

# Is academic detailing on naloxone distribution for patients at risk for an opioid overdose good value for money? Application of a probabilistic sensitivity analysis in a cost-effectiveness framework.

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## INTRODUCTION

Opioid overdose is a major source of mortality in the United States with over 77,000 deaths in June 2022.[1]

Although distribution of naloxone is an effective harm reduction therapy that reduces overdose death rates, the awareness of the option to prescribe naloxone remains low.[2]

Academic detailing has been reported to enhance naloxone distribution among those who were at risk; however, there has been no value assessment of academic detailing in this clinical scenario.[3]

We performed a value assessment of academic detailing program on distributing naloxone to adults at risk of heroin overdose compared to no intervention using the cost-effectiveness framework

## OBJECTIVES

To evaluate the cost-effectiveness of academic detailing outreach on naloxone prescribing among patients at-risk for an opioid-related overdose or death.

## METHODS

A decision tree with an integrated Markov model was constructed to evaluate the cost-effectiveness of AD on naloxone distribution from the payer perspective. A previous model was modified for use with an academic detailing setting.[4]

A hypothetical cohort of 21-year-old opioid users was simulated to interact with either a provider who received a naloxone-related academic detailing (AD) visit or a similar cohort who did not receive AD across a lifetime horizon.

Monte Carlo probabilistic sensitivity analysis with 1000 iterations was performed to account for parameter uncertainties.

Total direct costs and quality-adjusted life years (QALYs) were estimated along with the incremental cost-effectiveness ratio (ICER).

The willingness to pay (WTP) threshold was set at \$50,000 per QALY gained (if the ICER is less than the WTP, then the strategy is considered cost-effective).

Scenario analyses were performed by changing the mortality rate from the base case of 5.5% per year.

All analyses were done using R (version 4.2.1)[5]

## REFERENCES

1. National Center for Health Statistics. Vital Statistics Rapid Release - Provisional Drug Overdose Data. Published November 10, 2022. Accessed November 22, 2022. <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm>
2. Int J Drug Policy. 2018 Apr;54:9-17.
3. Health Serv Res. 2019 Oct;54(5):1055-1064.
4. Ann Intern Med. 2013;158(1):1-9.
5. R Core Team, 2016. R: A Language and Environment for Statistical Computing, Vienna, Austria. Available at: <https://www.R-project.org/>.

## RESULTS

Figure 1. Decision tree model of academic detailing on overdose death feeds into the Markov model of opioid use, overdose discontinuation and death.

