Analysis of COVID-19 Case Demographics in Gary, Indiana

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Background and Hypothesis

It has been reported in several recent studies that health disparities associated with COVID-19 infection 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 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. Data was de-identified and included age, race, ethnicity, and zip code. The 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 rates of hospitalizations and deaths in the Black population are 3-fold ($p<9.385E-11$) and 2-fold ($p<0.0171$) higher, respectively. 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 is 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. IUSMNW and Gary health officials can collaborate and utilize this data to reallocate resources to the highly populated, low income, and predominantly Black neighborhoods.