

Checkpoint 1: SQL Analytics Findings

The Enchanted Badgers

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The theme of our project is to identify meaningful categories for uncategorized complaints by analyzing the relationship that exists between the complaint category and the complaint report narrative, and to use this new information to explore various aspects of complaint investigations and outcomes. To this end, we sought to answer the following set of questions by querying the Citizens' Police Data Project database:

1. What percentage of complaints are sustained for each category? For all categories?
2. Which category of complaints are most and least likely to be sustained?
3. Which category of complaints are most and least likely to have severe consequences for the accused officers (more than a reprimand)?
4. What categories had no severe consequences?
5. What percentage of complaints are categorized as unknown, or not categorized at all (year over year)?

The results of our findings and analysis are provided below.

Question 1: What percentage of complaints are sustained for each category? For all categories?

One of the major goals of this project is to explore how effective the complaint system is in providing a means of recourse for citizens adversely affected by the actions of the Chicago police department. In order to start making meaningful progress towards this goal, it was important to begin exploring the current set of complaints categories and assess how likely it is that certain categories of complaints are sustained after an investigation. To this end, we wrote a query that returns the following statistics: the name of the category in question, the number of total complaints filed with that category, the number of complaints that end up being sustained, and lastly the percentage of this category that end up sustained. These are summarized in the table below.

	category_name	num_complaints	num_sustained_complaints	percent_sustained
1	Drug / Alcohol Abuse	1358	797	58.6892488954344624
2	Medical	30	12	40
3	Excessive Force	31	10	32.2580645161290323
4	Unknown	64	20	31.25
5	Conduct Unbecoming (Off-Duty)	8381	2297	27.4072306407349958
6	Bribery / Official Corruption	885	162	18.3050847457627119
7	Criminal Misconduct	6665	1023	15.3488372093023256
8	Operation/Personnel Violations	78356	11525	14.708509877992751
9	Lockup Procedures	14396	1769	12.288135593220339
10	Supervisory Responsibilities	4826	467	9.6767509324492333
11	Traffic	8193	743	9.0687171976077139
12	Domestic	6506	451	6.9320627113433753
13	Use Of Force	57574	2139	3.7152186750963977
14	Verbal Abuse	13795	330	2.3921710764769844
15	Racial Profiling	56	1	1.7857142857142857
16	First Amendment	77	1	1.2987012987012987
17	Illegal Search	37611	199	0.52910052910052910053
18	False Arrest	9160	43	0.46943231441048034934
19	Money / Property	357	0	0

Examination of the above table provides a number of interesting insights. The first is that a number of categories seem excessively broad and non-specific. For instance, without digging into the specifics, it is unclear what kinds of complaints the “Medical” and “Money / Property” would actually entail. For future work, it would be interesting to see what allegation names are present in these categories and do a qualitative analysis to see if they actually make sense.

Another interesting finding is that racial profiling is very unlikely to be sustained despite well documented cases of racial profiling and issues within the Chicago Police Department. Coupled with the very low likelihood of “Use of Force” complaint types to be sustained, it becomes clearer why there is a large and growing distrust of an institution that is supposed to have the job of serving the citizenry. It is also interesting that the “Use of Force” category has the second highest number of complaints (behind only “Operation/Personnel Violations”). In the future, it would be interesting to compare these types of statistics with other major cities in the United States, and see if other cities suffer from such a high number of “Use of Force” incidents and complaints.

Additionally, there is an “Unknown” category that has an oddly high percentage of complaints being sustained. This suggests that further work and examination of the data is needed in order to figure out why these complaints are labeled as “Unknown” in the first place and why they tend to be more likely than the majority of other categories to be sustained.

In addition to the above query, we sought to take a higher level view of the complaints and how likely they are to be sustained. To this end, we wrote a second query to find the percentage of complaints that are sustained across all categories. The results are contained in the following table.

	num_complaints	num_sustained_complaints	percent_sustained
1	248321	21989	8.8550706545157276

Based on the available data, we found that about 8.85% of complaints are sustained in total. While most of the complaint categories sit above this average percentage for all categories, there are a few that stand out as being far below this average, such as “Domestic”, “Use of Force”, “Racial Profiling”, and “Illegal Search”, all of which would intuitively boil down to do the officer’s word against the complainant. This makes a compelling case for making it mandatory for officers to wear body cameras while on duty. For future research, it would be interesting to compare the rates of these types of complaints being sustained before and after it became law for officers to wear body cameras in Chicago.

