Additional File 3: Sensitivity Analysis Data

Table 1 Numerical results of sensitivity analysis, with mean lower and upper bounds of ILI case estimates. This table shows the mean shift in weeks that averts maximum cases, aggregated by age group and early or late peaking seasons under six VE and waning scenarios. Negative numbers indicate beginning vaccination sooner than historic uptake; positive numbers indicate beginning vaccination later than historic uptake. Overall, the sensitivity analysis shows that model outputs for all scenarios are robust to variation in influenza case count estimates.

Scenario	0-4 Early	0-4 Late	5-24 Early	5-24 Late	25-49 Early	25-49 Late	50-64 Early	50-64 Late
1 main	0.40	2.69	0.50	3.94	-0.32	2.36	1.04	3.64
1 lower	0.40	2.69	0.50	3.94	-0.32	2.36	1.04	3.64
1 upper	0.94	3.14	0.74	4.14	0.08	2.76	1.35	4.10
2 main	-3.12	-1.76	-3.19	-0.98	-4.23	-2.45	-2.97	-1.29
2 lower	-3.12	-1.76	-3.19	-0.98	-4.23	-2.45	-2.97	-1.29
2 upper	-2.64	-1.38	-2.82	-0.64	-3.84	-2.02	-2.63	-0.70
3 main	2.24	4.84	2.37	6.04	1.85	4.99	3.10	5.95
3 lower	2.24	4.84	2.37	6.04	1.85	4.99	3.10	5.95
3 upper	2.79	5.20	2.65	6.17	2.15	5.19	3.29	6.22
4 main	-0.96	0.74	-0.90	1.75	-1.85	0.27	-0.51	1.52
4 lower	-0.96	0.74	-0.90	1.75	-1.85	0.27	-0.51	1.52
4 upper	-0.45	1.28	-0.59	2.13	-1.45	0.79	-0.18	2.14
5 main	3.56	6.20	3.62	7.04	3.28	6.53	4.35	7.19
5 lower	3.56	6.20	3.62	7.04	3.28	6.53	4.35	7.19
5 upper	4.11	6.47	3.82	7.14	3.59	6.66	4.52	7.41
6 main	0.57	2.64	0.66	3.89	0.03	2.50	1.28	3.71
6 lower	0.57	2.64	0.66	3.89	0.03	2.50	1.28	3.71
6 upper	1.18	3.15	0.98	4.20	0.35	2.94	1.61	4.24

