

**Supplementary table 2:****Projected total and daily peaks of COVID-19 deaths by the end of 2024 in England by revaccination frequency****Assumptions and notes:**

- Age-based 75-90% vaccination coverage of individuals aged 16+.
- Initial overall vaccine efficacy: 62.5% after dose-1 and 85% after dose-2.
- The overall vaccine efficacy is equally attributable to the infection and disease protection.

Scenario	Vaccination waves (interval days)	Long-term vaccine efficacy	Reduction in reinfectivity	Immunity duration (day): Natural /vaccine	Total COVID-19 deaths (2020-2024)	Daily peaks of COVID-19 deaths		
						2022	2023	2024
FAa2	2 (730)	85.0%	60%	730/365	140,596	28	42	22
FAa3	3 (487)	85.0%	60%	730/365	129,991	28	0	14
FAa4	4 (365)	85.0%	60%	730/365	127,550	28	0	0
FAa5	5 (292)	85.0%	60%	730/365	126,529	22	0	0
FAa6	6 (243)	85.0%	60%	730/365	125,523	18	0	0
FAb2	2 (730)	62.5%	60%	730/365	179,155	105	89	79
FAb3	3 (487)	62.5%	60%	730/365	154,959	105	1	56
FAb4	4 (365)	62.5%	60%	730/365	143,233	104	0	0
FAb5	5 (292)	62.5%	60%	730/365	139,718	86	0	0
FAb6	6 (243)	62.5%	60%	730/365	136,348	71	0	0
FAc2	2 (730)	85.0%	60%	365/182	217,980	281	385	0
FAc3	3 (487)	85.0%	60%	365/182	169,204	196	21	14
FAc4	4 (365)	85.0%	60%	365/182	148,093	89	2	7
FAc5	5 (292)	85.0%	60%	365/182	138,246	48	1	5
FAc6	6 (243)	85.0%	60%	365/182	133,413	32	0	1
FAd2	2 (730)	62.5%	60%	365/182	276,596	528	334	8
FAd3	3 (487)	62.5%	60%	365/182	253,667	528	46	212
FAd4	4 (365)	62.5%	60%	365/182	198,684	351	2	47
FAd5	5 (292)	62.5%	60%	365/182	173,428	235	0	26
FAd6	6 (243)	62.5%	60%	365/182	162,428	156	0	30
FBa2	2 (730)	85.0%	45%	730/365	158,901	42	207	2
FBa3	3 (487)	85.0%	45%	730/365	150,943	42	23	185
FBa4	4 (365)	85.0%	45%	730/365	134,421	42	0	36
FBa5	5 (292)	85.0%	45%	730/365	130,614	34	0	0
FBa6	6 (243)	85.0%	45%	730/365	129,085	24	0	0

FBb2	2 (730)	62.5%	45%	730/365	230,119	209	181	175
FBb3	3 (487)	62.5%	45%	730/365	210,446	209	32	426
FBb4	4 (365)	62.5%	45%	730/365	179,002	209	0	224
FBb5	5 (292)	62.5%	45%	730/365	158,367	172	0	53
FBb6	6 (243)	62.5%	45%	730/365	150,833	148	0	10
FBc2	2 (730)	85.0%	45%	365/182	275,028	479	565	14
FBc3	3 (487)	85.0%	45%	365/182	231,322	377	87	231
FBc4	4 (365)	85.0%	45%	365/182	194,661	151	55	168
FBc5	5 (292)	85.0%	45%	365/182	170,881	80	49	102
FBc6	6 (243)	85.0%	45%	365/182	158,864	50	24	80
FBd2	2 (730)	62.5%	45%	365/182	400,280	867	1052	73
FBd3	3 (487)	62.5%	45%	365/182	397,725	867	507	522
FBd4	4 (365)	62.5%	45%	365/182	350,016	615	537	886
FBd5	5 (292)	62.5%	45%	365/182	278,879	390	314	540
FBd6	6 (243)	62.5%	45%	365/182	255,266	282	238	470

FCa2	2 (730)	85.0%	30%	730/365	187,710	64	461	0
FCa3	3 (487)	85.0%	30%	730/365	181,301	64	286	455
FCa4	4 (365)	85.0%	30%	730/365	152,926	64	4	131
FCa5	5 (292)	85.0%	30%	730/365	144,263	48	0	58
FCa6	6 (243)	85.0%	30%	730/365	135,771	38	0	50
FCb2	2 (730)	62.5%	30%	730/365	289,900	366	251	349
FCb3	3 (487)	62.5%	30%	730/365	283,517	366	215	1173
FCb4	4 (365)	62.5%	30%	730/365	233,075	366	3	384
FCb5	5 (292)	62.5%	30%	730/365	215,885	318	0	228
FCb6	6 (243)	62.5%	30%	730/365	196,552	275	0	368
FCc2	2 (730)	85.0%	30%	365/182	460,413	743	764	1973
FCc3	3 (487)	85.0%	30%	365/182	306,941	564	488	550
FCc4	4 (365)	85.0%	30%	365/182	229,664	208	145	96
FCc5	5 (292)	85.0%	30%	365/182	207,684	106	189	130
FCc6	6 (243)	85.0%	30%	365/182	181,143	65	159	88
FCd2	2 (730)	62.5%	30%	365/182	674,854	1095	2328	5638
FCd3	3 (487)	62.5%	30%	365/182	548,250	1019	737	613
FCd4	4 (365)	62.5%	30%	365/182	430,219	888	616	1362
FCd5	5 (292)	62.5%	30%	365/182	336,705	543	527	255
FCd6	6 (243)	62.5%	30%	365/182	306,706	428	506	659