Question 2: Which category of complaints are most and least likely to be sustained?

	category	percentage
1	Money / Property	0
2	Drug / Alcohol Abuse	58.68924889543447

To answer this question we first built a query to construct a table representing the percentage of sustained complaints across categories. From this table we selected the minimum and maximum percentage values. The table above shows that the least sustained category is “Money/Property” with zero percent sustained, while the most sustained category is “Drug/Alcohol Abuse” with almost 59 percent of complaints being sustained. The first takeaway from this table is that the chance of a complaint being sustained is highly dependent on the category in which it belongs. While we expected some variation among the categories, the contrast between these two percentages was surprising.

We also performed a deeper analysis on the drug and alcohol abuse category to better understand how such a high percentage of complaints being sustained was possible. Prior to this analysis, we knew that complaints filed by police officers had a higher probability of being sustained, so we expected to see a large number of complaints being filed by officers in this category. To our surprise, all of the complaints in this category were filed by civilians, not police officers. This raises several questions which we intend to examine in greater depth. First, are complaints filed by police officers regarding drug and alcohol abuse placed in a different category? Putting these complaints in a different category would seem unintuitive at the least, but one would expect to see at least a single complaint filed by a police officer in this category for a dataset that spans decades. And if these complaints do fall within this category, what does it say about the culture of the police force that not a single officer has reported drug or alcohol abuse?

Question 3: Which category of complaints are most and least likely to have severe consequences for the accused officers (more than a reprimand)?

To further explore the nature of the complaints, we decided to take a closer look at the outcomes of these complaints and how severe the consequences tend to be for each category. We defined “severe consequences” as being any final outcome that includes any type of suspension, resignation (although this outcome shifts the responsibility of doling out punishments from the department to the officers themselves, it’s still a severe outcome), separation or termination.

To this end, we made a query that returns the following statistics about the complaints: what is the name of the category in question, how many complaints are labeled with this category in total, how many ended up having severe consequences, and what the percentage of the complaints is for each category that ultimately have severe consequences. The results are summarized in the table below.

	category_name	num_complaints	num_severe_consequences	percent_severe
1	Drug / Alcohol Abuse	1358	717	52.7982326951399116
2	Medical	30	11	36.666666666666667
3	Unknown	64	21	32.8125
4	Conduct Unbecoming (Off-Duty)	8381	1695	20.2243169072902995
5	Bribery / Official Corruption	885	149	16.8361581920903955
6	Excessive Force	31	5	16.1290322580645161
7	Criminal Misconduct	6665	610	9.1522880720180045
8	Operation/Personnel Violations	78356	6537	8.3426923273265608
9	Lockup Procedures	14396	957	6.6476799110864129
10	Domestic	6506	354	5.4411312634491239
11	Traffic	8193	403	4.9188331502502136
12	Supervisory Responsibilities	4826	200	4.144218814753419
13	Use Of Force	57574	1641	2.8502449022128044
14	Verbal Abuse	13795	200	1.4498006524102936
15	First Amendment	77	1	1.2987012987012987
16	Illegal Search	37611	98	0.26056206960729573795
17	False Arrest	9160	15	0.16375545851528384279
18	Money / Property	357	0	0
19	Racial Profiling	56	0	0

Perhaps unsurprisingly, the most likely category to result in severe consequences is “Drug / Alcohol Abuse” where there is often more evidence and test results that can confirm the validity of the complaint. The two complaint categories that are least likely to results in severe punishments are “Money / Property” and “Racial Profiling”. The broadness of the “Money / Property” makes it difficult to assess whether this intuitively makes sense, and would warrant further work to see what the range of possible allegations are for this category. Though, it is interesting that racial profiling is once again low on the list of complaint categories that are sustained, with none of the complaints in this category actually resulting in severe consequences for the accused officer.

Another interesting finding is that the “Unknown” category is fairly likely to result in severe consequences. Again, the opaqueness of this category hinders our ability to derive any meaningful insights here. This would be another avenue for future analysis by examining exactly what types of complaints these are and why they are so likely to result in severe consequences.

Question 4: What categories had no severe consequences?

