,763 (32%)

Table A10.2: BIFAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022
	<5	<5	8	14	28	74	54	62	52,435	152,713	830,159	598,634	55,509	17,769
Type of booster														
AstraZeneca	<5	<5	<5	<5	<5	<5	13 (24%)	16 (26%)	16 (<0.1%)	80 (<0.1%)	5 (<0.1%)	16 (<0.1%)	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	7 (13%)	6 (9.7%)	7,386 (14%)	15,478 (10%)	40,321 (4.9%)	109,204 (18%)	34,314 (62%)	8,210 (46%)
Pfizer	<5	<5	8 (100%)	14 (100%)	28 (100%)	72 (97%)	34 (63%)	40 (65%)	45,033 (86%)	137,155 (90%)	789,833 (95%)	489,414 (82%)	21,194 (38%)	9,559 (54%)

Table A10.3: INSPIRE-Italy

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022
	<5	<5	<5	<5	<5	<5	<5	<5	3,608	42,883	55,014	48,651	86,590
Type of booster													
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	118 (3.3%)	388 (0.9%)	4,493 (8.2%)	20,391 (42%)	19,174 (22%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	<5	3,490 (97%)	42,495 (99%)	50,521 (92%)	28,260 (58%)	67,416 (78%)

Table A10.4: PHARMO-Netherlands

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	64	464	1,888	6,207	7,964	1,158	803	1,148	3,441	21,617
Type of booster												
AstraZeneca	<5	<5	<5	7 (1.5%)	1,461 (77%)	5,369 (86%)	7,154 (90%)	935 (81%)	613 (76%)	99 (8.6%)	82 (2.4%)	48 (0.2%)
Moderna	<5	<5	5 (7.8%)	49 (11%)	35 (1.9%)	316 (5.1%)	254 (3.2%)	41 (3.5%)	81 (10%)	21 (1.8%)	18 (0.5%)	3,429 (16%)

| Pfizer | <5 | <5 | 59 (92%) | 408 (88%) | 392 (21%) | 522 (8.4%) | 556 (7.0%) | 182 (16%) | 109 (14%) | 1,028 (90%) | 3,341 (97%) | 18,140 (84%) |

Table A10.5: CPRD-UK

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	68	137	256	369	291	320	84,983	568,641	388,620	31,698
Type of booster												
AstraZeneca	<5	<5	16 (24%)	67 (49%)	189 (74%)	214 (58%)	176 (60%)	116 (36%)	177 (0.2%)	853 (0.2%)	2,257 (0.6%)	582 (1.8%)
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	<5	5 (<0.1%)	103 (<0.1%)	111 (0.4%)
Pfizer	<5	<5	52 (76%)	70 (51%)	67 (26%)	155 (42%)	115 (40%)	204 (64%)	84,803 (100%)	567,783 (100%)	386,260 (99%)	31,005 (98%)

Tables A11: Distribution of different vaccine brands used in booster among homologous and heterologous booster vaccinations **by month of booster-time0** in the matched population for **adolescents (12-17 years old)**, according to database and country.

Table A11.1: SIDIAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	<5	<5	<5	<5	<5	<5	5	34	59	3,669
Type of booster												
AstraZeneca	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	<5	6 (18%)	23 (39%)	3,403 (93%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	<5	<5	28 (82%)	36 (61%)	266 (7.2%)

Table A11.2: BIFAP-Spain

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022
	<5	<5	<5	<5	<5	5	11	12	15	53	557	4,597	969	105
Type of booster														
AstraZeneca	<5	<5	<5	<5	<5	<5	<5	6 (50%)	<5	<5	<5	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	263 (47%)	2,513 (55%)	836 (86%)	63 (60%)
Pfizer	<5	<5	<5	<5	<5	<5	5 (45%)	<5	12 (80%)	48 (91%)	294 (53%)	2,083 (45%)	133 (14%)	41 (39%)

Table A11.3: INSPIRE-Italy

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022
	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	251	8,037	7,192
Type of booster													
Moderna	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	45 (18%)	819 (10%)	131 (1.8%)
Pfizer	<5	<5	<5	<5	<5	<5	<5	<5	<5	5 (100%)	206 (82%)	7,218 (90%)	7,061 (98%)

Table A11.4: PHARMO-Netherlands

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	<5	<5	<5	40	56	80	22	8	45	869
Type of booster												
AstraZeneca	<5	<5	<5	<5	<5	<5	<5	12 (15%)	8 (36%)	<5	<5	<5
Moderna	<5	<5	<5	<5	<5	<5	<5	9 (11%)	<5	<5	19 (42%)	658 (76%)
Pfizer	<5	<5	<5	<5	<5	35 (88%)	52 (93%)	59 (74%)	13 (59%)	6 (75%)	22 (49%)	210 (24%)

Table A11.5: CPRD-UK

Characteristics	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
	<5	<5	13	22	54	46	47	37	388	2,774	3,492	508
Type of booster												
AstraZeneca	<5	<5	6 (46%)	18 (82%)	44 (81%)	37 (80%)	17 (36%)	<5	<5	13 (0.5%)	380 (11%)	23 (4.5%)
Moderna	<5	<5	<5	<5	<5	<5	<5	5 (14%)	<5	9 (0.3%)	407 (12%)	142 (28%)
Pfizer	<5	<5	7 (54%)	<5	10 (19%)	9 (20%)	26 (55%)	30 (81%)	382 (98%)	2,752 (99%)	2,705 (77%)	343 (68%)

Tables A12: Description of the matching factors in the study population **before matching** for vaccinated **children (5-14 years old** at study start date)

Table A12.1: SIDIAP-Spain

Characteristics	Heterologous	Homologous
	113	79,029
Homologous primary scheme		
Moderna		7,475 (9.5%)
Pfizer		71,554 (91%)
Heterologous primary scheme (1st dose brand)		
Moderna	35 (31%)	
Pfizer	78 (69%)	
Date final censoring (days)	33.5 (33.6)	71.5 (45.3)
Female	71 (63%)	38,365 (49%)
Age at time 0 (years)		
Mean (SD)	12.4 (0.5)	12.4 (0.5)
Minimum	12.0	4.0
25%	12.0	12.0
Median	12.0	12.0
75%	13.0	13.0
Maximum	13.0	13.0
Ageband at time 0		
05-11	<5	113 (0.1%)
>=12	113 (100%)	78,916 (100%)
Calendar month-year at time 0		
May 2021	<5	<5
June 2021	<5	16 (<0.1%)
July 2021	<5	343 (0.4%)
August 2021	<5	16,254 (21%)
September 2021	11 (9.7%)	46,495 (59%)
October 2021	15 (13%)	9,039 (11%)
November 2021	26 (23%)	3,119 (3.9%)
December 2021	59 (52%)	3,761 (4.8%)
Without prior Covid-19 at time 0	87 (77%)	77,739 (98%)
Immunodeficiency or use of immunosuppressants at time 0	24 (21%)	16,896 (21%)
Cancer at time 0	<5	131 (0.2%)
Transplant recipient at time 0	<5	34 (<0.1%)
Severe renal disease at time 0	<5	16 (<0.1%)
Down syndrome at time 0	<5	26 (<0.1%)

Table A12.2: BIFAP-Spain

Characteristics	Heterologous	Homologous
	1,061	192,421
Homologous primary scheme		
Moderna		15,022 (7.8%)
Pfizer		177,399 (92%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	5 (0.5%)	
Moderna	151 (14%)	
Pfizer	905 (85%)	
Date final censoring (days)	29.5 (40.6)	106.2 (67.8)
Female	554 (52%)	93,739 (49%)
Age at time 0 (years)		
Mean (SD)	12.3 (0.8)	11.9 (1.3)
Minimum	5.0	4.0
25%	12.0	12.0
Median	12.0	12.0
75%	13.0	13.0
Maximum	14.0	14.0
Ageband at time 0		
05-11	47 (4.4%)	37,294 (19%)
>=12	1,014 (96%)	155,127 (81%)
Calendar month-year at time 0		
January 2021	<5	<5
March 2021	<5	8 (<0.1%)
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	40 (<0.1%)
July 2021	<5	332 (0.2%)
August 2021	7 (0.7%)	13,555 (7.0%)
September 2021	15 (1.4%)	125,878 (65%)
October 2021	10 (0.9%)	14,674 (7.6%)
November 2021	20 (1.9%)	4,938 (2.6%)
December 2021	833 (79%)	4,597 (2.4%)
January 2022	68 (6.4%)	1,265 (0.7%)
February 2022	107 (10%)	27,125 (14%)
Without prior Covid-19 at time 0	673 (63%)	186,395 (97%)
Immunodeficiency or use of immunosuppressants at time 0	108 (10%)	22,712 (12%)
Cancer at time 0	7 (0.7%)	522 (0.3%)
Transplant recipient at time 0	<5	25 (<0.1%)
Severe renal disease at time 0	<5	5 (<0.1%)
Down syndrome at time 0	<5	25 (<0.1%)

Table A12.3: INSPIRE-Italy

Characteristics	Heterologous	Homologous
	<5	14,570
Homologous primary scheme		
Moderna		408 (2.8%)
Pfizer		14,162 (97%)
Heterologous primary scheme (1st dose brand)		
Date final censoring (days)		76.8 (62.4)
Female		7,166 (49%)
Age at time 0 (years)		
Mean (SD)		11.6 (1.8)
Minimum		5.0
25%		12.0
Median		12.0
75%		13.0
Maximum		14.0
Ageband at time 0		
05-11		3,420 (23%)
>=12		11,150 (77%)
Calendar month-year at time 0		
June 2021		139 (1.0%)
July 2021		2,406 (17%)
August 2021		2,036 (14%)
September 2021		2,669 (18%)
October 2021		1,290 (8.9%)
November 2021		586 (4.0%)
December 2021		851 (5.8%)
January 2022		4,593 (32%)
Without prior Covid-19 at time 0		14,315 (98%)
Immunodeficiency or use of immunosuppressants at time 0		4,713 (32%)
Cancer at time 0		37 (0.3%)
Transplant recipient at time 0		
Severe renal disease at time 0		<5
Down syndrome at time 0		15 (0.1%)

