Absences, symptoms and respiratory viruses in a Swiss school: Longitudinal study with serial saliva sampling

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Abstract

Background: Viral respiratory infections contribute to sick days in school children. We monitored respiratory infections, absences, and symptoms in a Swiss school. **Methods:** Serial saliva sampling (three per week) and daily recording of absences and symptoms over six weeks during the winter of 2023/24 in four Swiss school classes (age 14–15). **Results:** We analyzed 1,047 samples of 67/84 (80%) participants, identifying 87 infections across eight viruses: 28 (32%) human rhinovirus, 18 (21%) influenza A/B, 11 (13%) respiratory syncytial virus, and 14 (16%) human coronaviruses, 6 (7%) parainfluenza virus, and 5 (6%) influenza B: SARS-CoV-2 was not detected. Spatiotemporal trends revealed seasonal epidemic trends and evidence of transmission within classes. Viral loads (interquartile range 29.5–36.9 Ct) and duration of detection (modeled range 3.2–5.3 days) were similar for all viruses. School absences were more likely for Influenza B than for other viruses (>99% vs. 38%, p=0.005), and absences tended to be longer (average 4.2 vs. 2.2 days). Symptoms varied depending on the pathogen detected, with human rhinovirus and parainfluenza virus infections commonly presenting with runny nose and sore throat, while influenza infections were often associated with fever. **Conclusions:** Class-specific distribution patterns suggest a major contribution of within-class to overall respiratory virus transmission. Respiratory viruses showed distinct profiles regarding school absences and symptoms. This highlights the importance of infection control measures, including vaccination, and virus-specific monitoring to better understand transmission dynamics in schools.

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