Conclusion. Granger causality tests are commonly used in economic modeling but have not been routinely applied to infectious diseases. Using this test, we found a strong correlation between weekly cases of hospitalized influenza and iGAS septic shock or pneumonia. This approach can provide insight into the potential impact of developing prevention interventions for infections with strong correlation. Further exploration of Granger tests in infectious disease modeling should be considered.

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686. Use of an Influenza-Like Illness School Absenteeism Monitoring System to Identify Seasonal Influenza Outbreaks in the Community: ORCHARDS

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Background. Schools are purported to be primary venues of influenza transmission and amplification with secondary spread to communities. We assessed K–12 student absenteeism monitoring as a means for early detection of influenza activity in the community.

Methods. We conducted a 3-year, prospective observational study of all-cases (a-TOT), illness-associated (a-I), and influenza-like illness-associated (a-ILI) absenteeism within the Oregon School District, Oregon, WI (OSD; enrollment = 3,900 students). Absenteeism reporting was facilitated by automated processes within OSD's electronic student information system. Students were screened for ILI and, if eligible, visited at home, where pharyngeal specimens were collected for influenza RT-PCR (IVD CDC Human Influenza Virus RT-PCR Diagnostic Panel) and multipathogen testing (Luminex NxTAG RPP). The study definition of a-ILI was validated for 700 children with acute respiratory infections using binomial logistic regression. Surveillance of medically attended laboratory-confirmed influenza (MAI) occurred in five primary care clinics in and adjoining OSD as part of Wisconsin Influenza Surveillance Project using the same laboratory testing. Poison general additive log linear regression models of daily counts of absenteeism and MAI were compared using correlation analysis.

Results. Influenza A and B were detected in 54 and 51 of the 700 visited students, respectively. Influenza A was significantly associated with a-ILI status (OR = 4.74; 95% CI: 2.78–8.18; P < 0.001). Of MAI patients, 371 had influenza A and 143 had influenza B, a 1 was significantly correlated with MAI in the community (r = 0.472; P < 0.001) with a 15-day lead time. a-ILI was significantly correlated with MAI in the community (r = 0.480; P < 0.001) with a 1-day lead time. a-TOT performed poorly (r = 0.278; P < 0.001), following MAI by 9 days (Figure 1).

Conclusion. Surveillance using case-specific absenteeism was feasible to implement in OSD and performed well over a 3-year period marked by diverse presentations of seasonal influenza. Monitoring a 1 and a-ILI can detect influenza outbreaks in the community, providing early warning in time for community mitigation efforts for seasonal and pandemic influenza.

Figure 1. Poison general additive log linear regression models of daily counts of medically attended influenza-like illness in the community (MAI; top row), absenteeism due to influenza-like illness (a-ILI; 3rd row), absenteeism due to illness (a-TOT; 2nd row), and absenteeism due to illness in kindergarten through 4th grade (a-K4; 4th row), and total absenteeism (a-TOT; bottom row); in a school of absenteeism to detect seasonal influenza outbreaks—Wisconsin, September 2014–June 2017.

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687. Modeling the Impact of Introduction of Influenza Vaccination on ILI Cumulative Case Count in Cameroon

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Background. Influenza illness can range from mild to severe, with serious outcomes occurring in children and the elderly. Flu has been studied extensively in geographies where vaccine is often plentiful. The burden of influenza is not well known in tropical regions where vaccine coverage is scant. Our study examines the impact of flu surveillance in Cameroon using RT-PCR influenza screening. Analysis was performed in Berkeley Madonna. We developed ordinary differential equations (ODE) under the SEIR compartmental model and calculated R0. We estimated the proportion of cases the clinics observed to make inferences to the catchment population of these health facilities. We developed another set of ODEs to introduce vaccination using a pulse function with a 50% efficacy and 45% vaccination coverage.

Conclusion. We observed vaccination at 45% coverage (US average). Cameroon would likely achieve reduced coverage. Therefore, we examined introducing vaccination with 10% coverage, and observed that flu cases were cut by over one third.

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688. Impact of Expanded Influenza Post-exposure Prophylaxis on Healthcare Worker Absenteeism at a Tertiary Care Center During the 2017–2018 Season

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Background. A severe 2017–2018 influenza season was expected for the United States. We hypothesized that a surge in influenza cases paired with decreased vaccine effectiveness could increase healthcare worker (HCW) absenteeism. Because of a potential public health emergency during the 2017–2018 season, we offered oseltamivir post-exposure prophylaxis (PEP) to exposed HCWs regardless of vaccination status. We describe PEP uptake, cost, and impact on absenteeism at the University of Iowa Hospitals and Clinics, Iowa City, Iowa.

Methods. This study demonstrates that introducing vaccination in Cameroon clinics would reduce influenza cases substantially even with only a small proportion of the population vaccinated. Flu vaccination campaigns should be strongly considered as they can reduce case count which may reduce the likelihood of transmitting flu to those who are at risk for severe outcomes.

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689. Narcolepsy During the 2009–2010 H1N1 Pandemic

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