

Risk Factors for Infection with Influenza A(H3N2) virus on a US University Campus, October–November 2021

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Abstract

Background: Knowledge of the specific dynamics of influenza introduction and spread in university settings is limited. Methods: Persons with acute respiratory illness symptoms received influenza testing by molecular assay during October 6–November 23, 2022. Viral sequencing and phylogenetic analysis were conducted on nasal swab samples from case-patients. Case-control analysis of a voluntary survey of persons tested was used to identify factors associated with influenza; logistic regression was conducted to calculate odds ratios and 95% CIs. A subset of case-patients tested during the first month of the outbreak was interviewed to identify sources of introduction and early spread. Results: Among 3,268 persons tested, 788 (24.1%) tested positive for influenza; 744 (22.8%) were included in the survey analysis. All 380 sequenced specimens were influenza A (H3N2) virus clade 3C.2a1b.2a.2, suggesting rapid transmission. Influenza (OR [95% CI]) was associated with indoor congregate dining (1.43 [1.002–2.03]), attending large gatherings indoors (1.83 [1.26–2.66]) or outdoors (2.33 [1.64–3.31]), and varied by residence type (apartment with [?]1 roommate: 2.93 [1.21–7.11], residence hall room alone: 4.18 [1.31–13.31], or with roommate: 6.09 [2.46–15.06], or fraternity/sorority house: 15.13 [4.30–53.21], all compared with single-dwelling apartment). Odds of influenza were lower among persons who left campus for [?]1 day during the week before their influenza test (0.49 [0.32–0.75]). Almost all early cases reported attending large events. Conclusions: Congregate living and activity settings on university campuses can lead to rapid spread of influenza following introduction. Isolating following a positive influenza test or administering antiviral medications to exposed persons may help mitigate outbreaks.

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