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Olusegun Michael Otunuga* (otunuga@marshall.edu), Department of Mathematics, Marshall University, One John Marshall Drive, Huntington, WV 25755. *Parameter Identification For The SEIRS Epidemic Model: Case Study Influenza*. Preliminary report.

A stochastic system of differential equations for disease spread is developed. The stochasticity appears due to fluctuations in the transmission rate of the disease. The local lagged adapted generalized method of moments (LLGMM) is explained and used to identify the time-dependent transmission rate and time-dependent noise for the stochastic susceptible, exposed, infectious, temporarily immune, susceptible disease model (SEIRS) with vital rates. The method is applied to US influenza data from the 2005-2006 through 2015-2016 influenza seasons. Confidence intervals are given for possible future infectious levels. (Received September 13, 2016)