1135-90-3074 **Karen T. Hicklin*** (khicklin@email.unc.edu), Dept. of Statistics and Operations Research, B24 Hanes Hall, Campus Box 3260, Chapel Hill, NC 27599-3260. *A Bayesian Markov Decision Process to Evaluate Mode of Delivery.*

Optimal mode of delivery decisions lead to better short- and long-term health outcomes for mothers and children. When a woman enters labor, she will delivery in one of two ways: vaginal delivery or cesarean delivery. However, at the onset of labor, the delivery outcome is unknown. Patients who have a slow or stalled labor progression are considered failure-to-progress thus leading to the need for a C-section. We combine Bayesian updating into a Markov decision process to determine under what circumstances it is appropriate to gather more information before making a decision regarding mode of delivery. The goal is to maximize the utility of health outcomes for the mother and child as a function of the belief that the woman will have a safe vaginal delivery as a function of cervical dilation progression. The results of this work can be used in developing a decision aid tool to be used by women and their healthcare providers to explore various options and the risks associated with them. (Received September 26, 2017)