Analysis of COVID-19 Case Demographics in Gary, Indiana

Yazan Al-Tarshan1, Maryam Sabir1, Cameron Snapp and Trimoeki1, Martin Brown2, Roland Walker2, Nianjun Liu4, Amy Han3, and Tatiana Kostrominova5

1Indiana University School of Medicine Northwest; 2Gary Health Department and Gary Sanitary District; 3Indiana University School of Medicine Northwest, Department of Psychiatry; 4Indiana University School of Public Health, Indiana University Bloomington; 5Indiana University School of Medicine Northwest, Department of Anatomy, Cell Biology and Physiology

Background and Hypothesis

It has been reported in several recent studies that health disparities associated with COVID-19 infection rates are prevalent in Black and impoverished populations. The contribution of multiple causes to these disparities is still not completely elucidated. Gary, Indiana has a large Black population (80%), high number of residents living below the poverty line (34%), and high unemployment rate (20%). We hypothesized that Black individuals in Gary have a higher rate of positive cases, hospitalizations, and deaths than non-Black individuals. Also, we hypothesized that income (median household income measured by the zip code) is negatively correlated with COVID-19 positive cases, hospitalizations, and deaths.

Methods

In collaboration with the Gary Health Department, we analyzed data on all positive cases in the city from 06/16/2020 through 06/07/2021 (totally 5149 cases). We compared this data to the data from 03/16/2020 through 06/16/2020 (totally 724 cases) that we analyzed previously that was initially analyzed by Cameron Snapp. Data was de-identified and included age, race, ethnicity, and zip code. Data was analyzed using Pearson’s chi-square test and regression analysis.

Results

When compared to the non-Black population in Gary age and population-adjusted hospitalizations rates of hospitalizations and deaths in the Black population are 3-fold
(p<9.385E-11) and 2-fold (p<0.0171) more frequent, respectively, compared to the non-Black population in Gary (p<9.385E-11) and (p<0.0171) age and population-adjusted, respectively. The Surprisingly, the non-Black population had a higher infection rate than the Black population (p<2.69E-09). Median household income of a zip code is negatively correlated with COVID-19 hospitalizations in that zip code (R²=0.6345, p=0.03), but does not affect the rates of infections and deaths.

Conclusion

Our data show that in Gary, there is a clear health disparity of both income and race, specifically in the context of COVID-19. Officials IUSMNW and Gary health officials can collaborate and utilize this data to reallocate resources to the highly populated, low income, and predominantly Black neighborhoods.