

Determining Factors of Heart Quality and Donor Acceptance in Pediatric
Heart Transplants

(Technical Report)

Damage Control: Big Pharma's Response to the Opioid Epidemic

(STS Research Paper)

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by

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Preface

The U.S. healthcare system is rife with technical inefficiencies and social inequities, from inequitable access for all to increasing medical costs. Technical inefficiencies include insufficient metrics to assess donor-recipient compatibility in pediatric heart transplants. Other inefficiencies occur post-surgery as many patients are prescribed opioid medication. Over the past 20 years, the excessive supply and abuse of opioids has caused a national opioid epidemic.

Because vast data are associated with each donor, cardiologists' metrics to evaluate heart quality are often inadequate. The clinical courses between accepted and rejected pediatric donor hearts are distinguished and characterized. A longitudinal study assessing the effect of static and dynamic measurements on the heart's function from the time of brain death to either discard or heart procurement is developed by analyzing heart donor data visible to doctors on DonorNet, a system the United Network for Organ Sharing (UNOS) uses to match donors to a ranked order of recipients. Further analysis is conducted on the proportion of measurements that are in a stable and acceptable ranges over time, and all analyses will be compared between accepted and rejected hearts using logistic regression and statistical analysis. While results are forthcoming, this research determines the typical course of heart function when the donor is accepted or rejected, thus identifying which donor measurements most influence heart acceptance.

The supply and the subsequent abuse of opioids in the United States remains one of the country's most pressing health crises. Many pharmaceutical companies face civil and criminal suits from both individuals and states, arguing the companies prioritized revenue over public safety. The pharmaceutical industry denies the allegations but

concedes prescription opioids played a significant role in the epidemic. As the industry struggles to repair its image, it should consider how other industries have successfully and unsuccessfully saved their reputations through similar crises, demands from critics, and alternative crisis management strategies. To restore their reputation, the pharmaceutical industry should develop strong crisis management policies, increase transparency in drug development and necessity, and invest in rehabilitation and educational programs in communities most impacted by the opioid epidemic and distrust the healthcare sector.

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