

Questions trying to answer

Heroin Model:

The motivation for this model is to investigate ways to reduce opioid addiction and heroin use. The opioid crisis was declared a public health emergency in October 2017, and there has been an increase in deaths from heroin use (e.g. CDC data), so these problems are very prominent in today's society. Since doctors treat pain through writing prescriptions liberally, we want to look into how to optimally treat pain while keeping the risk of addiction lower than it's current state.

The purpose of formulating a separate model (different from the opioid-only model) is to be able to understand the dynamics between opioid use/abuse either through prescriptions or via the black market, and heroin use.

Later: gender differences/other questions may arise?

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Harvesting Model:

This model was created to determine the optimal harvesting strategy for African Mahogany trees in order to maximize the profit of goods harvested from the trees. This strategy will include both lethal and nonlethal harvesting of adults and only nonlethal harvesting of juveniles.