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EXAMINING POLICE REFORMS IN NEW JERSEY: IMPACTS ON USE OF FORCE AND OTHER POLICE ACTIVITIES

Second Final Report

FINAL REPORT 3 OR 3

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The National Policing Institute (NPI) is an independent, nonpartisan, and nonprofit research and training institute committed to addressing policing's most complex challenges through evidence-informed, innovative solutions. By translating research and lessons learned into practice, NPI assists law enforcement organizations in adopting and adapting the most effective programs, resources, and tools available to serve their communities. Learn more at www.policinginstitute.org.

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Examining Police Reforms in New Jersey: Lessons Learned from Implementation

Final Report 2 of 3

Other Reports from the *Examining Police Reforms in New Jersey* series

- Report 1: Impacts on Officer Attitudes and Self-Reported Behavior
- Report 3: Lessons Learned from Implementation

National Policing Institute

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EXECUTIVE SUMMARY

In December 2020, former New Jersey Attorney General Gurbir Grewal announced that the New Jersey Office of the Attorney General (NJOAG) would implement a comprehensive police reform plan aimed at reducing law enforcement officers' use of force during interactions with community members (NJOAG, 2020). These changes, referred to as the NJOAG's Use of Force Reduction Initiative (the "Initiative"), included three primary areas: revising statewide use of force policy, mandating use of force training for all sworn officers, and requiring all law enforcement agencies to collect and publish use of force data (*NJOAG Directive 2020-13*).

In 2021, the NJOAG engaged our research team to collaborate in a multi-year, multi-method evaluation of their police reform package. The evaluation involved multiple design elements, including (1) a repeated measures survey designed to assess changes in officers' knowledge and attitudes following use of force training (*Report 1: Examining Police Reforms in New Jersey: Impact of Officer Attitudes and Self-Reported Behaviors)*; (2) state- and county-level analyses of administrative and quantitative data to examine the impact of reform efforts on officer and agency outcomes, such as the frequency and severity of use of force by officers, racial and ethnic changes in use of force incidents, and injuries to officers and community members (*Report 2: Examining Police Reforms in New Jersey: Impacts on Use of Force and Other Police Activities*); and (3) qualitative analyses to consider the lessons learned from implementation of the reform package (*Report 3: Examining Police Reforms in New Jersey: Lessons Learned from Implementation)*. Collectively, the evaluation represents the most extensive study of police use of force reform, highlighting the experiences of over 500 police departments and 31,000 sworn officers in New Jersey.

This report presents findings from analyses of officer field behavior, measured through law enforcement administrative data (e.g., use of force, civilian complaints, arrests). Various analytic techniques are used to determine whether and to what extent the NJOAG's Initiative reduced the frequency of use of force, improved safety (e.g., reduced officer and subject injuries), and lowered civilian complaints against the police, which are all intended outcomes of the Initiative. We find that the Initiative did not lead to consistent, uniform reductions across these outcomes. Instead, specific findings vary by outcome, location, and analytic strategy, with several instances of non-statistically significant and mixed findings. This report highlights the implications of these findings for future police use of force reform implementation and evaluation efforts.

ABOUT THE NEW JERSEY USE OF FORCE REDUCTION INITIATIVE

In December 2020, the New Jersey Office of the Attorney General (NJOAG) announced a statewide police reform package with three major components: (1) changes to statewide use of force policy, (2) mandatory use of force training for all sworn law enforcement officers, including de-escalation (ICAT) and peer intervention (ABLE) training, and (3) collecting and publishing uniform, comprehensive data around police use of force (*NJOAG Directive 2020-13*). Collectively, the elements of this Initiative were designed to limit officers' use of force and to emphasize de-escalation, sanctity of all human life, and officers' duty to intervene (NJOAG, n.d.). Simultaneously, the Initiative aimed to enhance reporting of and public access to statewide use of force data.

METHODOLOGY

This report is the second in a series of three reports that describe research findings from a larger evaluation of police reform in New Jersey. The full evaluation includes several research methodologies and forms of data collection, involving over 500 police departments representing over 31,000 sworn officers. This second report details the findings produced by examining the impact of NJOAG's Use of Force Reduction Initiative on several behavioral outcomes. The specific outcomes of interest are outlined below.

Outcomes of Interest and Analytic Techniques

1. **Use of Force:** The frequency of use of force is measured through use of force reports that were provided by the NJOAG from two sources: (1) historical, PDF reports (Jan 2018–Sep 2020) and (2) statewide data repository (Oct 2020–Dec 2024). These two sources of data were merged using the agency name and county name fields. Use of force reports are measured at the report level, where each officer who employed force during a single incident fills out a distinct report. We assess changes in, and correlates of, the frequency of use of force through descriptive analysis, crossover count regressions, interrupted time series models, and quantile regressions.

2. **Racial/Ethnic Differences in Use of Force:** Based on single-subject use of force reports, we extracted the race or ethnicity of the subject to assess differences in changes over time for each group. We compared these to changes in the overall frequency of use of force events. We employed comparative analyses for Black,

Hispanic, and White subjects. We assessed changes in, and correlates of, racial and ethnic groups involved in use of force through descriptive analysis, crossover count regressions, interrupted time series models, and quantile regressions.

3. **Subject Injury During Use of Force:** Based on use of force reports, we extracted information on community members (subjects) injured during police use of force events. For subject injury data, counts may be higher than the report level if more than one subject was injured by a single officer during a use of force encounter (~2% of the sample), depending on the analysis at hand. We assess changes in, and correlates of, subject injuries through descriptive review, crossover count regressions, quantile regressions, group-based trajectory analysis, and hierarchical generalized linear modeling.

4. **Officer Injury During Use of Force:** Also gleaned from use of force reports, we extracted information on police officers injured during use of force events. We assess changes in, and correlates of, the frequency of officer injuries through descriptive review, crossover count regressions, and quantile regressions.

5. **Civilian Complaints:** Complaints filed by members of the community (civilians) against law enforcement officers are extracted from Internal Affairs (IA) data collected by the NJOAG. Data is available from 2021 to 2023. We focus on descriptive trends related to the most relevant categories of civilian complaints, as well as complaints that were sustained after internal investigation.

Section IV. Methodology contains a more detailed discussion of the outcomes of interest and the strengths and weaknesses of various analytic techniques. In addition to these outcomes, we also examine other indicators of police activity, including Uniform Crime Report (UCR) Part I Serious Offenses and Arrests, reported by agencies directly to the New Jersey State Police UCR Unit. These indicators provide an overall picture of police activities in New Jersey over time.