Table A12.4: PEDIANET-Italy

Characteristics	Heterologous	Homologous
	6	1,599
Homologous primary scheme		
Moderna		365 (23%)
Pfizer		1,234 (77%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	<5	
Moderna	<5	
Pfizer	<5	
Date final censoring (days)	45.5 (62.4)	88.8 (40.4)
Female	<5	766 (48%)
Age at time 0 (years)		
Mean (SD)	11.5 (0.8)	12.4 (0.5)
Minimum	10.0	9.0
25%	11.2	12.0
Median	12.0	12.0
75%	12.0	13.0
Maximum	12.0	13.0
Ageband at time 0		
05-11	<5	<5
>=12	<5	1,598 (100%)
Calendar month-year at time 0		
June 2021	<5	<5
July 2021	<5	87 (5.4%)
August 2021	<5	207 (13%)
September 2021	<5	823 (51%)
October 2021	<5	228 (14%)
November 2021	<5	125 (7.8%)
December 2021	<5	128 (8.0%)
Without prior Covid-19 at time 0	5 (83%)	1,570 (98%)
Immunodeficiency or use of immunosuppressants at time 0	<5	187 (12%)
Cancer at time 0	<5	<5
Transplant recipient at time 0		
Severe renal disease at time 0		
Down syndrome at time 0		

Table A12.5: PHARMO-Netherlands

Characteristics	Heterologous	Homologous
	<5	17,945
Homologous primary scheme		
AstraZeneca		<5
Pfizer		17,944 (100%)
Heterologous primary scheme (1st dose brand)		
Pfizer	<5	
Date final censoring (days)	96.0 (NA)	64.8 (43.8)
Female	<5	8,607 (48%)
Age at time 0 (years)		

Mean (SD)	13.0 (NA)	12.6 (0.5)
Minimum	13.0	7.0
25%	13.0	12.0
Median	13.0	13.0
75%	13.0	13.0
Maximum	13.0	13.0
Ageband at time 0		
05-11	<5	<5
>=12	<5	17,943 (100%)
Calendar month-year at time 0		
May 2021	<5	<5
July 2021	<5	92 (0.5%)
August 2021	<5	8,365 (47%)
September 2021	<5	4,511 (25%)
October 2021	<5	2,220 (12%)
November 2021	<5	1,424 (7.9%)
December 2021	<5	1,332 (7.4%)
Without prior Covid-19 at time 0	<5	17,369 (97%)
Immunodeficiency or use of immunosuppressants at time 0	<5	1,090 (6.1%)
Cancer at time 0	<5	16 (<0.1%)
Transplant recipient at time 0		
Severe renal disease at time 0		
Down syndrome at time 0		

Table A12.6: CPRD-UK

Characteristics	Heterologous	Homologous
	5	1,400
Homologous primary scheme		
AstraZeneca		16 (1.1%)
Moderna		<5
Pfizer		1,381 (99%)
Heterologous primary scheme (1st dose brand)		
AstraZeneca	<5	
Moderna	<5	
Pfizer	<5	
Date final censoring (days)	50.2 (34.3)	34.5 (35.9)
Female	<5	640 (46%)
Age at time 0 (years)		
Mean (SD)	12.2 (0.4)	12.5 (0.6)
Minimum	12.0	5.0
25%	12.0	12.0
Median	12.0	13.0
75%	12.0	13.0
Maximum	13.0	13.0
Ageband at time 0		
05-11	<5	12 (0.9%)
>=12	5 (100%)	1,388 (99%)
Calendar month-year at time 0		
March 2021	<5	<5
April 2021	<5	13 (0.9%)
May 2021	<5	7 (0.5%)
June 2021	<5	10 (0.7%)
July 2021	<5	20 (1.4%)
August 2021	<5	21 (1.5%)
September 2021	<5	49 (3.5%)
October 2021	<5	423 (30%)
November 2021	<5	697 (50%)
December 2021	<5	157 (11%)
Without prior Covid-19 at time 0	5 (100%)	1,356 (97%)
Immunodeficiency or use of immunosuppressants at time 0	<5	42 (3.0%)
Cancer at time 0	<5	12 (0.9%)
Transplant recipient at time 0		
Severe renal disease at time 0	<5	<5
Down syndrome at time 0		

Tables A13: Description of the matching factors in the study population in the **unmatched and matched** populations for vaccinated **children (5-14 years old** at study start date)

Table A13.1: SIDIAP-Spain

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous
	2,465	76,564	<5	111
Homologous primary scheme				
Moderna	124 (5.0%)	7,351 (9.6%)		
Pfizer	2,341 (95%)	69,213 (90%)		
Heterologous primary scheme (1st dose brand)				
Moderna			<5	34 (31%)
Pfizer			<5	77 (69%)
Female	1,212 (49%)	37,153 (49%)	<5	70 (63%)
Age at matching date (years)				
4	<5	<5	<5	<5
5	<5	<5	<5	<5
6	<5	<5	<5	<5
7	<5	5 (<0.1%)	<5	<5
8	<5	8 (<0.1%)	<5	<5
9	<5	5 (<0.1%)	<5	<5
10	<5	6 (<0.1%)	<5	<5
11	<5	80 (0.1%)	<5	<5
12	1,354 (55%)	44,305 (58%)	<5	68 (61%)
13	1,111 (45%)	32,146 (42%)	<5	43 (39%)
Ageband at matching date				
05-11	<5	113 (0.1%)	<5	<5
>=12	2,465 (100%)	76,451 (100%)	<5	111 (100%)
Calendar month-year at matching date				
May 2021	<5	<5	<5	<5
June 2021	<5	16 (<0.1%)	<5	<5
July 2021	<5	340 (0.4%)	<5	<5
August 2021	685 (28%)	15,569 (20%)	<5	<5
September 2021	1,689 (69%)	44,806 (59%)	<5	10 (9.0%)
October 2021	68 (2.8%)	8,971 (12%)	<5	15 (14%)
November 2021	<5	3,115 (4.1%)	<5	26 (23%)
December 2021	16 (0.6%)	3,745 (4.9%)	<5	58 (52%)
Without prior Covid-19 at matching date	2,463 (100%)	75,276 (98%)	<5	85 (77%)
Immunodeficiency or use of immunosuppressants at matching date	601 (24%)	16,295 (21%)	<5	24 (22%)
Cancer at matching date	5 (0.2%)	126 (0.2%)	<5	<5
Transplant recipient at matching date	7 (0.3%)	27 (<0.1%)	<5	<5
Severe renal disease at matching date	<5	12 (<0.1%)	<5	<5
Down syndrome at matching date	<5	24 (<0.1%)	<5	<5

Table A13.2: BIFAP-Spain

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous
	8,537	183,884	6	1,055
Homologous primary scheme				
Moderna	851 (10.0%)	14,171 (7.7%)		
Pfizer	7,686 (90%)	169,713 (92%)		
Heterologous primary scheme (1st dose brand)				
AstraZeneca			<5	5 (0.5%)
Moderna			<5	148 (14%)
Pfizer			<5	902 (85%)
Female	4,211 (49%)	89,528 (49%)	<5	551 (52%)
Age at matching date (years)				
4	<5	<5	<5	<5
5	19 (0.2%)	511 (0.3%)	<5	<5
6	12 (0.1%)	839 (0.5%)	<5	<5
7	33 (0.4%)	1,082 (0.6%)	<5	<5
8	105 (1.2%)	4,368 (2.4%)	<5	9 (0.9%)
9	183 (2.1%)	5,173 (2.8%)	<5	<5
10	217 (2.5%)	6,236 (3.4%)	<5	9 (0.9%)
11	244 (2.9%)	18,268 (9.9%)	<5	21 (2.0%)
12	4,369 (51%)	85,517 (47%)	<5	548 (52%)
13	3,355 (39%)	61,861 (34%)	<5	453 (43%)
14	<5	25 (<0.1%)	<5	9 (0.9%)
Ageband at matching date				
05-11	813 (9.5%)	36,481 (20%)	<5	45 (4.3%)
>=12	7,724 (90%)	147,403 (80%)	<5	1,010 (96%)
Calendar month-year at matching date				
January 2021	<5	<5	<5	<5
March 2021	<5	8 (<0.1%)	<5	<5
April 2021	<5	<5	<5	<5
May 2021	<5	<5	<5	<5
June 2021	<5	40 (<0.1%)	<5	<5
July 2021	5 (<0.1%)	327 (0.2%)	<5	<5
August 2021	646 (7.6%)	12,909 (7.0%)	<5	7 (0.7%)
September 2021	6,922 (81%)	118,956 (65%)	<5	14 (1.3%)
October 2021	109 (1.3%)	14,565 (7.9%)	<5	10 (0.9%)

November 2021	19 (0.2%)	4,919 (2.7%)	<5	20 (1.9%)
December 2021	10 (0.1%)	4,587 (2.5%)	<5	830 (79%)
January 2022	<5	1,261 (0.7%)	<5	68 (6.4%)
February 2022	822 (9.6%)	26,303 (14%)	<5	105 (10.0%)
Without prior Covid-19 at matching date	8,474 (99%)	177,921 (97%)	5 (83%)	668 (63%)
Immunodeficiency or use of immunosuppressants at matching date	1,347 (16%)	21,365 (12%)	<5	106 (10%)
Cancer at matching date	34 (0.4%)	488 (0.3%)	<5	7 (0.7%)
Transplant recipient at matching date	13 (0.2%)	12 (<0.1%)	<5	<5
Severe renal disease at matching date	5 (<0.1%)	<5	<5	<5
Down syndrome at matching date	10 (0.1%)	15 (<0.1%)	<5	<5

