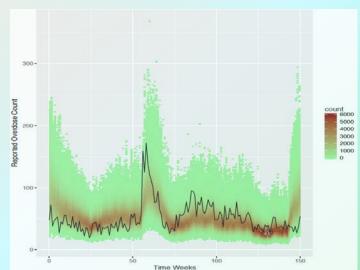
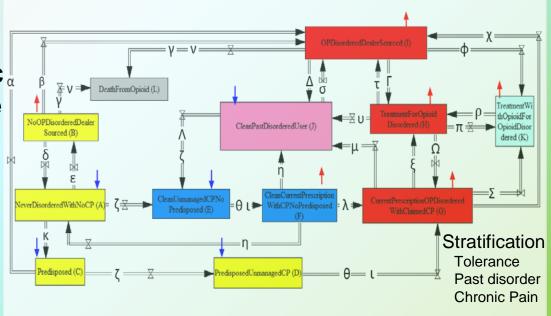
## Elements and Future Evolution of Opioid Abuse using Dynamic Modeling, Big Data and Particle Markov Chain Monte Carlo

Li, X.<sup>1</sup>, Keeler, B.<sup>1</sup>, Zahan, R., Duan, L.<sup>1</sup>, Safarishahrbijari, A.<sup>1</sup>, Gortzen, J.<sup>1</sup>, Tian, Y.<sup>1</sup>, Liu, J.<sup>2</sup> & Osgood, N. D.<sup>1</sup>





Uses ML (PMCMC), diverse data streams & dynamic modeling to

- Remain current with fast-changing epidemic
- ✓ Probabilistically estimate poorly measured areas of system
- ✓ Anticipate coming trends
- ✓ Evaluate intervention tradeoffs

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