A Cautionary Note on New Jersey Use of Force Data

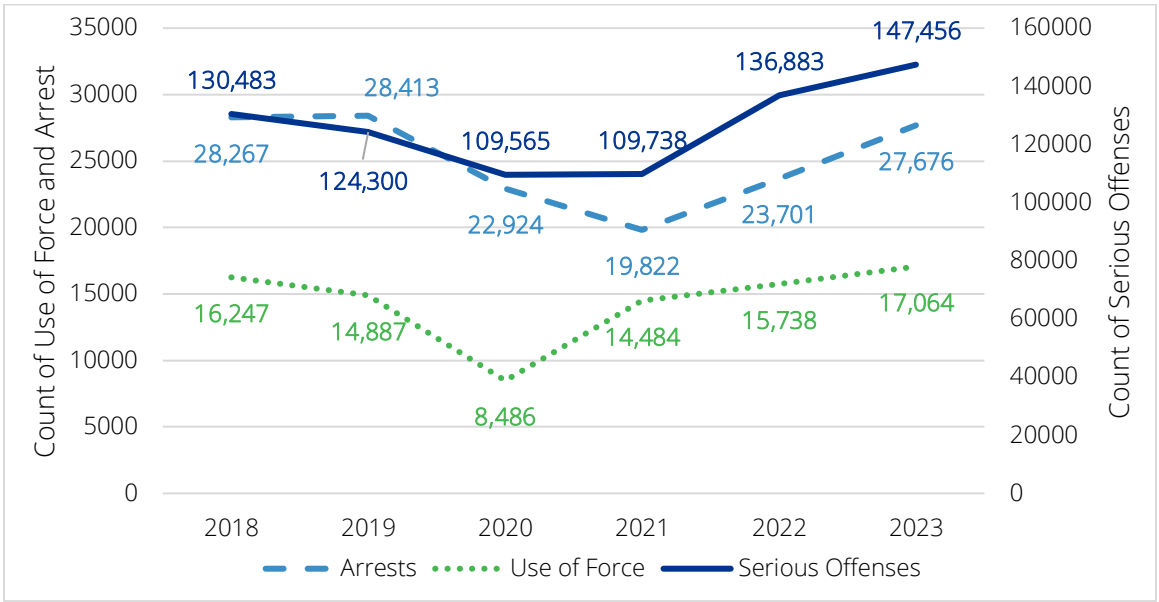
There are over 500 independent law enforcement agencies operating in New Jersey, and each has historically collected its own data related to use of force. Prior to the Initiative, agencies varied in how they measured force and the details they included in reports. In 2020, the NJOAG launched a centralized use of force data collection platform and required all officers involved in use of force incidents to enter a report detailing their interaction with the person upon whom force was used. An online dashboard allows the

public to search reports on police use of force from all New Jersey law enforcement agencies, as far back as October 2020. The systematic measurement of use of force statewide and the availability of these data facilitate direct comparisons of use of force across agencies for those years for which data are available.

TRENDS IN STATEWIDE POLICE ACTIVITY

Before examining the outcomes of interest, we assessed statewide police data to identify shifts in overall police activities, including serious offenses (UCR Part I), arrests (for UCR Part I offenses), and use of force. Trends across use of force, arrest, and offense data were reviewed from the 436 agencies that reported full data for the 72-month period under examination (Jan 2018–Dec 2023). **Figure 1** shows a dual-axis trend graph with the annual counts of serious offenses (right axis) compared to arrests and use of force (left axis). For serious offenses, there was an overall 13% increase from 2018 to 2023 and a 7.7% increase from 2022 to 2023. Arrest counts declined by 2.1% from 2018 to 2023 but increased by 15.8% from 2022 to 2023. Use of force counts increased by 5.0% from 2018 to 2023 and by 8.4% from 2022 to 2023. Overall, all three measures of police activity indicate a rise in recent years, with 2023 showing the highest counts for both offenses and use of force. This suggests that while use of force appears to increase after the NJOAG Use of Force Reduction Initiative, serious offenses and arrests are also rising, implying that trends in use of force may be associated with an overall increase in police activity.

Figure 1. Annual Use of Force, Arrests, and Serious Offenses (2018-2023)



TRENDS IN USE OF FORCE ENCOUNTERS

This evaluation examines the effect of the NJOAG's UOF Reduction Initiative on the prevalence of use of force incidents. Our analysis focuses on long-term trends in statewide use of force reports collected directly from agencies, with careful attention to the changes in data collection methods that occurred during the study period.

Reviewing the counts of use of force each year, the data show a notable decline from 2019 to 2020, likely due to restrictions related to the COVID-19 pandemic, followed by a substantial recovery in recent years. Use of force reports peaked in 2024 with 17,791 incidents—1.6% above the previous year and 2.6% above the 2018 baseline.

Black individuals consistently experienced the highest rates of police use of force during the study period. White individuals represented the second-highest group in absolute numbers of use of force reports. While use of force reports involving each group significantly dropped in 2020, recovery patterns (from 2021 to 2024) were somewhat varied. Black individuals returned to a level that was similar to pre-pandemic counts, White individuals experienced a gradual increase that was still below pre-pandemic counts, and Hispanic individuals experienced a large shift that substantially exceeded the pre-pandemic baselines.

Use of force data also reveals variation in use of force report counts across the 21 New Jersey counties. While Essex, Hudson, and Camden counties each exceeded 9,000 incidents, accounting for nearly one-third of all statewide reports, other counties like Sussex and Hunterdon did not exceed 700 reports across the seven-year period.

Crossover Regressions

Crossover count regression models were used to examine how the staggered implementation of mandated use of force training programs (ICAT and ABLE), the statewide use of force policy, and the combination of both (e.g., the "full Initiative") influenced use of force over time. Rather than a single intervention, the Initiative involved coordinated policy changes and training programs that rolled out across agencies at different rates. Our analysis examined training impacts across three time periods: six months (short-term), nine months (medium-term), and 12 months (long-term) following training completion. For policy changes and the Initiative's full implementation, we analyzed outcomes using 12-month pre- and post-intervention comparison periods. Four outcomes were tested in the models: total use of force, use of force involving White subjects, use of force involving Black subjects, and use of force involving Hispanic subjects.

The short, medium, and long-term statewide training crossover models, controlling for county-level fixed effects and seasonal shocks had very similar findings across the ABLE and ICAT training periods. Specifically, there was no evidence of change in the short-term models for any of the four groups. While the same lack of significant changes was true in the medium-term and long-term regressions for total, Black, and White uses of force, Hispanic use of force counts did significantly increase. Specifically, Hispanic uses of force significantly increased in the medium and long-term models, regardless of which training parameter was estimated (ABLE or ICAT).

The crossover regression models for policy enactment demonstrated similar findings to the medium- and long-term training models, with no changes in total use of force or use of force against Black and White subjects related to the timing of the policy. However, there was a significant increase in force involving Hispanic subjects. In the full Initiative models, we also observed a significant rise in total use of force reports and use of force involving Hispanic subjects, while no significant changes were found for use of force reports involving White or Black subjects.

We conducted a series of supplemental analyses and sensitivity tests to assess whether agencies at different levels of risk for use of force experienced different changes in use of force counts after completing their use of force training. Regardless of whether the agencies were among the highest risk for use of force counts (i.e., in the top 10% of law enforcement agencies by force counts), above the median (top 50%), or below the median (bottom 50%), the results were consistent: use of force counts did not change for total, Black, or White subjects—only for Hispanic subjects.

Interrupted Time Series

We used interrupted time series modeling at the agency-level to provide a robust analytical framework to detect the precise changes in event outcomes after controlling for a long-term, stable, pre-intervention time series (which we were unable to do using crossover regressions). Our time series models relied on 2018–2020 historical use force reports, where enough data was provided to achieve the necessary statistical power and did not violate assumptions. Thus, the final eligible New Jersey law enforcement agencies for interrupted time series analyses on their use of force counts over time was 27 sites, which had (1) enough statistical power in uses of force, and (2) mean and variance stability in the longer-term pre-intervention time series (i.e., 2018–2021, accounting for the uniliteral decline that almost all agencies observed in 2020 due to the COVID-19 pandemic).