Table A13.3: INSPIRE-Italy

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous
	79	14,491	<5	<5
Homologous primary scheme				
Moderna	<5	408 (2.8%)		
Pfizer	79 (100%)	14,083 (97%)		
Heterologous primary scheme (1st dose brand)				
Female	45 (57%)	7,121 (49%)		
Age at matching date (years)				
5	<5	159 (1.1%)		
6	<5	292 (2.0%)		
7	<5	379 (2.6%)		
8	<5	418 (2.9%)		
9	<5	519 (3.6%)		
10	<5	653 (4.5%)		
11	5 (6.3%)	983 (6.8%)		
12	35 (44%)	6,421 (44%)		
13	27 (34%)	4,647 (32%)		
14	<5	20 (0.1%)		
Ageband at matching date				
05-11	17 (22%)	3,403 (23%)		
>=12	62 (78%)	11,088 (77%)		
Calendar month-year at matching date				
June 2021	<5	138 (1.0%)		
July 2021	24 (30%)	2,382 (16%)		
August 2021	9 (11%)	2,027 (14%)		
September 2021	18 (23%)	2,651 (18%)		
October 2021	<5	1,286 (8.9%)		
November 2021	<5	585 (4.0%)		
December 2021	<5	848 (5.9%)		
January 2022	19 (24%)	4,574 (32%)		
Without prior Covid-19 at matching date	79 (100%)	14,236 (98%)		
Immunodeficiency or use of immunosuppressants at matching date	29 (37%)	4,684 (32%)		
Cancer at matching date	<5	36 (0.2%)		
Transplant recipient at matching date				
Severe renal disease at matching date	<5	<5		
Down syndrome at matching date	<5	15 (0.1%)		

Table A13.4: PEDIANET-Italy

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous
	<5	1,595	<5	6
Homologous primary scheme				
Moderna	<5	364 (23%)		
Pfizer	<5	1,231 (77%)		
Heterologous primary scheme (1st dose brand)				
AstraZeneca				<5
Moderna				<5
Pfizer				<5
Female	<5	765 (48%)		<5
Age at matching date (years)				
9	<5	<5		<5
10	<5	<5		<5
11	<5	<5		<5
12	<5	994 (62%)		<5
13	<5	600 (38%)		<5
Ageband at matching date				
05-11	<5	<5		<5
>=12	<5	1,594 (100%)		<5
Calendar month-year at matching date				
June 2021	<5	<5		<5
July 2021	<5	87 (5.5%)		<5
August 2021	<5	207 (13%)		<5
September 2021	<5	820 (51%)		<5
October 2021	<5	228 (14%)		<5
November 2021	<5	125 (7.8%)		<5
December 2021	<5	127 (8.0%)		<5
Without prior Covid-19 at matching date	<5	1,566 (98%)		5 (83%)
Immunodeficiency or use of immunosuppressants at matching date	<5	186 (12%)		<5
Cancer at matching date	<5	<5		<5
Transplant recipient at matching date				

Severe renal disease at matching date			
Down syndrome at matching date			

Table A13.5: PHARMO-Netherlands

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous
	77	17,868	<5	<5
Homologous primary scheme				
AstraZeneca	<5	<5		
Pfizer	77 (100%)	17,867 (100%)		
Heterologous primary scheme (1st dose brand)				
Pfizer				<5
Female	31 (40%)	8,576 (48%)		<5
Age at matching date (years)				
7	<5	<5		<5
11	<5	<5		<5
12	34 (44%)	7,371 (41%)		<5
13	43 (56%)	10,495 (59%)		<5
Ageband at matching date				
05-11	<5	<5		<5
>=12	77 (100%)	17,866 (100%)		<5
Calendar month-year at matching date				
May 2021	<5	<5		<5
July 2021	<5	92 (0.5%)		<5
August 2021	43 (56%)	8,322 (47%)		<5
September 2021	24 (31%)	4,487 (25%)		<5
October 2021	<5	2,216 (12%)		<5
November 2021	<5	1,421 (8.0%)		<5
December 2021	<5	1,329 (7.4%)		<5
Without prior Covid-19 at matching date	76 (99%)	17,293 (97%)		<5
Immunodeficiency or use of immunosuppressants at matching date	5 (6.5%)	1,085 (6.1%)		<5
Cancer at matching date	<5	15 (<0.1%)		<5
Transplant recipient at matching date				
Severe renal disease at matching date				
Down syndrome at matching date				

Table A13.6: CPRD-UK

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous
	1,400	<5	5	<5
Homologous primary scheme				
AstraZeneca	16 (1.1%)			
Moderna	<5			
Pfizer	1,381 (99%)			
Heterologous primary scheme (1st dose brand)				
AstraZeneca			<5	
Moderna			<5	
Pfizer			<5	
Female	640 (46%)		<5	
Age at matching date (years)				
5	<5		<5	
7	<5		<5	
9	<5		<5	
10	<5		<5	
11	5 (0.4%)		<5	
12	627 (45%)		<5	
13	761 (54%)		<5	
Ageband at matching date				
05-11	12 (0.9%)		<5	
>=12	1,388 (99%)		5 (100%)	
Calendar month-year at matching date				
March 2021	<5		<5	
April 2021	13 (0.9%)		<5	
May 2021	7 (0.5%)		<5	
June 2021	10 (0.7%)		<5	
July 2021	20 (1.4%)		<5	
August 2021	21 (1.5%)		<5	
September 2021	49 (3.5%)		<5	
October 2021	423 (30%)		<5	
November 2021	697 (50%)		<5	
December 2021	157 (11%)		<5	
Without prior Covid-19 at matching date	1,356 (97%)		5 (100%)	
Immunodeficiency or use of immunosuppressants at matching date	42 (3.0%)		<5	
Cancer at matching date	12 (0.9%)		<5	
Transplant recipient at matching date				
Severe renal disease at matching date	<5		<5	
Down syndrome at matching date				

Tables A14: Baseline characteristics among compared **matched cohorts** for patients without prior Covid-19 (main population) for **children (5-14 years old** at study start date)

Table A14.1: SIDIAP-Spain

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
	<5	75,276	<5	85	75,361
Homologous primary scheme					
Moderna		7,200 (9.6%)			4,053 (18%)
Pfizer		68,076 (90%)			18,083 (82%)
Heterologous primary scheme (1st dose brand)					
Moderna				31 (36%)	22 (27%)
Pfizer				54 (64%)	59 (73%)
Date final censoring (days)					
Mean (SD)		71.8 (45.2)		38.1 (36.3)	71.8 (45.2)
Minimum		0.0		1.0	0.0
25%		21.0		13.0	21.0
Median		88.0		24.0	88.0
75%		113.0		51.0	113.0
Maximum		235.0		177.0	235.0
Reason for final censoring					
Censoring of the other member of the pair		30,388 (40%)		16 (19%)	121 (0.2%)
Censoring by 3rd dose		50 (<0.1%)		<5	<5
Censoring by 1st dose		<5		<5	29,505 (39%)
Study exit date		44,838 (60%)		69 (81%)	45,735 (61%)
Female		36,517 (49%)		52 (61%)	36,569 (49%)
Age at matching date (years)					
Mean (SD)		12.4 (0.5)		12.3 (0.5)	12.4 (0.5)
Minimum		4.0		12.0	4.0
25%		12.0		12.0	12.0
Median		12.0		12.0	12.0
75%		13.0		13.0	13.0
Maximum		13.0		13.0	13.0
Ageband at matching date					
05-11		109 (0.1%)		<5	109 (0.1%)
>=12		75,167 (100%)		85 (100%)	75,252 (100%)
Calendar month-year at matching date					
January 2021		<5		<5	<5
February 2021		<5		<5	<5
March 2021		<5		<5	<5
April 2021		<5		<5	<5
May 2021		<5		<5	<5
June 2021		15 (<0.1%)		<5	15 (<0.1%)
July 2021		324 (0.4%)		<5	325 (0.4%)
August 2021		15,395 (20%)		<5	15,396 (20%)
September 2021		44,326 (59%)		10 (12%)	44,336 (59%)
October 2021		8,776 (12%)		15 (18%)	8,791 (12%)
November 2021		2,919 (3.9%)		20 (24%)	2,939 (3.9%)
December 2021		3,519 (4.7%)		38 (45%)	3,557 (4.7%)
Without prior Covid-19 at matching date		75,276 (100%)		85 (100%)	75,361 (100%)
Immunodeficiency or use of immunosuppressants at matching date		15,951 (21%)		19 (22%)	15,970 (21%)
Cancer at matching date		114 (0.2%)		<5	114 (0.2%)
Transplant recipient at matching date		25 (<0.1%)		<5	25 (<0.1%)
Severe renal disease at matching date		12 (<0.1%)		<5	12 (<0.1%)
Down syndrome at matching date		24 (<0.1%)		<5	24 (<0.1%)
Coagulation disorders at matching date					
Heart failure at matching date		18 (<0.1%)		<5	19 (<0.1%)
Diabetes (types 1 and 2) at matching date		191 (0.3%)		<5	170 (0.2%)
Diabetes algorithm (types 1 and 2) at matching date					
Bladder incontinence at matching date		920 (1.2%)		<5	935 (1.2%)
Chronic kidney disease at matching date		60 (<0.1%)		<5	62 (<0.1%)
Sepsis at matching date		80 (0.1%)		<5	79 (0.1%)
Autoimmune disorders at matching date					
Arthritis and Osteoarthritis at matching date		17,153 (23%)		21 (25%)	14,921 (20%)
Osteoarthritis at matching date		6 (<0.1%)		<5	<5
Alcohol abuse at matching date		10 (<0.1%)		<5	11 (<0.1%)
Cerebrovascular diseases at matching date		29 (<0.1%)		<5	44 (<0.1%)
Dementia at matching date		10 (<0.1%)		<5	6 (<0.1%)

