

Thesis Project Portfolio

The Effect of Liposomal KT109 and a Proprietary Drug on Reducing Inflammation in the Liver

(Technical Report)

An Analysis of the Effect of the Obesity Stigma in Healthcare

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

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Spring, 2020

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Sociotechnical Synthesis

Nonalcoholic steatohepatitis (NASH) is an illness where excess adipose tissue on the liver results in inflammation and subsequent pain. Today, there are practically no pharmaceutical treatments for those who suffer from NASH and the treatment plan typically includes advising the patient to lose weight to reduce the amount of fatty tissue on the liver. For my technical capstone project, I worked under my advisor and with several collaborators to study the anti-inflammatory effects of two drugs, both in liposomal form. As NASH is a condition that primarily affects people in the overweight or obese community and does not have a medicinal solution, as of now, this led me to my STS thesis question of examining the impact of the weight stigma within healthcare. How does weight-based discrimination affect overweight persons experiences with the healthcare field and what can be done to fix the negative effects of the stigma within healthcare? With almost two-thirds of the American adult population being either overweight or obese, the issue of the weight stigma is essential to deal with to improve the quality of care and the quality of the lives of this population. As I dove into the strained relationship between overweight people and healthcare, it became more apparent as to how important my research to discover a pharmaceutical treatment was, since the advisement of weight loss from physicians to patients was not an effective route. While my results of the liposomal drugs were promising as anti-inflammatory treatments and might one day be a useable therapy for patients with NASH, it also became clear that the timeline between research and development and marketable drugs was a long and difficult one, and that change in the healthcare community needed to occur, and soon. My research revealed that not only does the weight bias in healthcare professionals lead to a lesser quality of care and even put the patient's life at risk, it also perpetuates obesity, creating a cycle that results in more health issues, both physical and mental, and puts a further strain on the relationship. In my STS thesis, I propose education as the main weapon to combat the weight

stigma, not just in healthcare, but across American society, to both help improve the quality of care and lives of obese people, and to also fight against the obesity epidemic in the United States. However, on both the technical and social side, there are years of work to be done to reach the change that is needed. For our liposomal drugs, further testing is necessary to verify its effectiveness and many more trials stand between now and the market. As for my social research, while I believe my suggestions have merit and potential, to see any real result, they must be put into action and utilized. Overall, my research strove to find solutions to improve the lives of the many overweight and obese people in this country.