Of the interrupted time series analyses conducted, most findings indicated that use of force patterns did not change in any meaningful, sizable, or statistically significant way, suggesting that the Initiative did not alter the longer-term patterns of force use over time. Of the few agencies that showed statistically significant changes after certain intervention points (e.g., policy change, ICAT or ABLE training, full Initiative), changes were in different directions, though more often agencies demonstrated an increase in use of force rather than a decrease.

Quantile Regressions

Finally, we used quantile regressions to identify whether there are certain structural or agency characteristics that correspond differently among agencies at high, medium, and low risk levels of use of force. We found that higher fidelity in implementing ABLE training was associated with significantly fewer use of force incidents in low-risk agencies (at the 25th percentile), but not those agencies in middle or high-risk groups. No correlation was found between ICAT training fidelity and use of force across quantiles. Factors like poverty, serious offenses, and arrest rates were positively associated with use of force counts across many risk groups (quantiles).

INJURIES DURING USE OF FORCE

Next, we examine the Initiative's impact on injuries during use of force incidents by analyzing trends in subject and officer injuries recorded in use of force reports. A review of the annual counts of subject injuries reveals that 2024 counts are considerably lower than the 2018 baseline (4,120 reports vs. 5,339 reports, respectively; 22.8% decline), but more recent counts from 2021 through 2024 show a stable, year-over-year increase. The same review of officer injuries demonstrates that 2024 counts are very similar to 2018 counts (2,027 injuries vs. 2,123 injuries, respectively; 4.5% decline) with stable and modest annual increases in the most recent years of data (2021 to 2024).

The comparative analysis of subject injuries between the pre-period (Jan 2018–Sep 2020; 33 months) and the post-period (Oct 2020–Dec 2024; 50 months) reveals substantial variation in injury patterns across counties. In comparing the average number of subject injuries per month in the pre-period to the post-period, 10 counties demonstrated a reduction across these two averages, whereas 11 counties demonstrated an increase. Similar variation across counties was found for officer injuries. Eight counties demonstrated reductions across the monthly average number of officer injury counts in the pre-period to post-period, and 13 counties demonstrated increases.

Counties that experienced the largest decreases in subject injuries (Mercer and Somerset) also showed substantial decreases in officer injuries, and counties with dramatic increases in officer injuries (Bergen, Hunterdon, Middlesex) also showed substantial increases in subject injury counts, suggesting systematic changes in use of force practices or encounter characteristics in these jurisdictions. Still, some counties (Union, Ocean, Hudson) showed mixed trends across the two outcomes. Overall, this suggests that factors influencing civilian and officer harm may vary across jurisdictions.

Crossover Regressions

We replicated the crossover regression approach used for the use of force report analysis, applying it to both subject and officer injury counts. These models tested whether there was a significant change in injuries as agencies completed training, as the statewide use of force policy was enacted, and when the Use of Force Reduction Initiative was fully implemented across the state (e.g., all agencies trained and statewide policy enacted).

There was no systematic evidence via our crossover regressions that *officer* injuries changed in any meaningful way after either ABLE or ICAT training took place in the short-term, medium-term, or long-term analyses. These findings suggest that while an individual police setting may or may not have experienced a change in officer injuries after de-escalation training, there were no statewide changes that corresponded to training implementation. In contrast, we found a modest but significant increase in *subject* injuries in the long-term following use of force training completion across New Jersey police agencies (no short- or medium-term effects were found). These findings suggest a lagged, moderate increase in subject injuries after both ABLE and ICAT use of force training implementation across New Jersey police agencies.

In assessing changes in injuries following the enactment of the statewide use of force policy (January 1, 2022), the cross-over model did not detect any significant changes, suggesting subject and officer injuries were stable in 2021 (pre-statewide policy) and 2022 (post-statewide policy). Finally, we used crossover regressions to assess the impact of the full Initiative across all New Jersey law enforcement agencies. We found that both officer and subject injuries significantly increased during this period of examination (21.5% for subjects and 15.4% for officers). However, the increase in the number of injuries for both officers and subjects was consistent with the increase in total use of force counts for the same period. The change in injuries relative to changes in total use of force was not statistically significant based on Clogg Z coefficient difference tests. In other words, injury trends did not diverge from overall use of force trends demonstrated in 2023 data.

Quantile Regressions

Quantile regressions were used to identify whether there are certain structural or agency characteristics that corresponded differently among agencies at high, medium, and low risk groups of subject and officer injury counts, net of theoretically relevant control measures. We found that higher levels of ABLE training fidelity and serious offense rate corresponded significantly with subject injuries *only* in the lowest risk group. This suggests that agencies situated in counties that were true to ABLE training implementation had lower rates of subject injuries, compared to those agencies in the lowest risk group that had poor fidelity to ABLE training implementation. Similarly, serious offense rates corresponded with higher counts of subject injuries in lower-risk contexts.

Interestingly, poverty was an uncorrelated covariate to subject injuries in low-risk contexts, but higher levels of poverty corresponded with higher frequencies of subject injuries in middle and high-risk groups. Similarly, arrests were uncorrelated with subject injuries in low-risk contexts, but in the middle and upper ends of the distribution, more arrests corresponded with more subject injuries. There was no association between ICAT training fidelity measures and subject injury counts across any of the groups.

Group-Based Trajectory Analysis and Hierarchical Generalized Linear Modeling

The only outcome that converged for the purpose of group-based trajectory analysis (GBTA) was subject injuries during use of force events. We conducted GBTA to identify two classifications of agencies based on each agency's "risk" of subject injury relative to the annual statewide average injury rate. Using the two groups—high risk and low risk—we employed Hierarchical Generalized Linear Modeling (HGLM) regressions to examine how county-level training fidelity and agency-level characteristics predicted trajectory group membership.

We found that agencies situated in counties with higher ABLE training fidelity were significantly less likely to be classified within the high injury trajectory group; ICAT training fidelity was unrelated to group classification for agencies. Examining the agency-level factors predicting group classification, higher levels of residential instability and increased arrest rates raise the likelihood that an agency was classified as a high injury trajectory group. When controlling the agency-level factors, county-level ABLE training fidelity remained a significant protective factor, suggesting that the quality of county-level ABLE training implementation has independent effects on agency injury outcomes

beyond local structural and operational factors. Notably, these same findings were mirrored in the quantile regression results.

TRENDS IN CIVILIAN COMPLAINTS

Data for civilian complaints were only available from 2021 to 2023, limiting our ability to conduct robust analyses. This became especially difficult when narrowing our focus on complaint categories of practical interest and attempting to isolate complaints that were determined to be sustained. As such, we rely on descriptive reviews of trends related to civilian complaints.

