



# HSV Serotyping in Pregnant Women With a History of Genital Herpes

Isabelle C Chatroux<sup>1</sup> BS, Alyssa Hersh BS BA<sup>2</sup>, Aaron B Caughey MD PhD<sup>2</sup>



1. University of Colorado School of Medicine, Denver, CO 2. Oregon Health & Science University, Portland, OR

## 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 from 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

Isabelle Chatroux: isabelle.chatroux@cuanschutz.edu

## Results

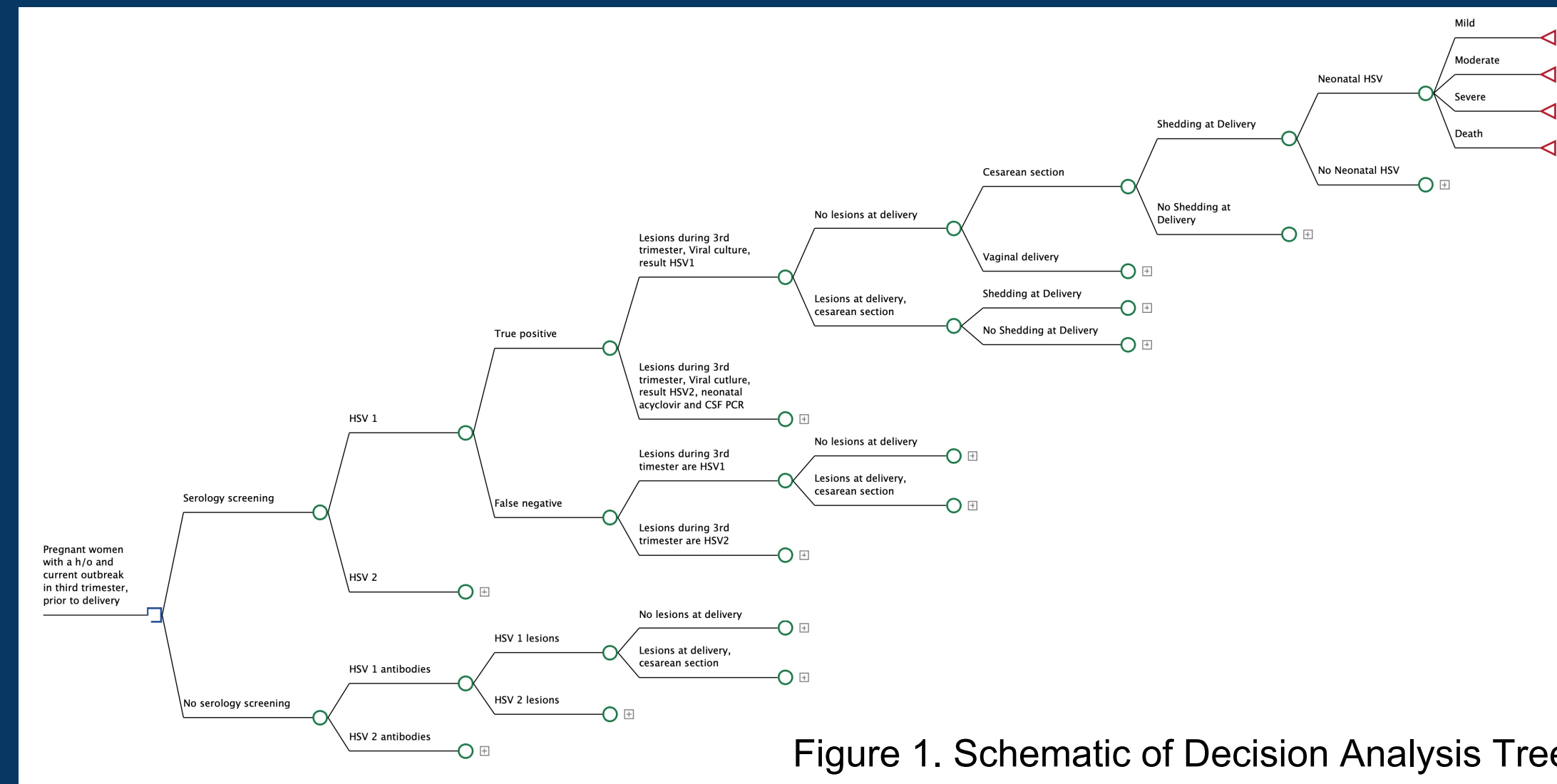


Figure 1. Schematic of Decision Analysis Tree

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
<b>Mild neonatal HSV</b>	817	1,589	-772
<b>Moderate neonatal HSV</b>	12	221	-209
<b>Severe neonatal HSV</b>	24	278	-254
<b>Neonatal death</b>	528	840	-312
<b>Cost (in millions, USD)</b>	1,164	1,368	-204
<b>Effectiveness (in thousands, QALYs)</b>	5,660	5,632	28
<b>Incremental Cost-Effectiveness Ratio (ICER)</b>	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.

