|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **# positive** | **viol** | **County** | **Zipcode** | **9/29 res** | **9/22 res** | **9/15 res** | **#pos times** |
|  |  | Orange | 10950 | #N/A |  |  |  |
|  |  | Rockland | 10952 | #N/A |  |  |  |
|  |  | Rockland | 10977 | #N/A |  |  |  |
| Gravesend | 0 | Kings | 11223 | -334.04919 | -497 | -705 | 0 |
| Midwood | 2 | Kings | 11230 | 183.165455 | 68 | -43 | 2 |
| Flatlands/Midwood | 3 | Kings | 11210 | 259.412938 | 174 | 127 | 3 |
| Borough Park | 0 | Kings | 11219 | -224.58518 | -291 | -265 | 0 |
| Bensonhurst/Mapleton | 0 | Kings | 11204 | -252.09285 | -330 | -359 | 0 |
| Sheepshead Bay | 0 | Kings | 11229 | -400.41317 | -441 | -437 | 0 |
| Kew Garden Hills | 1 | Queens | 11367 | 13.6636663 | -49 | -67 | 1 |
|  |  | Rockland | 10956 | #N/A |  |  |  |
| Rego Park | 3 | Queens | 11374 | 563.246871 | 508 | 491 | 3 |
| Far Rockaway | 3 | Queens | 11691 | 927.137926 | 846 | 709 | 3 |
| Brighton Beach | 0 | Kings | 11235 | -54.082207 | -93 | -110 | 0 |
|  |  | Westchester | 10573 | #N/A |  |  |  |
| Fordham/Kingsbridge/Univ | 0 | Bronx | 10468 | 1120.39854 |  |  |  |
| Kensington/Windsor Terrace | 0 | Kings | 11218 | -225.18176 | -237 | -249 | 0 |
| Bergen beach/Flatlands | 0 | Kings | 11234 | -354.45771 | -366 | -370 | 0 |
|  |  | Nassau | 11590 | #N/A |  |  |  |
|  |  | Richmond | 10305 | 410.549171 |  |  |  |

**Table 1: Statistics for targeted zip codes in Brooklyn and Queens**

**Main Results:**

* NYC and NY State are monitoring the “positivity rate” in various zip codes. They have identified 12 zip codes within Brooklyn and Queens with a positivity rate in excess of 3%.
* The positivity rate is a *poor* measure to characterize the intensity of the pandemic. In some neighborhoods/zip codes, the population has the time, access, and cultural inclination to get tested, either routinely or at the onset of the slightest symptoms, potentially associated with COVID19, along with many other possibilities.
* In other zip codes, individuals lack the time, access, or cultural inclination to do frequent testing; many need to work away from home for long hours or have large families to attend to. In such areas. individuals get tested only when they have significant symptoms. In this category of zip codes, positivity rates will be relatively high, not because the pandemic is more prevalent, but simply because of the far larger selectivity among the test seekers.
* From the onset of the pandemic in February, health organizations have monitored the daily “*case incidence rate,”* defined as the per-capita number of newly confirmed cases. This measure has its limitations, as well; it ignores individuals who are both asymptomatic and untested, for example. It is, however, immune to the above-mentioned obvious and major selectivity biases. See for example the CDC COVID19 Data Tracker: <https://covid.cdc.gov/covid-data-tracker/#county-map>.
* It is inappropriate to compare the **absolute** incidence rates across zipcodes, in particular, when attributing variations to better or inferior compliance with safety precautions such as social distancing and mask wearing. Differences in demographic and socioeconomic factors have to be accounted for. Federgruen and Naha (2020) provide a systematic methodology for this accounting using standard regression analyses, see: <https://medrxiv.org/cgi/content/short/2020.05.25.20112797v1>
* The primary socioeconomic and demographic factors that need to be accounted for are average household size, percentage of the population below the poverty line, and percentage of the population above the age of 65.
* We have rerun our models for the data pertaining to the last weeks in September, taking three snapshots spaced a week apart (Sept. 15, Sept. 22, Sept. 29). Table 1 above displays the residual values of the incidence rates per 100,000 residents, i.e., the difference between the observed rates and the rates that should be expected based on the socioeconomic and demographic attributes of the zip codes. *Positive* residuals indicate that the zip codes had a larger incidence rate than it should have based on its socioeconomic/demographic characteristics; conversely, *negative* residualsindicate better performance than what can be expected.
* Here are our main conclusions:
* **Eight of the 12 targeted zip codes showed better than citywide performance on all three of the tested dates.**
* **Only three zip codes experienced more severe incidence rates than what should be expected (on each of the three target dates): Rego Park, Far Rockaway and Flatlands/ Midwood.**
* **Not surprisingly, there are a total of 81 zip codes with a higher than expected incidence rate on sept 29, beyond the four targeted by NYC and NYS. (Similar numbers prevail on the other two test dates.)**