An Overdose Prevention Site (OPS) is a well-lit hygienic space where people can inject illicit drugs under medical supervision. OPSs also provide advice to clients about injection-related harms and how to avoid them, provide clean injecting supplies, provide linkages to medical and social services, and reverse overdoses that occur on site. As Philadelphia prepares to launch the first comprehensive overdose prevention site (OPS) in the nation, the Penn Injury Science Center has joined forces with local organizers and community stakeholders to help find the most suitable location for the first OPS. In this talk, we describe our part in these efforts. We are building an agent-based model that will incorporate usage, overdose, and demographic data from Philadelphia to help determine best placement of OPSs. We will also utilize the model to predict reduction in overdose deaths, disease spread, public usage, needle litter, and various other outcome measures in the particular areas around where the OPSs could be located. (Received September 17, 2019)