**Table S1. Composition of the comparator cohort of children hospitalized with respiratory viral infections in 2025 (N = 93).**

| Primary viral diagnosis | n | % |
|---|---|---|
| Influenza A(H1N1)pdm09 | 30 | 32.3 |
| Influenza A(H3N2) | 24 | 25.8 |
| Influenza B | 11 | 11.8 |
| Bocavirus | 11 | 11.8 |
| Human metapneumovirus | 10 | 10.8 |
| Other influenza A (non-subtyped/other)[1] | 4 | 4.3 |
| Respiratory syncytial virus | 1 | 1.1 |
| Rhinovirus | 1 | 1.1 |
| Enterovirus | 1 | 1.1 |
| Total | 93 | 100.0 |

Additional virological findings

| Variable | n/N (%) |
|---|---|
| Patients with ≥1 additional respiratory virus confirmed by PCR on a respiratory specimen* | 10/93 (10.8) |

Footnotes.

[1] Includes influenza A cases reported as non-subtyped or low viral load.

The primary virological diagnosis was used for cohort classification. *Ten patients had an additional respiratory virus detected by documented PCR testing of a respiratory specimen. Six additional patients had a respiratory virus recorded without complete diagnostic details, and one patient had clinician-confirmed metapneumovirus/rhinovirus coinfection. These seven cases were not included in the PCR-confirmed subgroup. The reported proportion does not represent the overall prevalence of respiratory viral coinfections.

**Table S2. Sensitivity analysis of factors associated with antibiotic prescribing among children hospitalized with adenovirus infection in 2024–2025.**

| Predictor | Any antibiotic therapy, adjusted OR (95% CI) | p value | Parenteral antibiotic therapy, adjusted OR (95% CI) | p value |
|---|---|---|---|---|
| **$log_2$(CRP + 1), per one-unit increase** | **1.53 (1.08–2.16)** | **0.017** | **1.50 (1.07–2.11)** | **0.019** |
| **Age, per year** | **0.93 (0.78–1.11)** | **0.435** | **0.94 (0.79–1.12)** | 0.495 |
| **Male sex** | **0.81 (0.32–2.06)** | **0.657** | **0.80 (0.33–1.95)** | 0.623 |
| **Admission year, 2025 vs 2024** | **0.32 (0.12–0.83)** | **0.019** | **0.56 (0.23–1.35)** | 0.195 |

**Model characteristics**

| Characteristic | Any antibiotic therapy | Parenteral antibiotic therapy |
|---|---|---|
| **Patients analyzed, n** | **98** | **98** |
| **Outcome events, n** | **57** | **48** |
| **Area under the ROC curve** | **0.710** | **0.674** |
| **Brier score** | **0.213** | **0.227** |

**Footnote.**

Adjusted odds ratios were estimated using multivariable logistic regression restricted to children with laboratory-confirmed adenovirus infection. Models included $log_2$-transformed C-reactive protein concentration, age, sex, and admission year. CRP was transformed as $log_2$(CRP + 1); therefore, the reported odds ratio represents the change in odds associated with a doubling of CRP + 1, which approximates a doubling of CRP concentration at higher values. Age was expressed per one-year increase. The primary complete-case analysis included only numeric CRP measurements; values reported as below the detection limit (<4 mg/L) and missing values were excluded. Exploratory substitution of the seven CRP results reported as <4 mg/L with assumed 2 or 4 mg/L yielded n = 105, with adjusted CRP odds ratios of 1.81 (95% CI 1.33–2.46) and 1.83 (1.33–2.52), respectively, for any antibiotic therapy; corresponding estimates for parenteral antibiotic therapy were 1.69 (1.25–2.29) and 1.71 (1.25–2.34). These substitutions are sensitivity scenarios rather than actual laboratory measurements.

**Table S3. Availability of study variables used in the primary analyses.**

| Variable | Overall adenovirus cohort (N = 111) Available n (%) | 2025 viral cohort (N = 153) Available n (%) |
|---|---|---|
| **Age** | **111 (100.0)** | **152 (99.3)** |
| **Sex** | **111 (100.0)** | **152 (99.3)** |
| **White blood cell count** | **111 (100.0)** | **150 (98.0)** |
| **Absolute neutrophil count** | **111 (100.0)** | **150 (98.0)** |
| **C-reactive protein** | **105 (94.6)*** | **150 (98.0)†** |
| **Any antibiotic therapy** | **111 (100.0)** | **151 (98.7)** |
| **Parenteral antibiotic therapy** | **111 (100.0)** | **151 (98.7)** |
| **Length of hospital stay** | **111 (100.0)** | **149 (97.4)** |
| **Oxygen therapy** | **111 (100.0)** | **153 (100.0)** |
| **PICU admission** | **111 (100.0)** | **153 (100.0)** |
| **Additional recorded clinical conditions** | **111 (100.0)** | **153 (100.0)** |

**Footnotes.**

*In the overall adenovirus cohort, CRP measurements were available for 105 of 111 children: 98 had exact numeric values and seven had results reported as <4 mg/L without an exact concentration. The latter were included in the count of available measurements but excluded from analyses requiring exact numeric CRP values, except for the specified sensitivity analyses. Six CRP measurements were missing.

† Three children in the comparator cohort had missing laboratory measurements (white blood cell count, absolute neutrophil count and C-reactive protein).

**Table S4. Unadjusted differences between the 2025 adenovirus and other respiratory viral infection cohorts, with 95% confidence intervals.**

| Variable | N (AdV / other) | Difference | 95% CI | Effect measure |
|---|---|---|---|---|
| **Continuous variables** | | | | |
| **C-reactive protein, mg/L** | 60 / 90 | +56.8 | +39.1 to +74.2 | Difference in medians |
| **White blood cell count, cells/μL** | 60 / 90 | +3,550 | +1,550 to +5,550 | Difference in medians |
| **Absolute neutrophil count, cells/μL** | 60 / 90 | +1,900 | +20 to +3,500 | Difference in medians |
| **Length of hospital stay, days** | 60 / 89 | −1 | −2 to 0 | Difference in medians |
| **Categorical variables** | | | | |
| **Any antibiotic therapy** | 60 / 91 | −3.3 | −19.1 to +12.7 | Percentage points |
| **Parenteral antibiotic therapy** | 60 / 91 | +7.1 | −8.5 to +22.6 | Percentage points |
| **Oxygen therapy** | 60 / 93 | −14.8 | −25.1 to −3.2 | Percentage points |
| **PICU admission** | 60 / 93 | −4.3 | −10.5 to +2.3 | Percentage points |
| **Additional recorded clinical conditions** | 60 / 93 | −30.2 | −44.0 to −14.1 | Percentage points |

**Note.** Differences were calculated as adenovirus minus other respiratory viral infections. For proportions, differences and 95% confidence intervals were calculated using the Newcombe method based on Wilson score intervals. For continuous variables, differences between sample medians and their percentile-bootstrap 95% confidence intervals were estimated using 20,000 independent resamples within each cohort (NumPy random seed 20261009). Estimates are exploratory and unadjusted. Denominators are the numbers with available observations for the corresponding variable. Additional recorded clinical conditions were not ascertained using standardized criteria and their difference is descriptive only. PICU and oxygen outcomes use the database conventions adopted in Table 4.