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
Parkinson disease at matching date		<5		<5	<5
Cancer (non melanoma) in charlson index at matching date					
Malignant tumors without metastasis for charlson at matching date		109 (0.1%)		<5	107 (0.1%)
Chronic respiratory disease at matching date					
Hypertension at matching date		156 (0.2%)		<5	142 (0.2%)
Coronary artery disease at matching date		5 (<0.1%)		<5	<5
Chronic liver disease at matching date					
Analgesics at matching date		7,085 (9.4%)		10 (12%)	6,568 (8.7%)
Corticosteroids at matching date		1,103 (1.5%)		<5	1,053 (1.4%)
Nonsteroidal anti-inflammatory drugs at matching date		11,950 (16%)		13 (15%)	11,288 (15%)
Psychotropics Psycholeptics at matching date		873 (1.2%)		<5	755 (1.0%)
Statins at matching date		27 (<0.1%)		<5	19 (<0.1%)
Vaccines at matching date					
Antibiotics at matching date		4,183 (5.6%)		9 (11%)	4,085 (5.4%)
Antiviral medications at matching date		75 (<0.1%)		<5	93 (0.1%)
More than 5 drugs prescribed		5 (<0.1%)		<5	8 (<0.1%)
Health care worker or essential worker status at matching date, if available					
Skilled nursing facility, nursing home or extended care facility stay at matching date					
Residency in a long-term care facility at matching date					
Primary care utilisation at matching date					
Body mass index (BMI) last recorded status before matching date					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					
Smoking status last recorded status before matching date					
Number of drugs at matching date					
0		57,073 (76%)		63 (74%)	52,579 (76%)
1		10,900 (15%)		11 (13%)	9,900 (14%)
2		5,321 (7.1%)		8 (9.4%)	5,033 (7.3%)
3		1,168 (1.6%)		<5	1,237 (1.8%)
4		258 (0.3%)		<5	244 (0.4%)
5		69 (<0.1%)		<5	53 (<0.1%)
6		5 (<0.1%)		<5	8 (<0.1%)
Influenza vaccination (in the previous 4 years)		6,886 (9.1%)		12 (14%)	5,316 (7.1%)
COVID 19 tests (total number ever before matching date when available)					
Mean (SD)		1.7 (1.5)		1.7 (1.6)	1.4 (1.4)
Minimum		0.0		0.0	0.0
25%		1.0		0.0	0.0
Median		1.0		1.0	1.0
75%		2.0		3.0	2.0
Maximum		26.0		7.0	19.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A14.2: BIFAP-Spain

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
	<5	177,921	<5	668	178,589
Homologous primary scheme					
Moderna		13,761 (7.7%)			3,795 (14%)
Pfizer		164,160 (92%)			24,122 (86%)
Heterologous primary scheme (1st dose brand)					
AstraZeneca				5 (0.7%)	<5
Moderna				133 (20%)	113 (17%)
Pfizer				530 (79%)	558 (83%)
Date final censoring (days)					
Mean (SD)		105.7 (66.6)		36.9 (46.2)	105.5 (66.7)
Minimum		0.0		0.0	0.0
25%		70.0		8.0	69.0
Median		100.0		14.0	100.0
75%		119.0		68.0	119.0
Maximum		297.0		330.0	330.0
Reason for final censoring					

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
Censoring of the other member of the pair		45,150 (25%)		25 (3.7%)	291 (0.2%)
Censoring by 3rd dose		80 (<0.1%)		<5	<5
Censoring by 1st dose		<5		<5	41,772 (23%)
Study exit date		132,691 (75%)		640 (96%)	136,526 (76%)
Female		86,749 (49%)		361 (54%)	87,110 (49%)
Age at matching date (years)					
Mean (SD)		11.9 (1.3)		12.2 (0.9)	11.5 (2.1)
Minimum		4.0		5.0	4.0
25%		12.0		12.0	12.0
Median		12.0		12.0	12.0
75%		13.0		13.0	13.0
Maximum		14.0		14.0	14.0
Ageband at matching date					
05-11		34,479 (19%)		41 (6.1%)	34,520 (19%)
>=12		143,442 (81%)		627 (94%)	144,069 (81%)
Calendar month-year at matching date					
January 2021		<5		<5	<5
February 2021		<5		<5	<5
March 2021		8 (<0.1%)		<5	8 (<0.1%)
April 2021		<5		<5	<5
May 2021		<5		<5	<5
June 2021		38 (<0.1%)		<5	39 (<0.1%)
July 2021		311 (0.2%)		<5	311 (0.2%)
August 2021		12,382 (7.0%)		6 (0.9%)	12,388 (6.9%)
September 2021		117,032 (66%)		14 (2.1%)	117,046 (66%)
October 2021		14,127 (7.9%)		9 (1.3%)	14,136 (7.9%)
November 2021		4,593 (2.6%)		18 (2.7%)	4,611 (2.6%)
December 2021		4,003 (2.2%)		470 (70%)	4,473 (2.5%)
January 2022		1,151 (0.6%)		59 (8.8%)	1,210 (0.7%)
February 2022		24,269 (14%)		91 (14%)	24,360 (14%)
Without prior Covid-19 at matching date		177,921 (100%)		668 (100%)	178,589 (100%)
Immunodeficiency or use of immunosuppressants at matching date		20,077 (11%)		72 (11%)	20,149 (11%)
Cancer at matching date		477 (0.3%)		5 (0.7%)	482 (0.3%)
Transplant recipient at matching date		9 (<0.1%)		<5	9 (<0.1%)
Severe renal disease at matching date		<5		<5	<5
Down syndrome at matching date		15 (<0.1%)		<5	17 (<0.1%)
Coagulation disorders at matching date					
Heart failure at matching date		6 (<0.1%)		<5	<5
Diabetes (types 1 and 2) at matching date		272 (0.2%)		<5	222 (0.1%)
Diabetes algorithm (types 1 and 2) at matching date					
Bladder incontinence at matching date		88 (<0.1%)		<5	75 (<0.1%)
Chronic kidney disease at matching date		30 (<0.1%)		<5	35 (<0.1%)
Sepsis at matching date		38 (<0.1%)		<5	48 (<0.1%)
Autoimmune disorders at matching date					
Arthritis and Osteoarthritis at matching date		1,125 (0.6%)		<5	787 (0.4%)
Osteoarthritis at matching date		16 (<0.1%)		<5	<5
Alcohol abuse at matching date		12 (<0.1%)		<5	<5
Cerebrovascular diseases at matching date		13 (<0.1%)		<5	13 (<0.1%)
Dementia at matching date		<5		<5	5 (<0.1%)
Parkinson disease at matching date		<5		<5	<5
Cancer (non melanoma) in charlson index at matching date					
Malignant tumors without metastasis for charlson at matching date		476 (0.3%)		5 (0.7%)	480 (0.3%)
Chronic respiratory disease at matching date					
Hypertension at matching date		54 (<0.1%)		<5	43 (<0.1%)
Coronary artery disease at matching date		28 (<0.1%)		<5	27 (<0.1%)
Chronic liver disease at matching date					
Analgesics at matching date		20,137 (11%)		77 (12%)	15,013 (8.4%)
Corticosteroids at matching date		3,411 (1.9%)		13 (1.9%)	3,553 (2.0%)
Nonsteroidal anti-inflammatory drugs at matching date		28,701 (16%)		113 (17%)	21,977 (12%)
Psychotropics Psycholeptics at matching date		2,095 (1.2%)		16 (2.4%)	1,725 (1.0%)
Statins at matching date		85 (<0.1%)		<5	16 (<0.1%)
Vaccines at matching date					
Antibiotics at matching date		11,288 (6.3%)		46 (6.9%)	9,584 (5.4%)
Antiviral medications at matching date		175 (<0.1%)		<5	152 (<0.1%)

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
More than 5 drugs prescribed		17 (<0.1%)		<5	25 (<0.1%)
Health care worker or essential worker status at matching date, if available					
Skilled nursing facility, nursing home or extended care facility stay at matching date					
Residency in a long-term care facility at matching date					
Primary care utilisation at matching date					
Body mass index (BMI) last recorded status before matching date					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					
Smoking status last recorded status before matching date					
Number of drugs at matching date					
0		132,228 (74%)		485 (73%)	143,591 (80%)
1		27,502 (15%)		112 (17%)	19,823 (11%)
2		13,922 (7.8%)		54 (8.1%)	11,154 (6.2%)
3		3,255 (1.8%)		11 (1.6%)	2,823 (1.6%)
4		752 (0.4%)		5 (0.7%)	899 (0.5%)
5		245 (0.1%)		<5	274 (0.2%)
6		16 (<0.1%)		<5	23 (<0.1%)
7		<5		<5	<5
Influenza vaccination (in the previous 4 years)		16,294 (9.2%)		46 (6.9%)	8,046 (4.5%)
COVID 19 tests (total number ever before matching date when available)					
Mean (SD)		0.7 (1.1)		0.8 (1.1)	0.5 (1.0)
Minimum		0.0		0.0	0.0
25%		0.0		0.0	0.0
Median		0.0		0.0	0.0
75%		1.0		1.0	1.0
Maximum		30.0		11.0	47.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A14.3: INSPIRE-Italy

