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**Ben R. Morin, Eli Fenichel and Carlos Castillo-Chavez\*** (ccchavez@asu.edu), MCMSC, Arizona State University, PO Box 871904, Tempe, AZ 85287-1904. *Disease Dynamics with Behavioral Driven Contact Transmission Rates.*

The recent influenza pandemic (A/H1N1, 2009) brought back the importance that human decisions (behavior) play on the day-to-day interactions of individuals in a community. Social contacts are formulated macroscopically within a susceptible-infectious-recovered or SIR epidemiological framework via state-dependent non-linear incidence rates. We apply unpublished theoretical results by S.P. Blythe, the late K. Cooke and Castillo-Chavez (SB-KC-CC) to the study of the impact of individuals' adaptive responses to epidemics that take into account epidemiological and economic factors. The resulting generalized SIR framework supports multiple equilibria and oscillatory epidemiological dynamics (as noted by SB-KC-CC) and its analysis facilitates the study of disease dynamics as a complex adaptive system. We dedicate this talk and the manuscript submitted to NRM to Kenneth Cooke who passed away on August 25, 2007 at the age of 82. (Received September 24, 2012)