Considering the overall trends in complaints generated by civilians, complaints declined to 8,648 in 2023, representing a 9.4% decrease from the 2022 level, but remaining 3.2% above the 2021 baseline. Civilian complaint types comprised 33 different categories, with some of the largest categories falling within relatively broad buckets that have little definitional or practical utility (e.g., "Other Rule Violation", "Other Departmental Rule Violation"). To further refine our analyses, we examined the breakdown of complaints that are more practically relevant to our evaluation, identifying five categories: discourtesy, improper force, improper search or arrest, differential treatment, and criminal violation. Each year, complaints for discourtesy remained the dominant concern, representing 36% to 48% of all complaints across these five categories. Considering the specific counts of complaints for improper force, there was a noticeable decline in 2023 data, where complaints dropped to 789 from higher records in 2021 (n=848) and 2022 (n=867), representing a 9% decline during the period for which the Initiative was fully implemented.

Importantly, we found there was an extremely low rate of sustained outcomes for civilian complaints (8%). Most civilian complaints from 2021 to 2023 were either determined to be unfounded, exonerated, or resulted in other dispositions through Internal Affairs (IA) investigations. Specific to improper force, only 19 of the 2,504 complaints for the three-year period were sustained, representing less than 1% of the total complaints for improper force. The rare occurrence of sustained improper force complaints creates challenges for identifying effective methods to reduce complaints of this nature.

CASE STUDY SITES

We provide a more nuanced understanding of the varied impacts of the NJOAG's Use of Force Reduction Initiative by examining use of force, injuries, and complaints across four law enforcement agencies in New Jersey. These agencies were selected because they had reliable data reporting, were large enough to detect effects through time series analysis, and offered diversity in terms of geographic location and urban/suburban settings. They include the Camden County Police Department, Perth Amboy Police Department, Toms River Police Department, and Long Branch Police Department.

These analyses highlight the variation in changes to the outcomes across the four law enforcement agencies, findings that are masked when assessing statewide trends. A summary of the changes across outcomes in these four case study agencies is provided in **Table 1**. Where outcomes show an increase, the box is shaded in light green, and where outcomes show a decrease, the box is shaded in light red. Change in outcomes that are mixed or non-significant are shaded in light gray.

Table 1. Summary of Changes in Outcomes for Case Study Sites

	Police Activities	Use of Force Trends	Subject Injuries	Officer Injuries	Civilian Complaints	Interrupted Time Series	Interrupted Time Series
	2018 to 2023	2018 to 2024	Avg. / Month	Avg. / Month	2021 to 2023	Total UOF	Race/Ethnicity – Specific
Camden County Police Department	Greater increase in UOF than in arrest and crime	Increase	Increase	Increase	Decrease	Increase in 3 of 4 models	Varied by subject and intervention point
Toms River Police Department	Greater increase in arrests and crimes than in UOF	Decrease	Increase	Increase	Decrease	Increase in 1 of 4 models	Varied by subject and intervention point
Perth Amboy Police Department	Similar increase across all 3	Increase	Increase	Decrease	Increase	Increase in all 4 models	Varied by subject and intervention point
Long Branch Police Department	Greater increase in UOF than in arrest and crime	Decrease	Decrease	Decrease	No change	No change	Varied by subject and intervention point

DISCUSSION

Over the past decade, there has been substantial attention and movement towards reforming police practices in the United States, often with a focus on improving safety during interactions and building community trust. Various initiatives across agencies and

regions have aimed to change organizational factors that may influence officers' use of force, including new or revised policies, training, supervision, and oversight. Unfortunately, most recommended practices for police use of force reform are not founded upon strong empirical support, as many promising ideas are rarely evaluated or replicated (Engel et al. 2020a; McLean et al., 2022). The challenge of finding solutions to reduce force and enhance safety is underscored by the difficulties in measuring and comparing force-related decisions and context across law enforcement agencies. These empirical limitations highlight the importance of documenting the implementation and impact of police reform efforts, such as those carried out in New Jersey.

Our series of quantitative analyses on use of force and injury during force events, drawing upon crossover regressions, quantile regressions, group-based trajectory modeling, and logistic regressions, demonstrates a few consistent thematic patterns. Our evaluation results suggest that use of force trends, including injuries for subjects and officers, have not uniformly declined over time with the Initiative's implementation. Instead, statewide models assessing the full implementation of the Initiative (training and policy) suggested there were significant increases in total use of force (+9.5%), officer injuries (+15.4%), and subject injuries (+21.5%). The differences in increases across these three outcomes were not statistically significant. Additionally, across *all* long-term crossover models, we found results suggesting that use of force events involving Hispanic individuals significantly increased. Use of force events involving White individuals and Black individuals did not meaningfully change. However, these models used pooled data to assess statewide trends, which masked individual-level variation across counties and departments and could not account for event-level situational characteristics that influence use of force decisions.

Analyses at the individual agency level, such as the interrupted time series modeling and the case study examinations, illustrated the variation in changes masked by the pooled statewide analyses. Based on an agency-level time series analysis, these results suggest that agencies' use of force counts shifted in different directions, with most changes being non-significant.

New Jersey's more than 520 law enforcement agencies operate in highly diverse environments and demonstrate substantial variability in use of force patterns, including incident rates, frequency, and associated injury risk. The heterogeneous nature of these agencies and their use of force patterns highlights the challenge of producing uniform outcomes from a statewide use of force reduction initiative that fails to account for this diversity. Moreover, the consistent association between high fidelity ABLE peer intervention training and lower levels of subject injuries reveals a telling pattern about organizational receptivity to use of force reform. The GBTA results demonstrate that

agencies that were low in subject injuries in force events *after* peer intervention training were also *lower* before peer intervention training (given the stability of the trajectory groups from 2021–2024). This suggests that agencies with lower baseline use of force risk may be better positioned to implement training with high fidelity and maintain supportive organizational cultures, particularly when they are not managing frequent use of force incidents that strain resources and attention. Though we cannot be certain that this finding is simply due to the differences in the difficulty of implementing each program with fidelity during a training period that lasted more than 12 months and covered over 30,000 officers. Conversely, training fidelity was unrelated to use of force patterns in higher-risk agencies experiencing frequent incidents and injuries. These agencies likely need tailored interventions addressing their specific contextual challenges rather than uniform statewide approaches.

We are **not** suggesting that the de-escalation training, peer intervention training, and use of force policy requirements did not work as intended, especially given the heterogeneity in use of force outcomes by agency and by county, and how the training was delivered across the state (see *Report 3: Lessons Learned from Implementation)*. Instead, we can confirm that it did not cause any sizable and uniform shifts in the use of force in New Jersey. There may be many reasons for these findings. When examining national trends, New Jersey is not the only region experiencing recent increases in force-related outcomes. Four of the five largest U.S. cities (New York City, Chicago, Houston, and Phoenix) have reported sizable increases in 2024 use of force counts compared to 2023.[1] We also demonstrated that there have been similar increases in police arrests and offenses reported in New Jersey during the study period, suggesting that an overall increase in police interactions with the public could be affecting the prevalence of officers' use of force.