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
	<5	14,236			14,236
Homologous primary scheme					
Moderna		398 (2.8%)			243 (6.9%)
Pfizer		13,838 (97%)			3,301 (93%)
Heterologous primary scheme (1st dose brand)					
Date final censoring (days)					
Mean (SD)		77.2 (62.5)			77.2 (62.5)
Minimum		0.0			0.0
25%		23.0			23.0
Median		53.0			53.0
75%		134.0			134.0
Maximum		227.0			227.0
Reason for final censoring					
Censoring of the other member of the pair		5,746 (40%)			425 (3.0%)
Censoring by 3rd dose		407 (2.9%)			<5
Censoring by 1st dose		<5			5,697 (40%)
Study exit date		8,083 (57%)			8,114 (57%)
Female		7,004 (49%)			7,004 (49%)
Age at matching date (years)					
Mean (SD)		11.6 (1.8)			11.3 (2.2)
Minimum		5.0			4.0
25%		12.0			12.0
Median		12.0			12.0
75%		13.0			13.0
Maximum		14.0			14.0
Ageband at matching date					
05-11		3,325 (23%)			3,325 (23%)
>=12		10,911 (77%)			10,911 (77%)
Calendar month-year at matching date					
January 2021		<5			<5
February 2021		<5			<5
March 2021		<5			<5
April 2021		<5			<5
May 2021		<5			<5
June 2021		137 (1.0%)			137 (1.0%)
July 2021		2,331 (16%)			2,331 (16%)
August 2021		2,006 (14%)			2,006 (14%)

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
September 2021		2,649 (19%)			2,649 (19%)
October 2021		1,284 (9.0%)			1,284 (9.0%)
November 2021		581 (4.1%)			581 (4.1%)
December 2021		831 (5.8%)			831 (5.8%)
January 2022		4,417 (31%)			4,417 (31%)
Without prior Covid-19 at matching date		14,236 (100%)			14,236 (100%)
Immunodeficiency or use of immunosuppressants at matching date		4,574 (32%)			4,574 (32%)
Cancer at matching date		35 (0.2%)			35 (0.2%)
Transplant recipient at matching date					
Severe renal disease at matching date		<5			<5
Down syndrome at matching date		15 (0.1%)			15 (0.1%)
Coagulation disorders at matching date					
Heart failure at matching date		<5			<5
Diabetes (types 1 and 2) at matching date		27 (0.2%)			37 (0.3%)
Diabetes algorithm (types 1 and 2) at matching date					
Bladder incontinence at matching date		<5			6 (<0.1%)
Chronic kidney disease at matching date		11 (<0.1%)			6 (<0.1%)
Sepsis at matching date		32 (0.2%)			28 (0.2%)
Autoimmune disorders at matching date					
Arthritis and Osteoarthritis at matching date		100 (0.7%)			85 (0.6%)
Osteoarthritis at matching date		<5			<5
Alcohol abuse at matching date		<5			<5
Cerebrovascular diseases at matching date		<5			<5
Dementia at matching date		16 (0.1%)			17 (0.1%)
Parkinson disease at matching date		<5			<5
Cancer (non melanoma) in charlson index at matching date					
Malignant tumors without metastasis for charlson at matching date		35 (0.2%)			35 (0.2%)
Chronic respiratory disease at matching date					
Hypertension at matching date		7 (<0.1%)			<5
Coronary artery disease at matching date		<5			<5
Chronic liver disease at matching date					
Analgesics at matching date		<5			<5
Corticosteroids at matching date		426 (3.0%)			527 (3.7%)
Nonsteroidal anti-inflammatory drugs at matching date		27 (0.2%)			16 (0.1%)
Psychotropics Psycholeptics at matching date		23 (0.2%)			47 (0.3%)
Statins at matching date		5 (<0.1%)			8 (<0.1%)
Vaccines at matching date					
Antibiotics at matching date		2,081 (15%)			2,213 (16%)
Antiviral medications at matching date		48 (0.3%)			64 (0.4%)
More than 5 drugs prescribed		<5			<5
Health care worker or essential worker status at matching date, if available					
Skilled nursing facility, nursing home or extended care facility stay at matching date					
Residency in a long-term care facility at matching date					
Primary care utilisation at matching date					
Body mass index (BMI) last recorded status before matching date					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					
Smoking status last recorded status before matching date					
Number of drugs at matching date					
1		1,785 (79%)			1,875 (77%)
2		126 (5.6%)			164 (6.7%)
3		324 (14%)			385 (16%)
4		11 (0.5%)			13 (0.5%)
Influenza vaccination (in the previous 4 years)					
COVID 19 tests (total number ever before matching date when available)					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated

Table A14.4: PEDIANET-Italy

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
	<5	1,566	5	1,571	
Homologous primary scheme					
Moderna		356 (23%)			42 (34%)
Pfizer		1,210 (77%)			80 (66%)
Heterologous primary scheme (1st dose brand)					
AstraZeneca				<5	<5
Moderna				<5	<5
Pfizer				<5	<5
Date final censoring (days)					
Mean (SD)		89.1 (40.2)		53.0 (66.7)	89.0 (40.3)
Minimum		0.0		3.0	0.0
25%		67.0		9.0	66.0
Median		100.0		34.0	100.0
75%		114.0		52.0	114.0
Maximum		182.0		167.0	182.0
Reason for final censoring					
Censoring of the other member of the pair		235 (15%)		<5	51 (3.2%)
Censoring by 1st dose		<5		<5	173 (11%)
Study exit date		1,331 (85%)		5 (100%)	1,347 (86%)
Female		752 (48%)		<5	756 (48%)
Age at matching date (years)					
Mean (SD)		12.4 (0.5)		11.4 (0.9)	12.4 (0.5)
Minimum		9.0		10.0	7.0
25%		12.0		11.0	12.0
Median		12.0		12.0	12.0
75%		13.0		12.0	13.0
Maximum		13.0		12.0	13.0
Ageband at matching date					
05-11		<5		<5	<5
>=12		1,565 (100%)		<5	1,568 (100%)
Calendar month-year at matching date					
June 2021		<5		<5	<5
July 2021		86 (5.5%)		<5	87 (5.5%)
August 2021		204 (13%)		<5	204 (13%)
September 2021		807 (52%)		<5	807 (51%)
October 2021		226 (14%)		<5	226 (14%)
November 2021		120 (7.7%)		<5	122 (7.8%)
December 2021		122 (7.8%)		<5	124 (7.9%)
Without prior Covid-19 at matching date		1,566 (100%)		5 (100%)	1,571 (100%)
Immunodeficiency or use of immunosuppressants at matching date		185 (12%)		<5	186 (12%)
Cancer at matching date		<5		<5	<5
Transplant recipient at matching date					
Severe renal disease at matching date					
Down syndrome at matching date					
Coagulation disorders at matching date					
Heart failure at matching date					
Diabetes (types 1 and 2) at matching date		<5		<5	<5
Diabetes algorithm (types 1 and 2) at matching date					
Bladder incontinence at matching date		8 (0.5%)		<5	5 (0.3%)
Chronic kidney disease at matching date					
Sepsis at matching date					
Autoimmune disorders at matching date					
Arthritis and Osteoarthritis at matching date		17 (1.1%)		<5	17 (1.1%)
Osteoarthritis at matching date					
Alcohol abuse at matching date					
Cerebrovascular diseases at matching date					
Dementia at matching date					
Parkinson disease at matching date					
Cancer (non melanoma) in charlson index at matching date					
Malignant tumors without metastasis for charlson at matching date		<5		<5	<5
Chronic respiratory disease at matching date					
Hypertension at matching date		<5		<5	<5
Coronary artery disease at matching date					
Chronic liver disease at matching date					
Analgesics at matching date		6 (0.4%)		<5	<5
Corticosteroids at matching date		41 (2.6%)		<5	32 (2.0%)
Nonsteroidal anti-inflammatory drugs at matching date		28 (1.8%)		<5	17 (1.1%)
Psychotropics Psycholeptics at matching date		<5		<5	<5
Statins at matching date					
Vaccines at matching date					
Antibiotics at matching date		118 (7.5%)		<5	80 (5.1%)
Antiviral medications at matching date		5 (0.3%)		<5	<5
More than 5 drugs prescribed		<5		<5	<5
Health care worker or essential worker status at matching date, if available					
Skilled nursing facility, nursing home or extended care facility stay at matching date					

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
Residency in a long-term care facility at matching date					
Primary care utilisation at matching date					
Body mass index (BMI) last recorded status before matching date					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					
Smoking status last recorded status before matching date					
Number of drugs at matching date					
0		1,338 (88%)		<5	911 (89%)
1		120 (7.9%)		<5	80 (7.8%)
2		46 (3.0%)		<5	25 (2.4%)
3		10 (0.7%)		<5	10 (1.0%)
4		<5		<5	<5
Influenza vaccination (in the previous 4 years)		193 (12%)		<5	53 (3.4%)
COVID 19 tests (total number ever before matching date when available)					
Mean (SD)		0.9 (0.8)		1.0 (0.8)	0.7 (0.7)
Minimum		0.0		0.0	0.0
25%		0.0		0.8	0.0
Median		1.0		1.0	1.0
75%		1.0		1.3	1.0
Maximum		8.0		2.0	8.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A14.5: PHARMO-Netherlands

