

D3 Link: <https://observablehq.com/d/898f557da6fde978>

First visualization: We wanted to get a sense of the geographic distribution of the search warrants being served by each police unit. We created a histogram of the per district distribution of search warrants faceted on police unit id. Warrants resulting in arrests are represented in orange, while those that did not are shown in blue. Unsurprisingly, many units are strongly coupled to a specific district. It is worth noting, however, that the lion's share of search warrants are served by the narcotics unit (listed as id 149 in the visualization), with a total of 6977 known search warrants served from 2012-2019 out of a total of 19419 for the department. A large fraction of the warrants executed by the narcotics unit were executed at addresses in the south and west sides of Chicago, with particular focus being placed on district 12 (Near West) and district 8 (Chicago Lawn). A similar geographic trend emerges when viewing the activities of the Gang Investigation Division (unit_id 153), which executed a total of 1429 warrants throughout the city. In addition to Near West and Chicago Lawn, the Gang Investigation Division maintains a strong presence in the 10th (Ogden), 16th (Jefferson Park), and 31st districts. Note the significantly higher rate of arrests for warrants executed by the Gang Investigation Division. The sparsity of this distribution is also noteworthy, as many police units recorded fewer than 100 warrants over a 7 year period.

Second visualization: Our second visualization is a choropleth showing an interactive time series visualization of warrants executed, with each district's warrant count normalized by its population. It also allows users to click on districts and then displays the average number of search warrants executed per 10,000 people. This visualization demonstrates a highly skewed distribution of search warrants, with a disproportionate number being executed within the 11th (Harrison) and 7th (Engelwood) districts. With these 2 districts selected we can see that the average number of search warrants executed per 10,000 people ranges from 61 to 32 from

2012 to 2019. This contrasts heavily with the northernmost districts consistently averaging less than 5 executed search warrants per 10,000 people. This provides further evidence of the department concentrating their resources and man-hours on the city's south and west sides.

Future work: One research question we were particularly interested in was identifying geographic patterns in warrants issued by specific judges. Another promising line of research we were unable to pursue further was exploring relationships between police units with specific judges. Due to a large number of misspellings and inconsistencies, it has not yet been possible to perform clustering on the judge name column.

Finally, additional work must be done to determine departmental policies for recording the police unit involved with a given search warrant. For instance, it is unclear from the recorded data when multiple police units participate in executing a warrant.