1154-VF-1929 **Ixtaccihuatl Hortencia Obregon*** (ixtaccihuatl.obregon@gmail.com). *Minimizing Drug Resistant Cases of Gonorrhea through Cost-Effective Treatment Plans.*

Gonorrhea, caused by the bacterium *Neisseria gonorrhoeae*, is the second most prevalent bacterial sexually transmitted infection (STI) with 87 million new cases reported worldwide, according to the World Health Organization (WHO). Gonorrhea has developed resistance to multiple treatment therapies within the past century due to the introduction and misuse of antibiotics. The decrease of effective treatment plans develops a posing threat of an untreatable gonorrhea infection and a global health crisis. We aim to study a comprehensive treatment strategy with respect to drug resistance in gonorrhea and its cost-effectiveness. We develop a mathematical model of gonorrhea's resistance with respect to two dual treatments recommended by the WHO, ceftriaxone with azithromycin and cefixime with azithromycin. We also perform a cost-benefit analysis which compares the suggested treatment plans to minimize the emergence of drug resistance. We numerically simulate our model and analyze the reproductive number based on estimated parameters, such that, we conclude the costs of treatments are minimized if more than 50% of individuals are successfully treated. (Received September 17, 2019)