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Title

Assessment and comparison of the ILI case definition in clinical and school-based community settings: ORCHARDS/IISP

Priority 1 (Research Category)

Acute respiratory infections

Presenters

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Abstract

Context: Influenza-like illness (ILI) is commonly used in clinical and public health settings to identify influenza cases. CDC defines ILI as fever and either cough or sore throat, with symptom onset within 7 days. Objective: Assess performance of ILI criteria in two settings (clinical and community), comparing symptom profiles and laboratory detection of influenza in children. Study Design and Analysis: Retrospective analyses of data from medically attended influenza (MAI) surveillance and a community-based study. Datasets were analyzed separately to assess predictors of influenza cases. Analyses were limited to specimens collected within 7 days of symptom onset. Relationships between influenza and each categorical variable were described by the confusion matrix, sensitivity, and specificity. Associations were tested using chi-square tests. Unadjusted and adjusted logistic regression models were used for all variables with RT-PCR result as the outcome. Setting or Dataset: The OREGON CHILD Absenteeism due to Respiratory Disease Study (ORCHARDS) is a respiratory infection study based in the Oregon School District (Dane County, WI). The Wisconsin Influenza Incidence Surveillance Project (IISP) is a MAI surveillance system operating in five family medicine clinics in Dane County. Population Studied: Children aged 4—18 years with acute respiratory infections. Intervention/Instrument: Oropharyngeal specimens, collected by research staff (ORCHARDS) or clinicians (IISP), were tested for influenza via RT-PCR and for multiple respiratory viruses at the Wisconsin State Laboratory of Hygiene. Extensive demographic and symptoms data were collected from all participants. Outcome Measures: Influenza(+)PCR. Results: From 9/7/2010—3/12/2020, 1,338 and 2,359 specimens meeting inclusion criteria were collected for IISP and ORCHARDS, respectively. Cough, fever, and ILI classification were significantly associated with influenza (sensitivity $\geq 92.8\%$, $\geq 85.9\%$, and $\geq 84.5\%$, respectively). Receiver operator curve analysis confirmed ILI had high predictive ability in both settings, improved by the inclusion of seasonality and influenza vaccination status (IISP: 0.61 vs 0.76, ORCHARDS: 0.68 vs 0.78). Conclusions: ILI performed well in both clinical and community contexts. Factors most highly associated with increased odds of RT-PCR(+) results were cough, fever, and ILI. Inclusion of seasonality and influenza vaccination status improved the predictive value of ILI in both datasets.