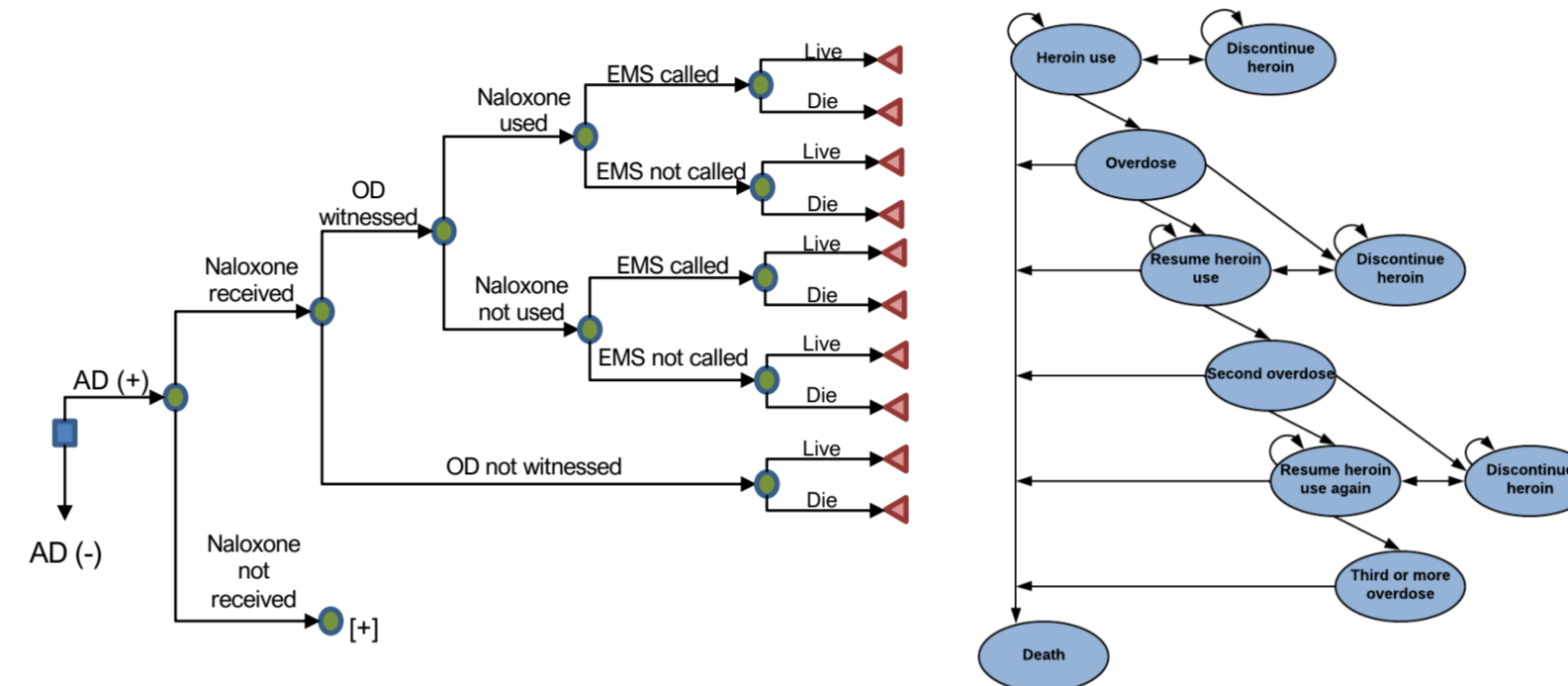
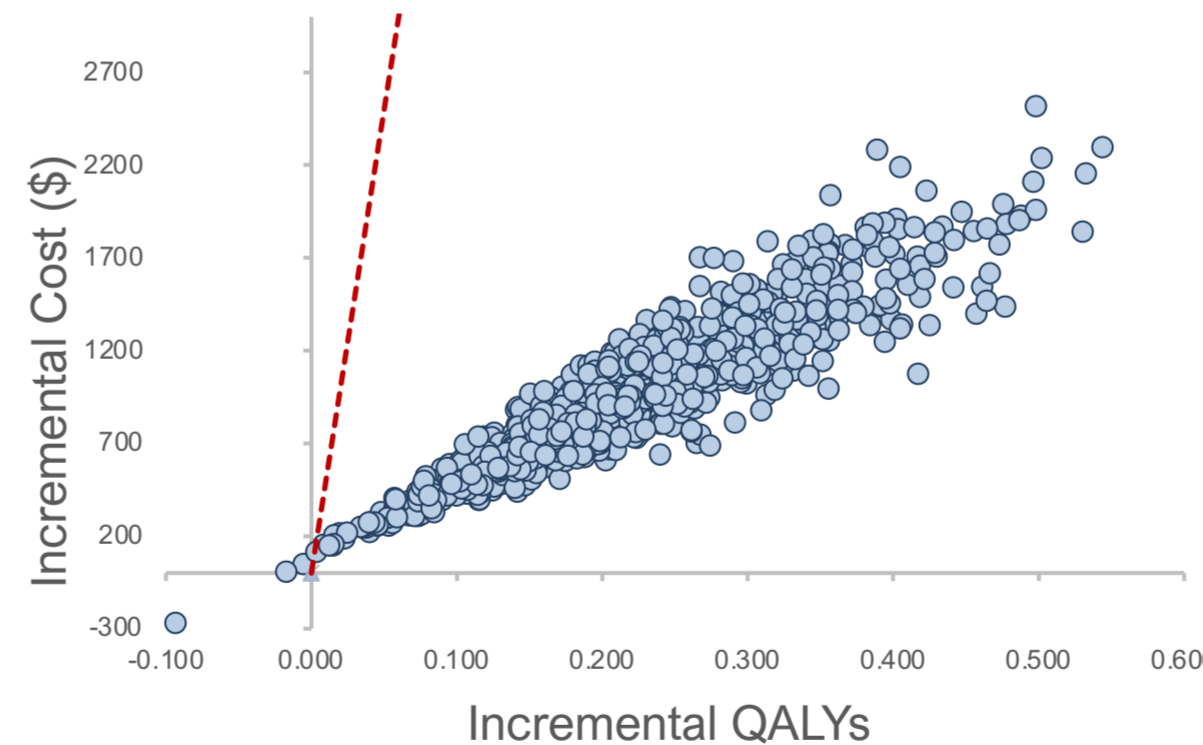


Figure 2. Probabilistic sensitivity analysis results comparing academic detailing to no academic detailing. The red dashed line represents the WTP (\$50,000 per QALY gained).



