



HSV Serotyping in Pregnant Women With a History of Genital Herpes

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Background

- Genital herpes is estimated to affect more than 1 in 5 women in the United states and can be transmitted to newborns during delivery
- Neonatal HSV infection is associated with high morbidity and mortality
- Without serology testing, recurrent genital herpes outbreaks are indistinguishable from first-episode non-primary outbreaks, which hold a much higher risk of transmission during delivery
- Women with genital herpes outbreaks and a history of genital herpes are managed according to guidelines for recurrent HSV infection, which recommend waiting to treat neonates until neonatal HSV test results are obtained

Objective

To estimate the cost-effectiveness of obtaining an HSV serotype analysis in women with an HSV outbreak during the third trimester of pregnancy who have a history of genital herpes.

Materials & Methods

- A cost-effectiveness model was built using TreeAge software to compare an approach of routine serotyping with no serotyping in women with an HSV outbreak in the third trimester of pregnancy and a history of genital herpes.
- Outcomes included mild neonatal HSV infection, moderate neonatal HSV infection, severe neonatal HSV infection, neonatal death, cost and quality-adjusted life years (QALYs) for both the woman and neonate.
- Probabilities, utilities, and costs were derived form the literature
- A cost-effectiveness threshold was set at \$100,000 per QALY
- Tornado Analysis was performed, and Monte Carlo simulation was performed with 10,000 trials