Finally, and most critically important to the discussion on statewide impacts on police use of force, is that most agencies in New Jersey experience very few use of force events. It speaks volumes that almost three out of every four agencies in New Jersey had so few uses of force that detecting a meaningful change would be virtually statistically impossible—illustrating the rarity of use of force encounters across the state (at least at the agency-level). Therefore, in these jurisdictions where force is already an incredibly rare event, it is possible that these new policy restrictions and training programs do little

[1] Chicago PD (+23.4% change): 2,544 UOF incidents (2023) to 3,138 incidents (2024); Phoenix PD (+7.9% change): 1,485 UOF incidents (2023) to 1,602 UOF incidents (2024); Houston PD (+99.5% change): 4,566 UOF incidents (2023) to 9,110 UOF incidents (2024); New York City PD (+20.1% change): 9,777 UOF incidents (2023) to 11,746 UOF incidents (2024).

to change those rare occurrences that result in force, nor would we be able to detect meaningful changes in our evaluation.

Based on the findings, implications, and limitations raised in this report, we have developed a series of recommendations for policymakers, law enforcement, and researchers in New Jersey and beyond.

1. **Interventions Should Focus on High-Risk Places:** Drawing upon the literature focused on applying the 80/20 rule (aka the Pareto Principle), a theory stating that 20% of any group accounts for 80% of the outcomes involving that group, we suggest that future statewide interventions should focus on the riskiest locations for use of force (see Kock, 1999; Eck et al., 2007). The most at-risk locations/agencies for force and injuries from force events can be identified through statewide data. By concentrating on the high-risk jurisdictions for force events (e.g., the "20%"), statewide efforts can be streamlined and more efficiently focus resources to reduce and prevent the use of force and increase safety.

   The statewide data collection protocol was a clear improvement in use of force record keeping because the count frequencies of force usage and injuries changed substantially in most agencies. We are confident that the NJOAG repository will make agency-specific risk identification and problem analysis for use of force attainable and useful to those agencies committed to using such data as a beneficial source of information.

2. **Tailor Interventions to Local Contexts:** Future statewide interventions should be tailored to individual contexts using problem analysis. As demonstrated in this study, agencies are not at uniform risks for use of force, and different local issues are likely to influence patterns of force and injury risk across various jurisdictions, especially when comparing large urban departments to small rural ones. Additionally, local agency culture, supervision, and leadership practices can either strengthen or weaken statewide efforts. Conducting problem analysis is essential for creating solutions that address the unique problems within each jurisdiction (see Boba, 2003). We recommend that interventions begin by identifying specific issues and then customizing efforts to those contexts.

3. **Interpret Force Counts Alongside Police Activities:** Review trends in use of force and force-related injuries alongside calls for service, arrests, and criminal offenses in public-facing dashboards and reports and during command reviews. It is critical to provide additional context for overall police activities, including

officer exposure to situations that might result in force, which will help to unpack patterns seen in use of force.

4. **Enhance Internal Affairs Reporting Structures:** The implementation of systematic data collection for use of force should also be mirrored in efforts to measure and report agency internal affairs (IA) information. This data contains critical information relevant to dissatisfaction from community members and is particularly relevant to assessing the appropriate use of force by police. However, many of the variables within the current IA data structure do not include useful or actionable information, with many details being comprised of "other," "not reported," or "unknown" responses.

5. **Measure Changes in Severity of Force:** An initial goal of this study was to assess the impacts of the Initiative on the severity of force, which we were unable to do. Future research should extract force types from the statewide use of force data, determine a severity index of use of force that corresponds to the statewide policy, and assess changes across each severity level. It is very possible that the increases in use of force reports demonstrated in some models may be due to increases in lower levels of force, where officers are attempting to avoid higher, more injurious types of use of force that could result in severe injury or death.

6. **Measure Changes through Body-Worn Camera (BWC) Footage:** Future studies would benefit from using a sample of video-coded police-citizen encounters to account for the influence of changes in situational features over time that corresponded with changes in the use of force. These could include measures directly correlated to de-escalation and peer intervention techniques, and other indicators specific to changes in the statewide use of force policy. Use of BWC footage could also better measure the transactional nature of interactions that result in police use of force and assess changes over time.

7. **Measure Public Perceptions in New Jersey:** While officers' use of force did not uniformly decline, we cannot determine the impact of this Initiative on public trust or perceptions of the police. We recommend that others evaluate how the public views NJOAG's efforts to limit police use of force and promote greater accountability and professionalism. If there is any measurable rise in public trust or a reduction in concerns about police behavior, these could indicate success.

Conclusion

The NJOAG's 2020 Use of Force Reduction Initiative represents a landmark effort to improve the safety and effectiveness of police-community interactions in New Jersey. Although the Initiative experienced challenges with consistent implementation across law enforcement agencies (see *Report 3: Lessons Learned from Implementation)* focused on implementation), it was well-received by law enforcement across the state, led to measurable improvements in officer attitudes and perceptions to facilitate safe, effective interactions with community members (Isaza et al., 2025), instituted a critically important uniform use of force data collection system, and helped to standardize the expectations for professional police interactions with the community. However, as the findings presented within this report suggest, the Initiative *did not* lead to uniform reductions in the use of force by law enforcement officers or reduce injuries to officers and community members. Instead, our evaluation shows inconsistent changes across key outcomes that varied across time periods and among individual law enforcement agencies.

The complex narrative offered by the present report aligns with the inherent complexities of implementing organizational change and reform in policing. Indeed, the interdependent systems (e.g., leadership, supervision, training, technology, accountability) comprising police organizations require multi-faceted strategies and substantial oversight to support change (White et al., 2021). While state-level actors—like the NJOAG—serve an important role in transforming police practice, our findings suggest the value of tailoring reform efforts to individual agencies to ensure investment at the local level to accomplish the necessary system-wide changes. We commend the NJOAG for inviting our research team to examine their ambitious Use of Force Reduction Initiative and all New Jersey law enforcement agencies who participated in the research process. Through evaluation, we can provide objective information to guide policy development and institutionalize the growing knowledge base to inform fair and effective policing practices. This study also underscores the importance of collaborating with law enforcement agencies to accumulate knowledge that is practical in the field.

In sum, this research aimed to build knowledge on the implementation and impact of large-scale use of force reform efforts in policing. This study is the first of its kind to examine a statewide initiative focused on reforming police use of force training, policy, and practice. It represents the most extensive evaluation of police reform, highlighting the experiences of over 500 police departments and 31,000 sworn officers in New Jersey. The findings offered by this research, outlined across three reports, provide essential insights on how to support the implementation and sustainability of future reform efforts, as well as methods to evaluate their implementation and impact.

I. INTRODUCTION

In December 2020, the New Jersey Office of the Attorney General (NJOAG) announced the implementation of a comprehensive police reform plan aimed at reducing law enforcement officers' use of force during interactions with community members (NJOAG, 2020). Dubbed "the nation's most ambitious police reform" (Berman, 2020), the package focused on three primary areas: revising statewide use of force policies, mandating use of force training for all sworn officers, and requiring all law enforcement agencies to collect and publish use of force data (*NJOAG Directive 2020-13*). These changes, referred to as the NJOAG's Use of Force Reduction Initiative (the "Initiative"), were designed to emphasize de-escalation, sanctity of all human life, and officers' duty to intervene and were informed by extensive community engagement (NJOAG, n.d.). Importantly, this Initiative was also meant to enhance uniformity in how police approach potentially volatile interactions with the public for the more than 500 law enforcement agencies and 31,000 sworn officers across the state.