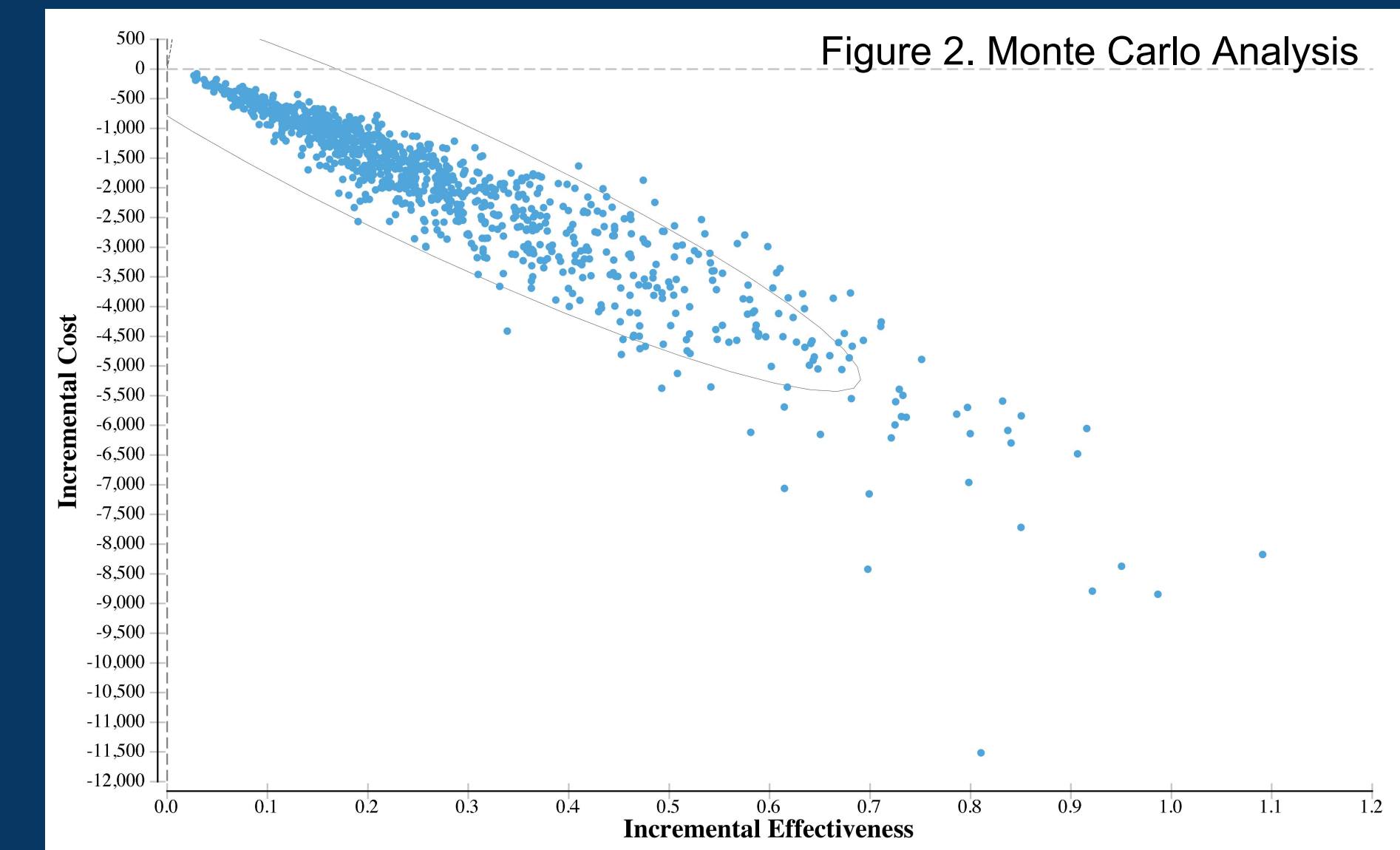


Figure 2. Monte Carlo Analysis

## 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.