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
	<5	17,293		<5	17,294
Homologous primary scheme					
AstraZeneca		<5			<5
Pfizer		17,292 (100%)			3,335 (100%)
Heterologous primary scheme (1st dose brand)					
Pfizer				<5	
Date final censoring (days)					
Mean (SD)		65.0 (43.7)		96.0 (NA)	65.0 (43.7)
Minimum		0.0		96.0	0.0
25%		28.0		96.0	28.0
Median		56.0		96.0	56.0
75%		105.0		96.0	105.0
Maximum		163.0		96.0	163.0
Reason for final censoring					
Censoring of the other member of the pair		7,968 (46%)		<5	1,985 (11%)
Censoring by 3rd dose		22 (0.1%)		<5	<5
Censoring by 1st dose		<5		<5	4,225 (24%)
Study exit date		9,303 (54%)		<5	11,084 (64%)
Female		8,318 (48%)		<5	8,318 (48%)
Age at matching date (years)					
Mean (SD)		12.6 (0.5)		13.0 (NA)	12.4 (0.5)
Minimum		7.0		13.0	7.0
25%		12.0		13.0	12.0
Median		13.0		13.0	12.0
75%		13.0		13.0	13.0
Maximum		13.0		13.0	13.0
Ageband at matching date					
05-11		<5		<5	<5
>=12		17,291 (100%)		<5	17,292 (100%)
Calendar month-year at matching date					
January 2021		<5		<5	<5
February 2021		<5		<5	<5
March 2021		<5		<5	<5
April 2021		<5		<5	<5
May 2021		<5		<5	<5
June 2021		<5		<5	<5
July 2021		89 (0.5%)		<5	89 (0.5%)
August 2021		8,132 (47%)		<5	8,132 (47%)
September 2021		4,359 (25%)		<5	4,360 (25%)
October 2021		2,145 (12%)		<5	2,145 (12%)
November 2021		1,346 (7.8%)		<5	1,346 (7.8%)
December 2021		1,221 (7.1%)		<5	1,221 (7.1%)
Without prior Covid-19 at matching date		17,293 (100%)		<5	17,294 (100%)
Immunodeficiency or use of immunosuppressants at matching date		1,048 (6.1%)		<5	1,048 (6.1%)
Cancer at matching date		15 (<0.1%)		<5	15 (<0.1%)

Characteristics	Unmatched Homologous	Matched Homologous	Unmatched Heterologous	Matched Heterologous	Matched Unvaccinated
Transplant recipient at matching date					
Severe renal disease at matching date					
Down syndrome at matching date					
Coagulation disorders at matching date					
Heart failure at matching date		<5		<5	<5
Diabetes (types 1 and 2) at matching date					
Diabetes algorithm (types 1 and 2) at matching date					
Bladder incontinence at matching date		1,351 (7.8%)		<5	1,348 (7.8%)
Chronic kidney disease at matching date					
Sepsis at matching date		<5		<5	<5
Autoimmune disorders at matching date					
Arthritis and Osteoarthritis at matching date		23 (0.1%)		<5	29 (0.2%)
Osteoarthritis at matching date		<5		<5	12 (<0.1%)
Alcohol abuse at matching date		<5		<5	<5
Cerebrovascular diseases at matching date		<5		<5	<5
Dementia at matching date					
Parkinson disease at matching date		<5		<5	<5
Cancer (non melanoma) in charlson index at matching date					
Malignant tumors without metastasis for charlson at matching date		<5		<5	<5
Chronic respiratory disease at matching date					
Hypertension at matching date		8 (<0.1%)		<5	9 (<0.1%)
Coronary artery disease at matching date		<5		<5	<5
Chronic liver disease at matching date					
Analgesics at matching date		221 (1.3%)		<5	163 (0.9%)
Corticosteroids at matching date		51 (0.3%)		<5	40 (0.2%)
Nonsteroidal anti-inflammatory drugs at matching date		391 (2.3%)		<5	277 (1.6%)
Psychotropics Psycholeptics at matching date		379 (2.2%)		<5	294 (1.7%)
Statins at matching date		20 (0.1%)		<5	12 (<0.1%)
Vaccines at matching date					
Antibiotics at matching date		754 (4.4%)		<5	586 (3.4%)
Antiviral medications at matching date		9 (<0.1%)		<5	10 (<0.1%)
More than 5 drugs prescribed		<5		<5	<5
Health care worker or essential worker status at matching date, if available					
Skilled nursing facility, nursing home or extended care facility stay at matching date					
Residency in a long-term care facility at matching date					
Primary care utilisation at matching date					
Body mass index (BMI) last recorded status before matching date					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					
Smoking status last recorded status before matching date					
Number of drugs at matching date					
0		1,033 (40%)		<5	998 (45%)
1		1,308 (50%)		<5	1,041 (47%)
2		222 (8.5%)		<5	144 (6.5%)
3		37 (1.4%)		<5	32 (1.4%)
4		5 (0.2%)		<5	<5
5		<5		<5	<5
6		<5		<5	<5
Influenza vaccination (in the previous 4 years)		49 (0.3%)		<5	62 (0.4%)
COVID 19 tests (total number ever before matching date when available)					
Mean (SD)					
Minimum					
25%					
Median					
75%					
Maximum					

Tables A15: Baseline characteristics among compared boosted and non-boosted matched cohorts for patients with homologous primary scheme and homologous booster without prior Covid-19 (main population) for **adolescents (12-17 years old)**, according to database and country

Table A15.1: SIDIAP-Spain

Characteristics	No-Booster	Homologous Booster
	376	376
Homologous primary scheme		
Moderna	7 (1.9%)	7 (1.9%)
Pfizer	369 (98%)	369 (98%)
Date final censoring (days)		
Mean (SD)	50.8 (25.5)	50.8 (25.5)
Minimum	0.0	0.0
25%	34.0	34.0
Median	55.0	55.0
75%	67.0	67.0
Maximum	210.0	210.0
Reason for final censoring		
Censoring of the other member of the pair	<5	43 (11%)
Censoring by 4th dose	<5	<5
Censoring by 3rd dose	43 (11%)	<5
Study exit date	332 (88%)	332 (88%)
Female	211 (56%)	211 (56%)
Age at matching date (years)		
Mean (SD)	15.4 (1.6)	14.8 (1.6)
Minimum	12.0	12.0
25%	14.0	13.0
Median	16.0	15.0
75%	17.0	16.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	376 (100%)	376 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	28 (7.4%)	28 (7.4%)
October 2021	109 (29%)	109 (29%)
November 2021	189 (50%)	189 (50%)
December 2021	47 (12%)	47 (12%)
Without prior Covid-19 at matching date	376 (100%)	376 (100%)
Immunodeficiency or use of immunosuppressants at matching date	231 (61%)	231 (61%)
Cancer at matching date	35 (9.3%)	35 (9.3%)
Transplant recipient at matching date	13 (3.5%)	13 (3.5%)
Severe renal disease at matching date	5 (1.3%)	5 (1.3%)
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	7 (1.9%)
Diabetes (types 1 and 2) at matching date	<5	7 (1.9%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	6 (1.6%)	<5
Chronic kidney disease at matching date	14 (3.7%)	12 (3.2%)
Sepsis at matching date	6 (1.6%)	11 (2.9%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	121 (32%)	166 (44%)
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	7 (1.9%)
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	35 (9.3%)	34 (9.0%)
Chronic respiratory disease at matching date		
Hypertension at matching date	11 (2.9%)	14 (3.7%)
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	57 (15%)	59 (16%)
Corticosteroids at matching date	36 (9.6%)	44 (12%)
Nonsteroidal anti-inflammatory drugs at matching date	60 (16%)	61 (16%)
Psychotropics Psycholeptics at matching date	14 (3.7%)	17 (4.5%)
Statins at matching date	<5	5 (1.3%)
Vaccines at matching date		
Antibiotics at matching date	65 (17%)	73 (19%)
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		

Characteristics	No-Booster	Homologous Booster
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	222 (59%)	183 (49%)
1	75 (20%)	91 (24%)
2	36 (9.6%)	58 (15%)
3	26 (6.9%)	24 (6.4%)
4	10 (2.7%)	13 (3.5%)
5	6 (1.6%)	5 (1.3%)
6	<5	<5
Influenza vaccination (in the previous 4 years)	131 (35%)	224 (60%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	3.5 (3.4)	4.1 (4.2)
Minimum	0.0	0.0
25%	1.0	1.5
Median	3.0	3.0
75%	5.0	5.0
Maximum	34.0	37.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A15.2: BIFAP-Spain

Characteristics	No-Booster	Homologous Booster
	2,086	2,086
Homologous primary scheme		
Moderna	206 (9.9%)	206 (9.9%)
Pfizer	1,880 (90%)	1,880 (90%)
Date final censoring (days)		
Mean (SD)	79.4 (43.3)	79.4 (43.3)
Minimum	0.0	0.0
25%	65.0	65.0
Median	91.0	91.0
75%	94.0	94.0
Maximum	264.0	264.0
Reason for final censoring		
Censoring of the other member of the pair	<5	324 (16%)
Censoring by 3rd dose	313 (15%)	<5
Study exit date	1,773 (85%)	1,762 (84%)
Female	1,036 (50%)	1,036 (50%)
Age at matching date (years)		
Mean (SD)	15.5 (1.5)	16.4 (1.3)
Minimum	12.0	12.0
25%	14.0	17.0
Median	16.0	17.0
75%	17.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	2,086 (100%)	2,086 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	56 (2.7%)	56 (2.7%)
October 2021	173 (8.3%)	173 (8.3%)
November 2021	175 (8.4%)	175 (8.4%)
December 2021	160 (7.7%)	160 (7.7%)
January 2022	1,129 (54%)	1,129 (54%)
February 2022	389 (19%)	389 (19%)
Without prior Covid-19 at matching date	2,086 (100%)	2,086 (100%)
Immunodeficiency or use of immunosuppressants at matching date	420 (20%)	420 (20%)
Cancer at matching date	42 (2.0%)	42 (2.0%)
Transplant recipient at matching date	15 (0.7%)	15 (0.7%)
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	5 (0.2%)	9 (0.4%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	6 (0.3%)	8 (0.4%)
Chronic kidney disease at matching date	10 (0.5%)	15 (0.7%)
Sepsis at matching date	<5	8 (0.4%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	22 (1.1%)	54 (2.6%)
Osteoarthritis at matching date	<5	<5

