1135-92-73   **Allison R Torsey*** (`allison.torsey@gmail.com`) and **Saziye Bayram** (`bayrams@buffalostate.edu`). *A Stochastic SIRI Model of Opioid Abuse.*

A opioid epidemic has overtaken the United States in recent years. In 2015, there were 238 opioid overdoses in Erie County, NY alone. Previously, infectious disease models, specifically SIR models, have been modified to apply to drug use. We've developed a stochastic SIRI model to study the behavior of opioid abuse in Erie County, New York. This would be the first SIRI model studying opioids to be applied to a region. We analyzed simulation results, obtained from MATLab, to predict how the system would progress over the course of a year. This estimation of a stochastic SIRI model might be used to predict the usage and spread of multiple illicit drugs. As well as it might influence legislative decisions on the most effective actions to stop the outbreak in not only Erie County but around the United States. (Received July 19, 2017)