The NJOAG Initiative is one example of police reform introduced after highly publicized incidents of officer use of deadly force against Black Americans. Driven by civil unrest and social justice calls, policymakers and police leaders across the nation quickly enacted reforms to reduce excessive force and improve police-community interactions (National Conference of State Legislatures, 2024). However, empirical research has lagged behind these reforms. Despite widespread changes to use of force policies and training, little is known about their effectiveness (McLean et al., 2022). The lack of evidence surrounding these often-called-upon police reforms emphasizes the need for evaluations conducted in real-time with agencies pioneering change in the field. In short, comprehensive evaluations documenting the implementation and impact of police reform efforts can provide essential information to build the evidence base and provide lessons learned to guide the field.

In 2021, the NJOAG engaged our research team to collaborate in a multi-year, multi-method evaluation of their police reform package. This evaluation involves multiple design elements, including (1) a repeated measures survey designed to assess changes in officers' knowledge and attitudes following use of force training; (2) state-level, county-level, and agency-level analyses of administrative and quantitative data to examine the impact of reform efforts on officer and agency outcomes, such as the frequency and severity of use of force by officers, racial and ethnic changes in use of force incidents, and injuries to officers and community members; and (3) qualitative

analyses to consider the lessons learned from implementation of the reform package. Collectively, this evaluation represents the most extensive study of police use of force reform, highlighting the experiences from over 500 police departments.

KEY FINDINGS FROM REPORT 1: OFFICER ATTITUDES AND SELF-REPORTED BEHAVIOR

Report 1, *Examining Police Reforms in New Jersey: Impacts on Officer Attitudes and Self-Reported Behavior*, from this series examined the impacts of the Initiative's mandated training—the Police Executive Research Forum's Integrating Communications, Assessment, and Tactics (ICAT) de-escalation training and Georgetown University's Active Bystandership for Law Enforcement (ABLE) peer intervention training. Report 1 presents findings about officers' perceptions, attitudes, and self-reported behaviors based on surveys administered to officers immediately before, after, and one and two years after training participation. The incredibly high volume of survey responses collected—ranging from 12,623 to 17,036 responses at pre- and post-training—offers insights representative of law enforcement officers across New Jersey.

Findings demonstrate that officers were very receptive to the mandated ICAT and ABLE training programs and perceived that their leadership supported these training programs. After participating in ICAT de-escalation training, officers' attitudes on topics such as use of force, interactions with community members, and responding to people in crisis showed measured changes aligned with training goals. Similarly, after completing ABLE peer intervention training, officers' perceptions of police misconduct, attitudes toward peer intervention, and self-reported likelihood of engaging in peer intervention reflected measured changes aligned with training objectives. Many of these changes were statistically significant for both training programs. Long-term assessments indicate that officers still find de-escalation and peer intervention strategies useful, although some decline in training effects does occur.

The report confirms that de-escalation and peer intervention training can support change in officers' views to facilitate safe, effective interactions with community members. It also shows that mandated training, whether carried out through state reform or other oversight methods, can still be positively received by officers and produce effects similar to those of voluntary training programs implemented by law enforcement agencies.

ABOUT THIS REPORT

This report is the second in a series of three documents detailing our evaluation results. It presents findings from analyses of officer field behavior, measured through law enforcement administrative data (e.g., use of force, citizen complaints, arrests). Various analytic techniques are used to determine whether and to what extent the NJOAG's Initiative reduced the frequency of use of force, improved safety (e.g., reduced officer and subject injuries), and decreased civilian complaints against the police. This report is organized as follows:

- Section I, **Introduction**, provides an overview of this report as well as a summary of findings for *Report 1: Impact on Officer Attitudes and Behaviors* in this series.
- Section II, **Literature Review**, summarizes research examining police use of force, injuries to police officers and community members, and efforts to alter use of force practice to enhance the safety and effectiveness of police interactions.
- Section III, **New Jersey Use of Force Reduction Initiative**, describes the police reforms implemented as part of the New Jersey Use of Force Reduction Initiative.
- Section IV, **Methodology**, summarizes the research design of the broader evaluation and highlights the research questions and data sources that are the focus of this second of three reports in the series.
- Section V, **Trends in Statewide Police Activity**, examines the long-term, statewide trends in police activities as measured through serious crime, arrests, and use of force counts.
- Section VI, **Trends in Use of Force Encounters**, examines trends in police use of force through a series of univariate and multivariate analyses to assess the impact of the Initiative on use of force counts, including changes in the racial composition of subjects in force events.
- Section VII, **Trends in Injuries During Use of Force**, examines trends in force-related injuries for subjects and officers to assess the Initiative's effects using a series of univariate and multivariate analyses.
- Section VIII, **Trends in Civilian Complaints**, provides univariate analyses of civilian complaint trends across the state.
- Section IX, **Case Study Examinations**, provides a more nuanced understanding of the impacts of the Initiative across outcomes by taking a deep dive into four law enforcement agencies to explore their individual-level changes.
- Section X, **Discussion**, offers an overview of the primary findings and implications, presents study limitations and recommendations for future police reform efforts and research.

This study offers one of the first comprehensive examinations of a statewide reform effort to reduce police use of force, analyzing both implementation and outcomes. The results show that the NJOAG Use of Force Reduction Initiative did not lead to consistent statewide decreases in use of force and related injuries. Instead, different agencies experienced varied changes in their outcomes. Based on these findings, we recommend that future statewide efforts adopt a more focused approach, incorporating best practices from implementation science (e.g., organizational readiness, available resources, see *Report 3: Lessons Learned from Implementation*) and conducting problem analyses to identify the best areas for intervention. Customizing interventions for these areas can generate the greatest impact.

II. LITERATURE REVIEW

Since the earliest empirical examinations of policing in the United States, scholars have observed that the most defining characteristic of police work is the ability of officers to use force to manage situations (Bittner, 1974; Fyfe, 1988; Westley, 1970). Indeed, over five decades ago, Egon Bittner (1970) argued that officers' ability to use force and the public's expectation that they do so when necessary separate policing from all other professions. This defining characteristic has been subject to substantial scrutiny and debate over time, with researchers, policymakers, and the public seeking to understand when, why, and how officers use force in their encounters with community members. In the past ten years, in particular, the national conscience regarding police use of force has been heightened by high-profile incidents of fatal use of force by officers against Black Americans (Walker, 2018; Zimring, 2017). Fed by a stream of online videos, a "new conversation" about policing and mechanisms to change use-of-force-related practices has emerged (Sherman, 2018). Calls for enhancements to police practice (21CP Solutions, 2023; President's Task Force on 21st Century Policing, 2015), the development of national guidance around use of force (see, e.g., IACP, 2020; PERF, 2016), and implementation of significant reform initiatives—like that in New Jersey—have followed. However, the examination of the impact of these reform efforts has not always kept pace with practice (Engel et al., 2020a; Lum et al., 2016).

This section of the report offers a summary of research examining police use of force, injuries to police officers and community members, and efforts to alter use of force practice to enhance the safety and effectiveness of police interactions. Notably, empirical examinations of these topics comprise more than 50 years of research. Major findings from these interrelated bodies of work are presented below.