Because we were interested in analyzing possible flaws in the allegation categories, we decided to investigate whether the categories that never led to severe consequences appeared vague or unnecessarily precise. As we can’t assume that allegations with “Unknown” outcomes have not led to severe consequences, we split the question into two queries. One is restrictive, assuming “Unknown” outcomes have severe consequences, while the other doesn’t make that assumption, and we discuss the difference in results, and their implications, below. There is a degree of subjectivity involved in deciding whether the categories appear sufficient, as with any qualitative analysis, thus we explain our thought-process below when we deem categories insufficient.

	category	number_of_allegations
1	Criminal Misconduct	15
2	First Amendment	15
3	Drug / Alcohol Abuse	1

Seen above are the results from the restrictive query. We found 31 allegations in three different categories that provably had no severe consequences in the dataset. Based on the low number of allegations with non-severe outcome, provably non-severe appeared to be too restrictive. From cursory analysis of the dataset, we knew many outcomes were “Unknown”, and so we decided to analyze which categories couldn’t be proven to have included severe outcomes - seen below.

	category	number_of_allegations
1	Money / Property	357
2	Use Of Force	184
3	Illegal Search	178
4	False Arrest	160
5	Operation/Personnel Violations	93
6	Racial Profiling	56
7	Unknown	33
8	Criminal Misconduct	27
9	First Amendment	15
10	Drug / Alcohol Abuse	11
11	Bribery / Official Corruption	10
12	Medical	7
13	Conduct Unbecoming (Off-Duty)	3

Above are the results from the less restrictive query. We found 1134 allegations with no documented severe consequences, almost a factor of 40 greater than provably non-severe. We noted that 33 of the allegations were categorized as “Unknown”, and that many of these categories are of types where it’s likely the allegator’s word against the officer’s, such as illegal search and racial profiling. Additionally, with today’s ongoing discussion about racial profiling by the police, it’s noteworthy that the category is one of the categories for which no documented severe consequences exist. This reinforces the idea that the police aren’t facing consequences for discriminating based on race.

Most importantly for our project, we noted that several of the categories with the greatest number of allegations likely can be categorized in a different way to tie them together. “Use of Force”, “Illegal Search”, and “False Arrest” may be related in that the officer targeted someone without cause and searched or arrested them, or even used force without cause. It is possible, if not even likely, that the categories can be altered in such a way that we see a clearer pattern in the allegations with no severe punishments. We reiterate that it’s not provable that the officers had no severe outcomes, but there are many of these allegations resulting in no documented severe consequences.

Question 5: What percentage of complaints are categorized as unknown, or not categorized at all (year over year)?

	year ↕	percentage ↕
1	2018	1.1029411764705883
2	2017	1.085883514313919
3	2016	12.940275650842267
4	2015	8.124280782508631
5	2014	4.208654416123296
6	2013	1.7169811320754718
7	2012	0.897021887334051
8	2011	0.8166533226581264
9	2010	0.5057408419901586
10	2009	0.35285815102328866
11	2008	0.24088093599449414
12	2007	0.297303036738161
13	2006	0.5994405221792993
14	2005	0.9466708740927736
15	2004	0.3922034704064654
16	2003	0.33438038301752965
17	2002	0.24187975120939878
18	2001	0.18585858585858586
19	2000	0.3485928128364177

The table above shows the percentage of complaints categorized as unknown or not categorized at all, year over year. Years occurring before 2000 all had a percentage of zero and were truncated here for brevity. While records prior to 2000 are less frequent, it still seems interesting that no complaints before this period were unclassified or classified as unknown. We intend to take a deeper dive here and determine what changed in 2000. It's possible that new categories were introduced that complicated categorization, or maybe the intake process for complaints was changed (possibly to digital records based on the time period) to a method which was more error prone. Understanding what led to the emergence of this problem could help us in determining proper categorization techniques.

After 2000, the results table shows that unknown/uncategorized percentages remained relatively low (under one percent) for more than a decade. However, beginning in 2013 we see rapid growth in these percentages. This growth peaks in 2016 when the percentage of unknown/uncategorized complaints reaches almost 13 percent. That means for every 100 complaints being filed, nearly 13 of those complaints fell outside of the existing categories, fell within the existing categories but were mistakenly labeled as unknown, or failed to be categorized at all. What is even more interesting is that after 2016 the percentage of unknown/unclassified complaints plummets. The percentage in 2017 was just over one percent. This raises the interesting question of what happened between 2016 and 2017 to cause such a drastic change. We have already identified one potential factor that could have contributed to this change: the Invisible Institute gaining access to the CPDP dataset in December, 2015. The

ensuing articles that scrutinized the conduct of the Chicago police department using this dataset could have put pressure on the department to clean up their data collection practices, resulting in the plummeting percentages of unknown/unclassified complaints we can observe in the table above.