#291 Adem Idrizi Advisor(s): Ming Zhang

A new sanitizing polymer to fight the spread of infectious diseases

Background: High touch surfaces in clinical practices and schools without proper sanitation could be reservoirs of pathogens which are easily transmitted among healthcare workers and patients, increasing the risk of nosocomial infection in hospitals and communities. Standard disinfectants used in hospitals could kill pathogens, but their efficacy is limited for a short period after application. HaloFilm, a novel antiviral/antimicrobial coating polymer which conserves chlorine, has been shown to significantly extend the efficacy of disinfectant in lab simulation. This project aims to conduct the first pilot study objectively testing HaloFilm's efficacy in clinical settings.

Methods: Three high-touch surface areas at University Hospital of Brooklyn- SUNY Downstate Medical Center were selected in this study. The surfaces were firstly coated with HaloFilm and then were disinfected with a chlorinated solution three times a week. The controls were nearby surfaces without coating of HaloFilm but similarly disinfected with a chlorinated solution. Surfaces were then swabbed at the end of each day and the swabs were tested for total bacterial colony forming unit (CFU). The efficacy of HaloFilm to retain chlorine on each surface was also quantified along the swab test of bacterial CFU.

Results: The overall trend of this pilot study shows that HaloFilm can reduce the number of CFUs on high-touched surfaces in Downstate hospital. There was a statistically significant increase in total chlorine in HaloFilm coated surfaces, supporting that HaloFilm can retain chlorine after routing disinfecting.

Discussion: Initiatives to combat the spread of infectious disease have been critical, especially during the COVID-19 pandemic. This study offers a potential solution to improving infectious control by using a self-sanitizing polymer in a hospital setting. An official trial with a larger sample size is warranted to observe a more significant difference.