UNDERSTANDING POLICE USE OF FORCE

One of the most consistently documented findings on police use of force is our lack of knowledge about it (Bennell et al., 2021). Despite decades of research, we still know relatively little about how, when, and under what contexts officers use force. This dearth of knowledge is compounded by persistent empirical challenges caused by variability in defining, tracking, and measuring force within law enforcement agencies (Garner et al. 2002, 2018; Hickman et al., 2008; Hollis, 2018; Terrill et al., 2018). Still, when it is studied, researchers typically find that officers' use of force is a rare occurrence, arising in only one to five percent of all police encounters, depending on how "force" is measured

(Friedrich, 1980; Garner et al., 2018; Tapp & Davis, 2024; Terrill, 2003). Additionally, research suggests that when officers use force their actions typically fall on the less severe end of the use of force continuum, involving lower levels of hands-on force (see, e.g., Bayley & Garofalo, 1989; Garner et al., 1995, 2018; Klinger, 1997; Stroshine & Brandl, 2020; Terrill, 2003; Torres, 2020).

A substantial body of empirical literature has focused on factors associated with police officers' use of force. Traditionally, this literature has grouped the potential predictors of use of force into four categories, including individual, situational, organizational, and community factors. Although characterized by several methodological challenges (Fridell, 2017), this research highlights the particular importance of situational factors, like civilian resistance, in explaining the likelihood and severity of officers' use of force. In contrast, individual (e.g., officer and civilian characteristics), organizational, and community factors are found to have limited and/or less consistent effects on use of force outcomes. However, more research is needed to understand their relationship with the probability and severity of use of force. The primary findings from the available literature are presented in greater detail below.

Individual Factors Affecting Use of Force

Individual factors refer to the characteristics of officers and civilians that may influence the likelihood of police use of force in their interactions. Research considering these factors is based on the hypotheses that certain types of officers may be more likely to use force against civilians and certain types of civilians may be more likely to experience the use of force by officers.

Regarding *officer characteristics*, research typically suggests that officers' gender and race do not significantly predict the use of force (see Bolger, 2015; Brandl & Stroshine, 2013; Paoline & Terrill, 2005; Schuck & Rabe-Hemp, 2007). Although a few studies have found a race effect for officer-involved shootings, the specific findings were inconsistent across studies (McElvain & Kposowa, 2008; Donner et al., 2017; Ridgeway, 2016). Similarly, there is some empirical support that officers with higher levels of education and more experience are less likely to use force (Chapman, 2012; McElvain & Kposowa, 2004; Paoline & Terrill, 2007; Rydberg & Terrill, 2010; Terrill & Mastrofski, 2002), but these findings are not universal (see, e.g., Klahm et al., 2011; Lawton, 2007). Notably, recent research examining the influence of personal attributes on the likelihood of force suggests that officers participating in behaviors aligning with "low self-control" are also more likely to have been involved in a shooting (Donner et al., 2017). Collectively, the available research suggests that officers' characteristics are weak predictors of use of

force, generally, though some may predict officers' involvement in more severe types of force.

Research examining the relationship between *civilian characteristics* and police use of force often finds that men are more likely to experience more frequent and severe levels of force at the hands of police officers (Garner et al., 2002; Gau et al., 2010; Kaminski et al., 2004; Terrill & Mastrofski, 2002). Younger individuals are also more likely to experience the use of force (Crawford & Burns, 1998; Hickman et al., 2008; Terrill & Mastrofski, 2002), though the relationship between age and use of force is weaker than that for gender. The impact of civilian race has received substantial attention in research examining police use of force (see Hollis & Jennings, 2018, for review). However, findings across this literature are mixed and often dependent on context; specifically affected by the type of force examined and the specific measurement of key variables (i.e., force, race/ethnicity). Several studies have found no significant racial or ethnic difference in police use of force (e.g., Brandl & Stroshine, 2017; Phillips, 2010; Terrill, 2005; Terrill & Mastrofski, 2002). Among those that have found a relationship between race and use of force, there is limited agreement on what that relationship looks like (e.g., compare Garner et al., 2002; Duran & Loza, 2017; Kahn & Davies, 2017). Collectively, this research provides a complex narrative on the presence and causes of racial and ethnic disparities, made more complicated when important control variables are considered (e.g., civilian resistance, neighborhood context, see below). Systematic reviews of available research call for empirical examinations employing stronger designs, samples, and methods to enhance understanding of the intersections of race/ethnicity and police use of force (Hollis & Jennings, 2018).

Finally, in examinations of the influence of civilian characteristics, most research suggests that civilian demeanor is a strong predictor of officers' use of force (Engel et al., 2012). Although not without methodological limitations (see Donovan et al., 2018; Dunham & Alpert, 2009), studies suggest that individuals who are perceived to be disrespectful, hostile, and/or confrontational are more likely to experience force at the hands of police officers (James et al., 2018; Sun & Payne, 2004). These findings are supported by similar observations surrounding officers' decisions to arrest (e.g., Engel et al., 2000; Lundman, 1994, 1996). Other factors affecting demeanor, including substance use and mental health, have been considered by a handful of studies, offering inconclusive findings (Gill et al., 2018; Kaminski et al., 2004)

Situational Factors Affecting Use of Force

Situational factors refer to the specific circumstances of a police-civilian encounter that can influence an officer's decision to use force. The available research highlights the

positive association of several situational factors on this outcome, including evidence of criminal behavior (Kramer & Remster, 2018; McCluskey & Terrill, 2005; Rydberg & Terrill, 2010), presence of a weapon (Crawford & Burns, 1998), civilian resistance (McCluskey & Terrill, 2005; Terrill et al., 2008), and incidents involving arrests or pursuits (Stroshine & Brandl, 2020). Importantly, civilian resistance to officers' attempts to detain him/her is consistently observed as the most important factor explaining officers' use of force and the severity of force used (see, e.g., Fridell & Lim, 2016; Garner et al., 2002; Gau et al, 2010; Stroshine & Brandl, 2020; Terrill & Mastrofski, 2002). In contrast, a number of other situational factors have not consistently been found to affect officers' decisions to use force, including how an encounter is initiated (officer- versus civilian-initiated; Johnson, 2011; McCluskey & Terrill, 2005; Paoline & Terrill, 2007) and the presence of other officers and civilians on-scene (Garner et al., 2002; Lawton, 2007; Rydberg & Terrill, 2010; Terrill & Mastrofski, 2002). Still, the available evidence highlights that studies that fail to include an array of situational variables in analyses of use of force risk misspecification errors (Bolger, 2015).

Organizational Factors Affecting Use of Force

Organizational factors refer to the structure, culture, policies, training, and resources of a law enforcement agency that may affect officers' use of force. These factors are viewed as guiding officer discretion and informing decision-making in their encounters with community members (Nowacki, 2015). However, notably fewer studies have examined the impact of these factors on use of force.