Characteristics	No-Booster	Homologous Booster
Alcohol abuse at matching date	<5	7 (0.3%)
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	42 (2.0%)	42 (2.0%)
Chronic respiratory disease at matching date		
Hypertension at matching date	5 (0.2%)	8 (0.4%)
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	334 (16%)	367 (18%)
Corticosteroids at matching date	94 (4.5%)	127 (6.1%)
Nonsteroidal anti-inflammatory drugs at matching date	464 (22%)	461 (22%)
Psychotropics Psycholeptics at matching date	128 (6.1%)	107 (5.1%)
Statins at matching date	<5	8 (0.4%)
Vaccines at matching date		
Antibiotics at matching date	388 (19%)	530 (25%)
Antiviral medications at matching date	6 (0.3%)	8 (0.4%)
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	1,234 (59%)	1,080 (52%)
1	416 (20%)	481 (23%)
2	262 (13%)	301 (14%)
3	128 (6.1%)	154 (7.4%)
4	31 (1.5%)	51 (2.4%)
5	13 (0.6%)	15 (0.7%)
6	<5	<5
7	<5	<5
Influenza vaccination (in the previous 4 years)	344 (16%)	549 (26%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	0.5 (1.5)	0.7 (1.8)
Minimum	0.0	0.0
25%	0.0	0.0
Median	0.0	0.0
75%	0.0	0.0
Maximum	28.0	18.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A15.3: INSPIRE-Italy

Characteristics	No-Booster	Homologous Booster
	12,939	12,939
Homologous primary scheme		
Pfizer	12,939 (100%)	12,939 (100%)
Date final censoring (days)		
Mean (SD)	20.7 (12.0)	20.7 (12.0)
Minimum	0.0	0.0
25%	10.0	10.0
Median	22.0	22.0
75%	31.0	31.0
Maximum	122.0	122.0
Reason for final censoring		
Censoring of the other member of the pair	10 (<0.1%)	4,507 (35%)
Censoring by 3rd dose	4,489 (35%)	<5
Study exit date	8,440 (65%)	8,432 (65%)
Female	6,380 (49%)	6,380 (49%)
Age at matching date (years)		
Mean (SD)	14.6 (1.4)	15.9 (1.3)
Minimum	12.0	12.0
25%	14.0	15.0
Median	15.0	16.0
75%	16.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	12,939 (100%)	12,939 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	6 (<0.1%)	6 (<0.1%)

Characteristics	No-Booster	Homologous Booster
November 2021	18 (0.1%)	18 (0.1%)
December 2021	261 (2.0%)	261 (2.0%)
January 2022	12,654 (98%)	12,654 (98%)
Without prior Covid-19 at matching date	12,939 (100%)	12,939 (100%)
Immunodeficiency or use of immunosuppressants at matching date	4,443 (34%)	4,443 (34%)
Cancer at matching date	23 (0.2%)	23 (0.2%)
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	67 (0.5%)	55 (0.4%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	16 (0.1%)	9 (<0.1%)
Chronic kidney disease at matching date	8 (<0.1%)	15 (0.1%)
Sepsis at matching date	7 (<0.1%)	6 (<0.1%)
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	112 (0.9%)	122 (0.9%)
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	5 (<0.1%)
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	26 (0.2%)	25 (0.2%)
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	23 (0.2%)	23 (0.2%)
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	8 (<0.1%)
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	8 (<0.1%)	20 (0.2%)
Corticosteroids at matching date	636 (4.9%)	710 (5.5%)
Nonsteroidal anti-inflammatory drugs at matching date	95 (0.7%)	160 (1.2%)
Psychotropics Psycholeptics at matching date	37 (0.3%)	48 (0.4%)
Statins at matching date	9 (<0.1%)	13 (0.1%)
Vaccines at matching date		
Antibiotics at matching date	2,639 (20%)	2,869 (22%)
Antiviral medications at matching date	58 (0.4%)	43 (0.3%)
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	2,176 (76%)	2,360 (74%)
2	187 (6.5%)	253 (8.0%)
3	483 (17%)	531 (17%)
4	32 (1.1%)	29 (0.9%)
5	<5	<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A15.4: PHARMO-Netherlands

Characteristics	No-Booster	Homologous Booster
	198	198
Homologous primary scheme		
Pfizer	198 (100%)	198 (100%)
Date final censoring (days)		
Mean (SD)	12.4 (17.8)	12.4 (17.8)
Minimum	1.0	1.0
25%	4.0	4.0
Median	8.0	8.0
75%	9.0	9.0
Maximum	111.0	111.0
Reason for final censoring		
Censoring of the other member of the pair	12 (6.1%)	6 (3.0%)
Censoring by 4th dose	<5	<5
Study exit date	186 (94%)	191 (96%)
Female	101 (51%)	101 (51%)
Age at matching date (years)		
Mean (SD)	15.1 (1.6)	15.1 (1.6)
Minimum	12.0	12.0
25%	14.0	14.0
Median	15.0	15.0

75%	17.0	16.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	198 (100%)	198 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	5 (2.5%)	5 (2.5%)
October 2021	8 (4.0%)	8 (4.0%)
November 2021	13 (6.6%)	13 (6.6%)
December 2021	171 (86%)	171 (86%)
Without prior Covid-19 at matching date	198 (100%)	198 (100%)
Immunodeficiency or use of immunosuppressants at matching date	28 (14%)	28 (14%)
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date		
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	16 (8.1%)	16 (8.1%)
Chronic kidney disease at matching date		
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date		
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	<5	<5
Corticosteroids at matching date	<5	8 (4.0%)
Nonsteroidal anti-inflammatory drugs at matching date	10 (5.1%)	14 (7.1%)
Psychotropics Psycholeptics at matching date	<5	12 (6.1%)
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	<5	26 (13%)
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	21 (50%)	24 (32%)
1	18 (43%)	35 (47%)
2	<5	7 (9.5%)
3	<5	6 (8.1%)
4	<5	<5
5	<5	<5
Influenza vaccination (in the previous 4 years)	<5	10 (5.1%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A15.5: CPRD-UK

Characteristics	No-Booster	Homologous Booster
	1,355	1,355
Homologous primary scheme		
AstraZeneca	<5	<5
Pfizer	1,354 (100%)	1,354 (100%)
Date final censoring (days)		
Mean (SD)	17.0 (17.5)	17.0 (17.5)

Characteristics	No-Booster	Homologous Booster
Minimum	0.0	0.0
25%	5.5	5.5
Median	13.0	13.0
75%	22.0	22.0
Maximum	172.0	172.0
Reason for final censoring		
Censoring of the other member of the pair	121 (8.9%)	424 (31%)
Censoring by 3rd dose	294 (22%)	<5
Study exit date	940 (69%)	931 (69%)
Female	664 (49%)	664 (49%)
Age at matching date (years)		
Mean (SD)	16.8 (0.5)	16.8 (0.6)
Minimum	12.0	12.0
25%	17.0	17.0
Median	17.0	17.0
75%	17.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	1,355 (100%)	1,355 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	5 (0.4%)	5 (0.4%)
July 2021	<5	<5
August 2021	<5	<5
September 2021	24 (1.8%)	24 (1.8%)
October 2021	187 (14%)	187 (14%)
November 2021	912 (67%)	912 (67%)
December 2021	225 (17%)	225 (17%)
Without prior Covid-19 at matching date	1,355 (100%)	1,355 (100%)
Immunodeficiency or use of immunosuppressants at matching date	13 (1.0%)	13 (1.0%)
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	64 (4.7%)	81 (6.0%)
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date		
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date		
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date		
Alcohol abuse at matching date		
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date		
Parkinson disease at matching date		
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date		
Corticosteroids at matching date	7 (0.5%)	<5
Nonsteroidal anti-inflammatory drugs at matching date		
Psychotropics Psycholeptics at matching date		
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date		
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	<5	7 (70%)
2	7 (64%)	<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		

Characteristics	No-Booster	Homologous Booster
75%		
Maximum		

Tables A16: Baseline characteristics among compared boosted and non-boosted matched cohorts for patients with heterologous primary scheme (derived heterologous booster) without prior Covid-19 (main population) for **adolescents (12-17 years old)**, according to database and country

Table A16.1: CPRD-UK

Characteristics	No-Booster	Heterologous Booster
	<5	<5
Heterologous primary scheme (1st dose brand)		
AstraZeneca	<5	<5
Type of booster		
Pfizer		<5
Date final censoring (days)		
Mean (SD)	21.0 (NA)	21.0 (NA)
Minimum	21.0	21.0
25%	21.0	21.0
Median	21.0	21.0
75%	21.0	21.0
Maximum	21.0	21.0
Reason for final censoring		
Censoring of the other member of the pair	<5	<5
Study exit date	<5	<5
Female	<5	<5
Age at matching date (years)		
Mean (SD)	17.0 (NA)	17.0 (NA)
Minimum	17.0	17.0
25%	17.0	17.0
Median	17.0	17.0
75%	17.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	<5	<5
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	<5	<5
November 2021	<5	<5
December 2021	<5	<5
Without prior Covid-19 at matching date	<5	<5
Immunodeficiency or use of immunosuppressants at matching date	<5	<5
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date		
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date		
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date		
Alcohol abuse at matching date		
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date		
Parkinson disease at matching date		
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date		
Corticosteroids at matching date	<5	<5
Nonsteroidal anti-inflammatory drugs at matching date		
Psychotropics Psycholeptics at matching date		
Statins at matching date		
Vaccines at matching date		
Antibiotics at matching date		
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		

Characteristics	No-Booster	Heterologous Booster
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Tables A17: Baseline characteristics among compared boosted and non-boosted matched cohorts for patients with homologous primary scheme and heterologous booster without prior Covid-19 (main population) for **adolescents (12-17 years old)**, according to database and country