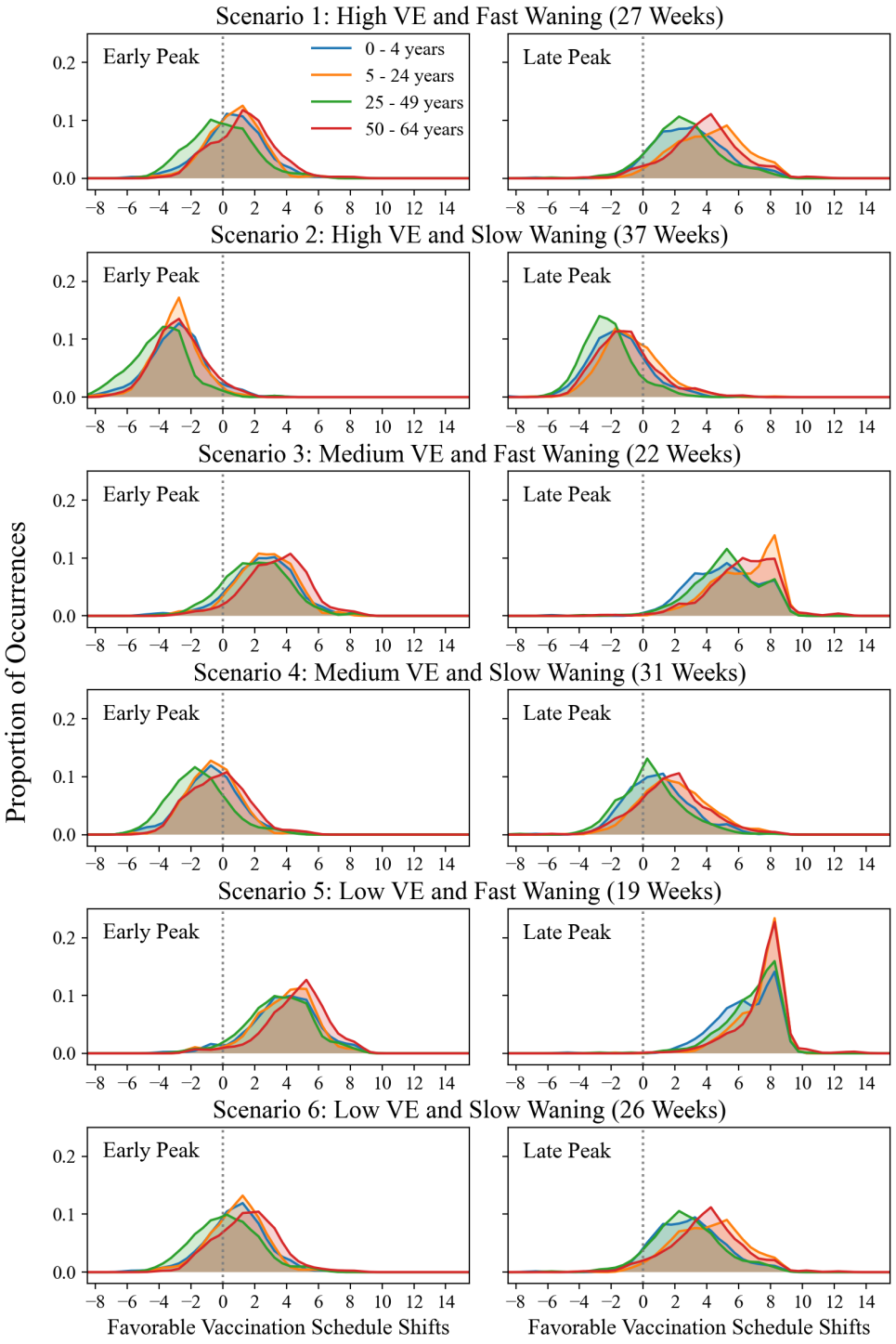

Fig. 1 Based on an underestimation of case counts for <65 age groups, distributions of favorable vaccination schedule shifts compared to historic uptake, under six different initial VE and waning scenarios. Data points are states/seasons. On the x-axes, zero indicates the starting historic vaccination uptake week for each state and season. Negative numbers indicate early vaccination in weeks; positive numbers indicate delayed vaccination in weeks. The y-axes show the percentage of occurrences of a particular schedule shift for all states and seasons in our data set. Note: the plots are smoothed using a Gaussian ($\sigma = 0.5$ weeks) for visualization purposes.

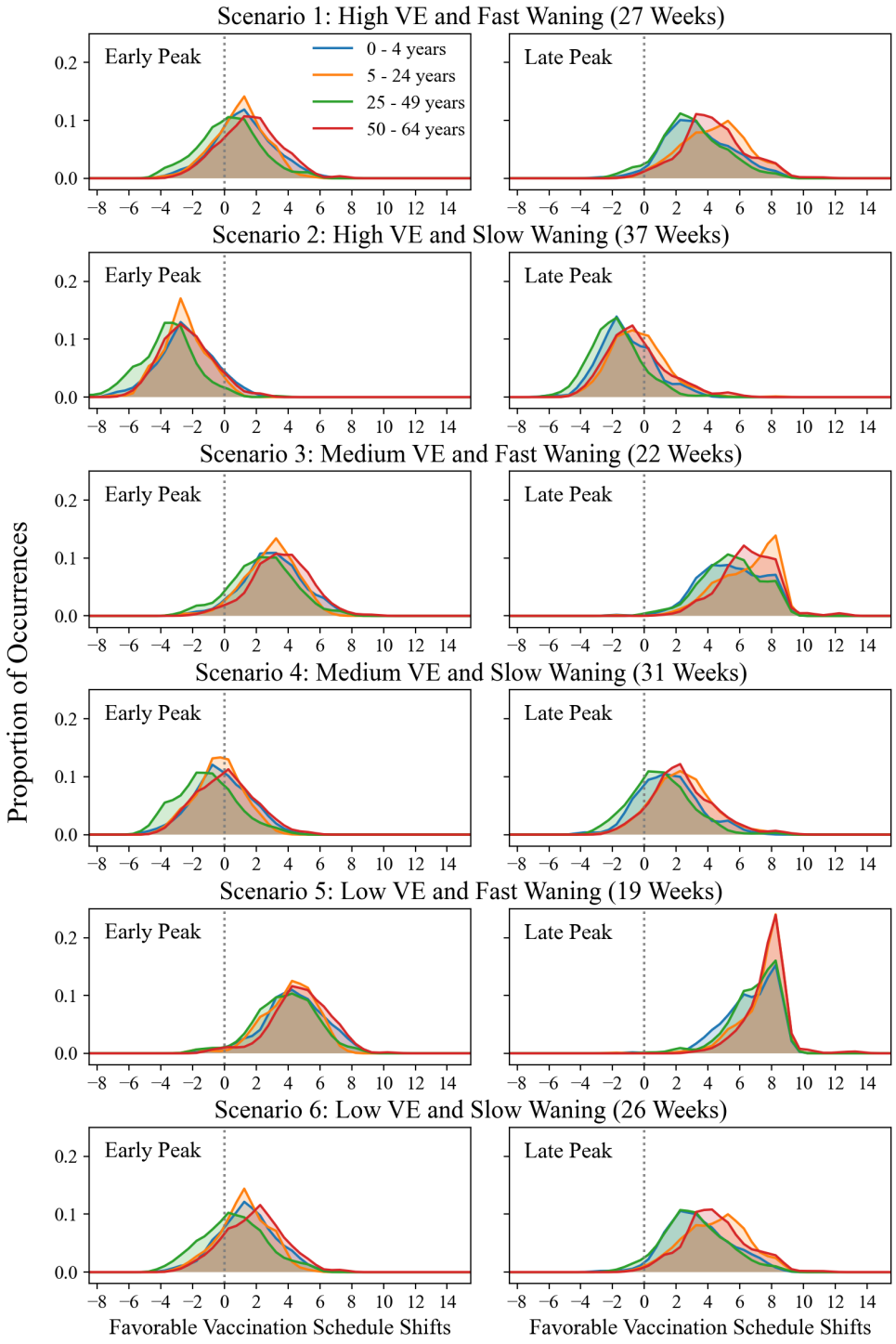

Fig. 2 Based on an overestimation of case counts for < 65 age groups, distributions of favorable vaccination schedule shifts compared to historic uptake, under six different initial VE and waning scenarios. Data points are states/seasons. On the x-axes, zero indicates the starting historic vaccination uptake week for each state and season. Negative numbers indicate early vaccination in weeks; positive numbers indicate delayed vaccination in weeks. The y-axes show the percentage of occurrences of a particular schedule shift for all states and seasons in our data set. Note: the plots are smoothed using a Gaussian ($\sigma = 0.5$ weeks) for visualization purposes.