Results

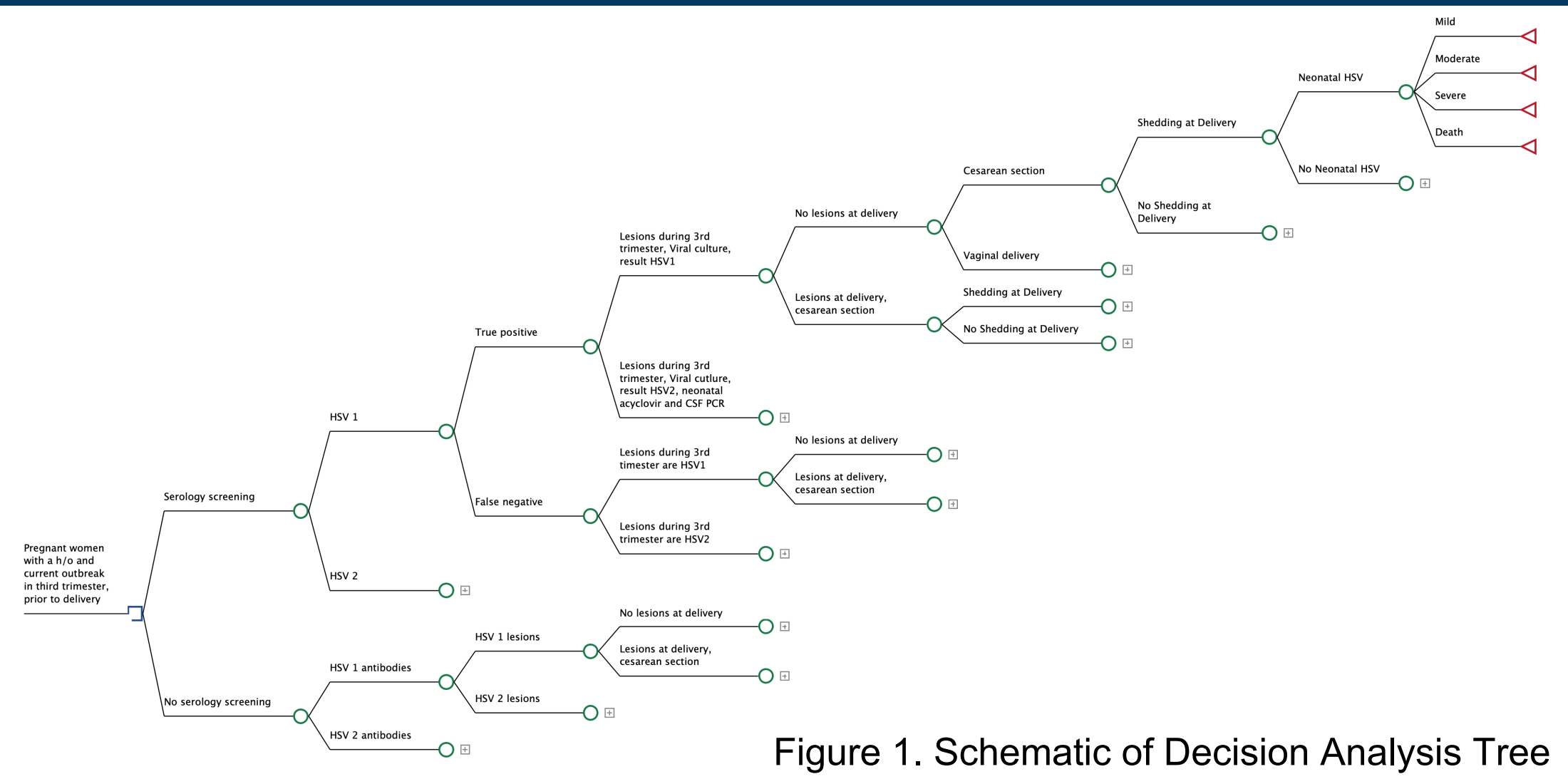
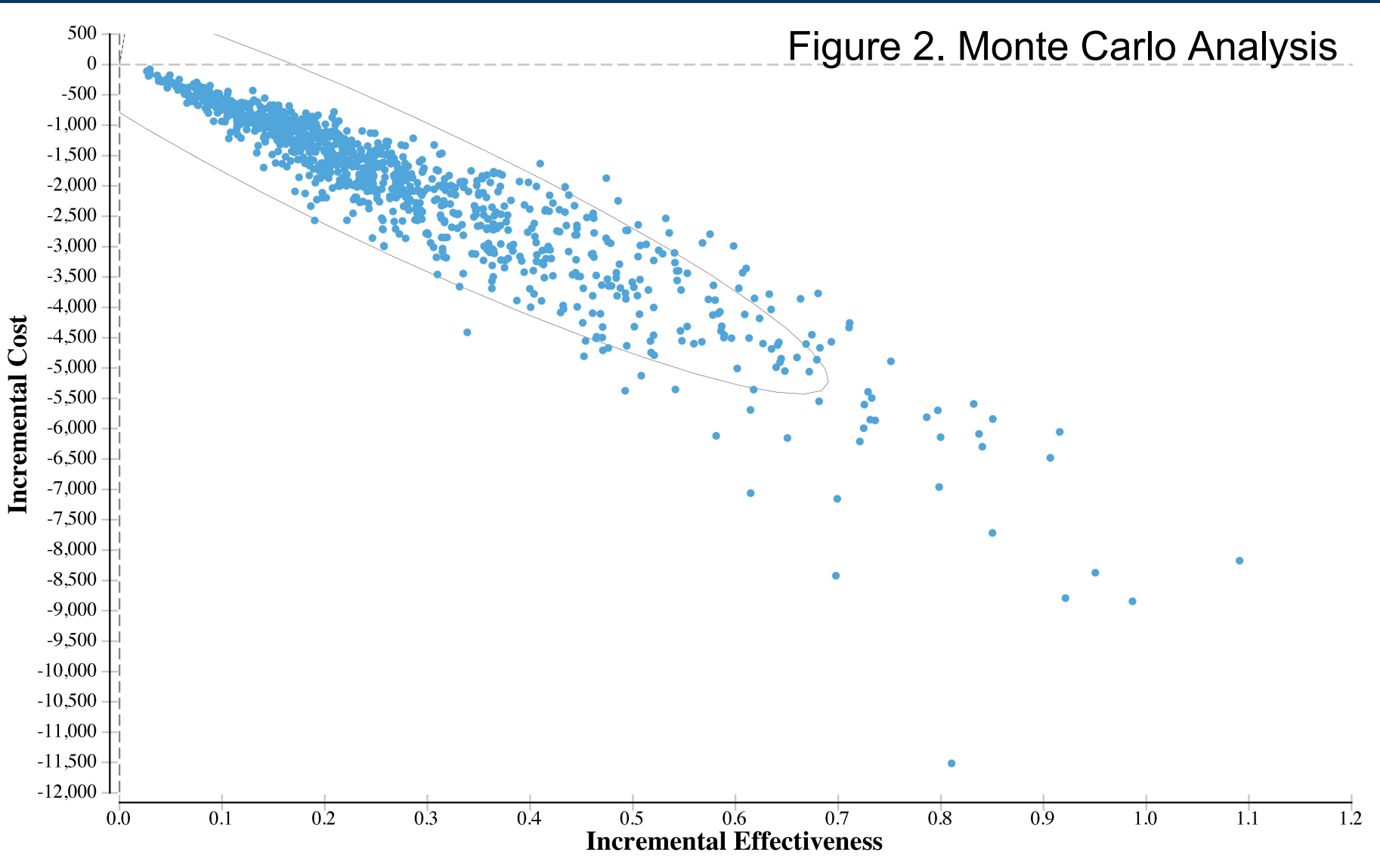


Figure 1. Schematic of Decision Analysis Tree

Table 1. Outcomes in a theoretical cohort of 100,000 pregnant women with an outbreak during the third trimester of pregnancy and a history of genital herpes.

Outcomes	Serology Screening	No Serology Screening	Difference
Mild neonatal HSV	817	1,589	-772
Moderate neonatal HSV	12	221	-209
Severe neonatal HSV	24	278	-254
Neonatal death	528	840	-312
Cost (in millions, USD)	1,164	1,368	-204
Effectiveness (in thousands, QALYs)	5,660	5,632	28
Incremental Cost-Effectiveness Ratio (ICER)	Dominant	Dominated	

- Results of a tornado analysis identified two variables that affected the cost-effectiveness of the model: probability of transmission of HSV from recurrent outbreak and the probability of neonatal HSV with empiric viral treatment
- Results of Monte Carlo Analysis (fig. 2) found that when probabilities, costs, and utilities were varied, serology screening was the cost-effective strategy 100% of the time.



Conclusion

- In our theoretical cohort, serology screening in pregnant women with an outbreak in the third trimester of pregnancy and a history of genital herpes resulted in improved outcomes and decreased costs.
- When screening policies are being created for pregnant women, the cost effectiveness of serology screening in this population should be considered.