

**Table S2** Model-estimated monthly peak timing and seasonal strength of 15 respiratory viruses in the pediatric cohort

| Virus    | Peak month (model) | Seasonal strength (Amplitude, logit) | P value |
|----------|--------------------|--------------------------------------|---------|
| Inf-A    | 2                  | 1.84                                 | <0.001  |
| Inf-B    | 3                  | 3.12                                 | <0.001  |
| RSV-A    | 11                 | 1.84                                 | <0.001  |
| RSV-B    | 12                 | 1.82                                 | <0.001  |
| HMPV     | 4                  | 1.49                                 | <0.001  |
| HPIV-1   | 8                  | 0.67                                 | <0.001  |
| HPIV-2   | 9                  | 0.94                                 | <0.001  |
| HPIV-3   | 5                  | 1.62                                 | <0.001  |
| HRV      | 9                  | 0.55                                 | <0.001  |
| Cov 229E | 1                  | 1.26                                 | <0.001  |
| OC 43    | 1                  | 0.94                                 | <0.001  |
| Adeno    | 6                  | 0.27                                 | <0.001  |
| EV       | 8                  | 0.77                                 | <0.001  |
| NL63     | 2                  | 1.82                                 | <0.001  |
| HBoV     | 5                  | 0.98                                 | <0.001  |

This table summarizes the estimated monthly peak timing and seasonal strength for 15 respiratory viruses based on month-aggregated surveillance data. Peak month (model) indicates the month at which the fitted seasonal curve attains its maximum. Seasonal strength (amplitude, logit) represents the magnitude of seasonal fluctuation on the logit scale, with larger values indicating more pronounced seasonality. Model-estimated peak months may not always match the observed monthly maxima reported in the main text/Table 3 because the fitted harmonic curve summarizes the overall seasonal pattern and may shift the peak toward a neighboring month or the center of a broad seasonal plateau.

**Abbreviations:** Inf = influenza virus; RSV = respiratory syncytial virus; HMPV = human metapneumovirus; HPIV = human parainfluenza virus; HRV = human rhinovirus; HCoV = human coronavirus; Adeno = adenovirus; HBoV = human bocavirus; EV = enterovirus.

For viruses with limited assay panel coverage, era-specific denominators have been applied: HCoV-NL63 and human bocavirus (HBoV) from 2015 to 2023 (N = 6552), and enterovirus (EV) from 2018 to 2023 (N = 2355). HCoV includes the subtypes OC43, 229E, and NL63.