Reviewer’s report

Title: Extreme Precipitation and Emergency Room Visits for Influenza in Massachusetts: A Case-Crossover Analysis

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Reviewer: Christopher Uejio

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Extreme Precipitation Emergency Room Visits Influenza Mass, Case-crossover Analysis

In tropical regions, precipitation, temperature, and humidity are systematically related to the timing and number of influenza cases. The study authors wonder if a similar relationship could be found in a more temperate climate. The study uses a high quality data set of classified influenza emergency room visits over 2002-2008 in Boston, MA. The statistical analysis was conducted through a standard case-crossover approach. Extreme precipitation events in the preceding week increased the odds of recording a severe influenza case. The authors subsequently discuss potential mechanisms for this association such as overcrowding and virus survival outside of a host. The manuscript is relatively well written.

Major Comment

* The study neglects the larger literature on specific humidity and influenza transmission. The study should also reference transmission mechanisms related to specific humidity. Previous studies have shown that seasonal influenza activity in the tropics is associated with high levels of specific humidity (Tamerius et al. 2013a; Soebiyanto et al. 2014; Soebiyanto et al. 2015; Thai et al. 2015). Although there is mixed evidence, some studies found a positive relationship between specific humidity and influenza virus survival outside of a host and transmission risk.

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