Table A17.1: SIDIAP-Spain

Characteristics	No-Booster	Heterologous Booster
	141	141
Homologous primary scheme		
Moderna	<5	<5
Pfizer	140 (99%)	140 (99%)
Type of booster		
Moderna	<5	140 (99%)
Pfizer	<5	<5
Date final censoring (days)		
Mean (SD)	12.6 (9.5)	12.6 (9.5)
Minimum	1.0	1.0
25%	9.0	9.0
Median	10.0	10.0
75%	11.0	11.0
Maximum	73.0	73.0
Reason for final censoring		
Censoring of the other member of the pair	<5	<5
Censoring by 4th dose	<5	<5
Censoring by 3rd dose	<5	<5
Study exit date	139 (99%)	138 (98%)
Female	90 (64%)	90 (64%)
Age at matching date (years)		
Mean (SD)	16.2 (1.2)	15.4 (1.7)
Minimum	12.0	12.0
25%	16.0	14.0
Median	17.0	16.0
75%	17.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	141 (100%)	141 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	<5	<5
November 2021	<5	<5
December 2021	135 (96%)	135 (96%)
Without prior Covid-19 at matching date	141 (100%)	141 (100%)
Immunodeficiency or use of immunosuppressants at matching date	52 (37%)	52 (37%)
Cancer at matching date	5 (3.5%)	5 (3.5%)
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	7 (5.0%)	8 (5.7%)
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	35 (25%)	63 (45%)
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	5 (3.5%)	5 (3.5%)
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	23 (16%)	39 (28%)
Corticosteroids at matching date	8 (5.7%)	15 (11%)
Nonsteroidal anti-inflammatory drugs at matching date	42 (30%)	41 (29%)
Psychotropics Psycholeptics at matching date	8 (5.7%)	18 (13%)
Statins at matching date	<5	<5
Vaccines at matching date		

Characteristics	No-Booster	Heterologous Booster
Antibiotics at matching date	23 (16%)	27 (19%)
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	80 (57%)	62 (44%)
1	30 (21%)	30 (21%)
2	16 (11%)	30 (21%)
3	10 (7.1%)	10 (7.1%)
4	<5	5 (3.5%)
5	<5	<5
6	<5	<5
Influenza vaccination (in the previous 4 years)	29 (21%)	56 (40%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	3.1 (3.5)	4.5 (4.9)
Minimum	0.0	0.0
25%	1.0	2.0
Median	2.0	3.0
75%	4.0	6.0
Maximum	21.0	34.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A17.2: BIFAP-Spain

Characteristics	No-Booster	Heterologous Booster
	517	517
Homologous primary scheme		
Moderna	74 (14%)	74 (14%)
Pfizer	443 (86%)	443 (86%)
Type of booster		
Moderna	20 (56%)	443 (86%)
Pfizer	16 (44%)	74 (14%)
Date final censoring (days)		
Mean (SD)	79.4 (35.5)	79.4 (35.5)
Minimum	0.0	0.0
25%	72.0	72.0
Median	86.0	86.0
75%	88.0	88.0
Maximum	234.0	234.0
Reason for final censoring		
Censoring of the other member of the pair	<5	36 (7.0%)
Censoring by 3rd dose	36 (7.0%)	<5
Study exit date	481 (93%)	481 (93%)
Female	257 (50%)	257 (50%)
Age at matching date (years)		
Mean (SD)	15.0 (1.6)	16.6 (1.1)
Minimum	12.0	12.0
25%	14.0	17.0
Median	15.0	17.0
75%	16.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	517 (100%)	517 (100%)
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	6 (1.2%)	6 (1.2%)
November 2021	23 (4.4%)	23 (4.4%)
December 2021	77 (15%)	77 (15%)
January 2022	94 (18%)	94 (18%)
February 2022	315 (61%)	315 (61%)
Without prior Covid-19 at matching date	517 (100%)	517 (100%)
Immunodeficiency or use of immunosuppressants at matching date	91 (18%)	91 (18%)
Cancer at matching date	<5	<5
Transplant recipient at matching date	<5	<5
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5

Characteristics	No-Booster	Heterologous Booster
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	7 (1.4%)	11 (2.1%)
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	86 (17%)	85 (16%)
Corticosteroids at matching date	20 (3.9%)	28 (5.4%)
Nonsteroidal anti-inflammatory drugs at matching date	122 (24%)	113 (22%)
Psychotropics Psycholeptics at matching date	29 (5.6%)	44 (8.5%)
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	98 (19%)	109 (21%)
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
0	310 (60%)	289 (56%)
1	106 (21%)	110 (21%)
2	56 (11%)	62 (12%)
3	26 (5.0%)	41 (7.9%)
4	13 (2.5%)	11 (2.1%)
5	6 (1.2%)	<5
6	<5	<5
Influenza vaccination (in the previous 4 years)	68 (13%)	91 (18%)
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)	0.8 (1.5)	1.0 (1.5)
Minimum	0.0	0.0
25%	0.0	0.0
Median	0.0	0.0
75%	1.0	2.0
Maximum	16.0	9.0

Number of contacts with the PCP in the year before matching date was used as a continuous variable and it is not reported in this table.

Table A17.3: INSPIRE-Italy

Characteristics	No-Booster	Heterologous Booster
	40	40
Homologous primary scheme		
Moderna	34 (85%)	34 (85%)
Pfizer	6 (15%)	6 (15%)
Type of booster		
Moderna	<5	6 (15%)
Pfizer	6 (100%)	34 (85%)
Date final censoring (days)		
Mean (SD)	23.0 (11.2)	23.0 (11.2)
Minimum	2.0	2.0
25%	18.8	18.8
Median	23.0	23.0
75%	28.0	28.0
Maximum	55.0	55.0
Reason for final censoring		
Censoring of the other member of the pair	<5	6 (15%)
Censoring by 3rd dose	6 (15%)	<5
Study exit date	33 (82%)	34 (85%)
Female	19 (48%)	19 (48%)
Age at matching date (years)		
Mean (SD)	14.9 (1.5)	15.8 (1.3)
Minimum	12.0	13.0
25%	14.0	15.0
Median	15.0	16.0
75%	16.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	40 (100%)	40 (100%)
Calendar month-year at matching date		

Characteristics	No-Booster	Heterologous Booster
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	<5	<5
November 2021	<5	<5
December 2021	<5	<5
January 2022	36 (90%)	36 (90%)
Without prior Covid-19 at matching date	40 (100%)	40 (100%)
Immunodeficiency or use of immunosuppressants at matching date	14 (35%)	14 (35%)
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date	<5	<5
Down syndrome at matching date	<5	<5
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date	<5	<5
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date	<5	<5
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date	<5	<5
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	<5	<5
Corticosteroids at matching date	<5	<5
Nonsteroidal anti-inflammatory drugs at matching date	<5	<5
Psychotropics Psycholeptics at matching date	<5	<5
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	6 (15%)	<5
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1	7 (100%)	<5
3	<5	<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		

Table A17.4: PHARMO-Netherlands

Characteristics	No-Booster	Heterologous Booster
	<5	<5
Homologous primary scheme		
AstraZeneca	<5	<5
Pfizer	<5	<5
Type of booster		
Moderna		<5
Pfizer		<5
Date final censoring (days)		
Mean (SD)	10.5 (2.1)	10.5 (2.1)
Minimum	9.0	9.0
25%	9.8	9.8
Median	10.5	10.5
75%	11.2	11.2

Characteristics	No-Booster	Heterologous Booster
Maximum	12.0	12.0
Reason for final censoring		
Study exit date	<5	<5
Female	<5	<5
Age at matching date (years)		
Mean (SD)	17.0 (0.0)	17.0 (0.0)
Minimum	17.0	17.0
25%	17.0	17.0
Median	17.0	17.0
75%	17.0	17.0
Maximum	17.0	17.0
Ageband at matching date		
12-17	<5	<5
Calendar month-year at matching date		
January 2021	<5	<5
February 2021	<5	<5
March 2021	<5	<5
April 2021	<5	<5
May 2021	<5	<5
June 2021	<5	<5
July 2021	<5	<5
August 2021	<5	<5
September 2021	<5	<5
October 2021	<5	<5
November 2021	<5	<5
December 2021	<5	<5
Without prior Covid-19 at matching date	<5	<5
Immunodeficiency or use of immunosuppressants at matching date	<5	<5
Cancer at matching date	<5	<5
Transplant recipient at matching date		
Severe renal disease at matching date		
Down syndrome at matching date		
Coagulation disorders at matching date		
Heart failure at matching date	<5	<5
Diabetes (types 1 and 2) at matching date		
Diabetes algorithm (types 1 and 2) at matching date		
Bladder incontinence at matching date	<5	<5
Chronic kidney disease at matching date		
Sepsis at matching date	<5	<5
Autoimmune disorders at matching date		
Arthritis and Osteoarthritis at matching date	<5	<5
Osteoarthritis at matching date	<5	<5
Alcohol abuse at matching date	<5	<5
Cerebrovascular diseases at matching date	<5	<5
Dementia at matching date		
Parkinson disease at matching date	<5	<5
Cancer (non melanoma) in charlson index at matching date		
Malignant tumors without metastasis for charlson at matching date	<5	<5
Chronic respiratory disease at matching date		
Hypertension at matching date	<5	<5
Coronary artery disease at matching date	<5	<5
Chronic liver disease at matching date		
Analgesics at matching date	<5	<5
Corticosteroids at matching date	<5	<5
Nonsteroidal anti-inflammatory drugs at matching date	<5	<5
Psychotropics Psycholeptics at matching date	<5	<5
Statins at matching date	<5	<5
Vaccines at matching date		
Antibiotics at matching date	<5	<5
Antiviral medications at matching date	<5	<5
More than 5 drugs prescribed	<5	<5
Health care worker or essential worker status at matching date, if available		
Skilled nursing facility, nursing home or extended care facility stay at matching date		
Residency in a long-term care facility at matching date		
Primary care utilisation at matching date		
Body mass index (BMI) last recorded status before matching date		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		
Smoking status last recorded status before matching date		
Number of drugs at matching date		
1		<5
Influenza vaccination (in the previous 4 years)		
COVID 19 tests (total number ever before matching date when available)		
Mean (SD)		
Minimum		
25%		
Median		
75%		
Maximum		