Out of 1000 Monte Carlo simulations, 993 fell into the Northeast quadrants.

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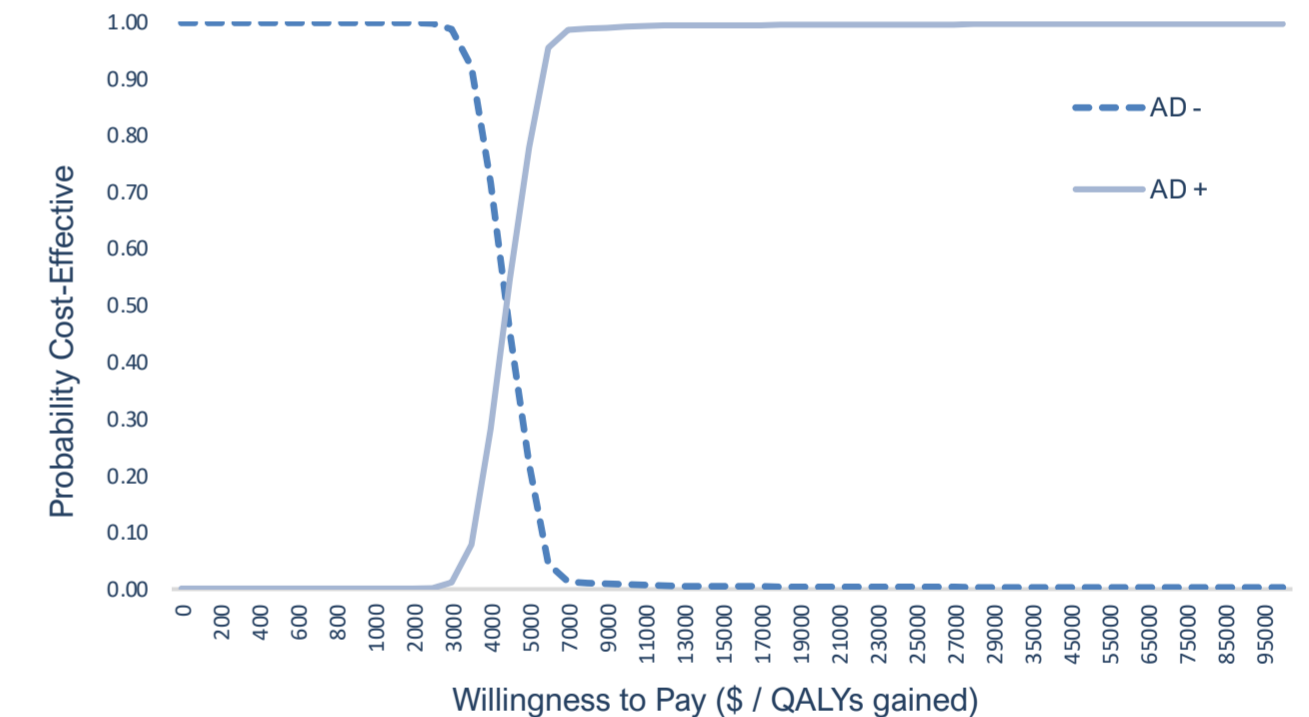
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Table 2. Base-case results of the cost-effectiveness analysis.

Treatment Strategy	Total Costs	Total QALYs	Incremental Costs	Incremental QALYs	ICER
AD (+)	\$35,167	8.39	\$2842	0.25	\$6700 per QALY gained
AD (-)	\$34,228	8.17			

The ICER is below the WTP threshold, which indicates that academic detailing is a cost-effective strategy compared to no-academic detailing.

Figure 3. Cost-Effectiveness Acceptability Curve comparing academic detailing to non-academic detailing.



## DISCUSSION

In the base-case, implementing an academic detailing program is a cost-effective therapy compared to not implementing an academic detailing program.

The low cost of academic detailing along with increased health benefits makes academic detailing a viable part of the overall strategy to address the opioid epidemic.

Academic detailing, by convention, has been an in-person outreach; however, virtual modalities may alter its effectiveness and should be explored.

## CONCLUSIONS

Academic detailing is a cost-effective method for improving survival in patients at risk of opioid-related overdose.

Decision makers interested in addressing the opioid epidemic may find that implementing an academic detailing program would be cost-effective at a WTP threshold of \$50,000 per QALY gained.