Some research suggests that agency size may be positively associated with officers' use of deadly force (Nowacki, 2015; Willits & Nowacki, 2014). In contrast, agencies with more restrictive use of force policies have been found to be associated with lower rates of officer use of force, more generally (Bishopp et al., 2015; Ferdik et al., 2014; Nowacki, 2015; Terrill & Paoline, 2017). Additionally, the limited research examining the impact of first-line supervision suggests that supervisors can influence officers' perceptions of use of force policies and likelihood of using less lethal force in their encounters (Ingram et al., 2014; Lim & Lee, 2015; Van Craen & Skogan, 2017). More recently, Engel and colleagues (2022a) highlighted the value of supervision as a mechanism to reinforce use of force de-escalation practices, finding that supervisors' receptivity to de-escalation training is a significant predictor of their engagement in activities that reinforce de-escalation for subordinates. Offering some insight into the effects of culture, Ingram and colleagues (2018) found that officers in patrol workgroups that valued aggressive strategies tended to use force at higher rates than officers working within less aggressive workgroups.

Finally, emerging research on the impact of police training on officer behavior has provided initial evidence that de-escalation training may reduce officers' use of force. For example, Engel and colleagues (2020b, 2022b) evaluated the impact of the Police Executive Research Forum's Integrating Communications, Assessment, and Tactics (ICAT) de-escalation training within the Louisville Metro (KY) Police Department using a modified randomized control trial. ICAT training was observed to be associated with significant declines in officer use of force (–28.1%). This study provided the first evidence of the capacity of de-escalation training to impact officer behavior. Other evaluations, however, offer mixed findings. Specifically, researchers have observed no significant training effects on officers' use of force (Lee et al., 2010; McLean et al., 2020; Terrill & Mastrofski, 2002), reductions in only certain types of force (White et al., 2023), or different findings based on the type of analysis used to examine the use of force (Goh, 2021).

Collectively, the limited evidence suggests that organizational factors like agency size, culture, policy, supervision, and training may influence officers' decisions to use force. However, more research is needed to understand this connection.

Community Factors Affecting Use of Force

Community factors refer to characteristics of communities or neighborhoods that may be associated with officers' use of force (e.g., racial composition, concentrated disadvantage, crime rates, socioeconomic status). The research examining the effects of community factors suggests that incidents of use of force are embedded within larger neighborhood contexts that can shape patterns in officer decision-making (Parker et al., 2005). Evidence on the influence of these factors is both limited and mixed (Kramer & Remster, 2018; Lawton, 2007; Morrow et al., 2017), with recent examinations highlighting the importance of measuring both the frequency and severity of use of force across neighborhoods (Lautenschlager & Omori, 2019).

For example, findings from some studies suggest that officers are more likely to use force against civilians in neighborhoods characterized by greater racial and ethnic heterogeneity (Lersch et al., 2008; Lee, 2016; Smith, 1986). However, more recent research suggests that racial/ethnic heterogeneity in neighborhoods is associated with *fewer but more severe* incidents of force (Lautenschlager & Omori, 2019). Similarly, while several studies have observed that more serious types of force are used against civilians encountered in neighborhoods characterized by greater concentrated disadvantage (Lautenschlager & Omori, 2019; Sun et al., 2008; Terrill & Reisig, 2003), Lautenschlager and Omori (2019) found that the average severity of force was lower in incidents occurring in these neighborhoods. Neighborhood crime rates (particularly violent crime)

have also been found to have a significant, positive relationship with the frequency of police use of force (Fridell & Lim, 2016; Fyfe, 1980; Lee et al., 2014; Terrill & Reisig, 2003). However, researchers have also found crime rates to be negatively associated with the average severity of force used by officers (Lautenschlager & Omori, 2019). Altogether, more research is needed to understand the relationship between community factors and police use of force.

EXAMINING INJURIES TO OFFICERS AND COMMUNITY MEMBERS

Officers' use of force in their interactions with community members can cause injuries to both civilians and officers. Reported injury rates vary across studies due, in part, to differences in the definition and measurement of injury in the available literature. Still, rates of civilian injury during police interactions are typically found to be higher than those for officer injury (see, e.g., Morabito & Socia, 2015; Smith et al., 2007; Stroshine & Brandl, 2020; Taylor & Woods, 2010). However, research suggests that most civilian injuries resulting from officers' use of force can be medically characterized as minor (see Hickman et al., 2021 for review).

Researchers find that the likelihood and severity of injuries occurring in police-civilian interactions are associated with the type of force used by officers. For example, findings from several studies suggest that the use of conducted energy weapons and OC spray can decrease the likelihood of civilian and officer injuries, as well as the severity of civilian injuries in interactions involving police use of force (Kaminski et al., 2015; Lin & Jones, 2010; MacDonald et al., 2009; Taylor & Woods, 2010). However, these findings can vary depending on the number, order, and types of force used in a single incident (Paoline et al., 2012). The use of physical force (e.g., strikes, restraints) has been found to increase the likelihood of civilian and officer injury (MacDonald et al., 2009; Stroshine & Brandl, 2020), though this finding is also not universal (Terrill & Paoline, 2012).

Available research offers limited consensus on the influence of civilian and officer characteristics on the likelihood and severity of injury (Stroshine & Brandl, 2020). Officer characteristics (e.g., age, gender, race) are typically not found to significantly influence the probability of injury (Covington et al., 2014; MacDonald et al., 2009; Paoline et al., 2012; Smith et al., 2007). Similarly, the role of civilian characteristics (e.g., age, gender, race) in contributing to injury is reported as limited or unclear. However, the level of resistance by a civilian is found to be an important predictor for both civilian (MacDonald et al., 2009; Terrill & Paoline, 2012) and officer injuries (Hine et al., 2018; MacDonald et

al., 2009; Paoline et al., 2012), with physical resistance increasing the likelihood of injury. Additionally, civilians are more likely to be injured when they are armed with a weapon or exhibit life-threatening behavior (Lin & Jones, 2010; Morabito & Socia, 2015; Rossler & Terrill, 2017). The likelihood of officer injury in these incidents is less clear, however (see Paoline et al., 2012; Stroshine & Brandl, 2020; in contrast, see Smith et al., 2007).

EVALUATING POLICE USE OF FORCE REFORM EFFORTS

Overall, efforts to reform police use of force have focused on changing and/or enhancing organizational factors that may affect officers' use of force. Primary elements of these efforts include the introduction of new or revised use of force policies, training, supervision, and oversight (e.g., comprehensive data collection plans, early intervention systems, civilian review boards). Collectively, these changes aim to provide guidance and reinforcement for officer decision-making that prioritizes safe, effective responses to potentially volatile incidents.

Although calls for change in policing have been at the center of a social movement over the past decade, comprehensive evaluations of reform initiatives are virtually nonexistent (see *Report 3: Lessons Learned from Implementation* for a review). This dearth of knowledge requires police practitioners and policymakers to piece together the available evidence and best practices on a diverse array of strategies intended to affect officers' use of force. Unfortunately, most recommended practices for police use of force reform are not founded upon strong empirical evidence (see Engel et al., 2020b and Lum et al., 2016, for reviews). In a recent review of strategies to regulate police use of force, for example, McLean and colleagues (2022) reported "a wealth of theories and a lack of evidence" comprised by the implementation of many promising ideas with limited evaluation or replication. In short, we have a limited understanding of the (in)effectiveness and unintended consequences associated with various use of force reduction strategies.

These empirical limitations highlight the importance of evaluations documenting the implementation and impact of police reform efforts to build the evidence base and offer lessons learned to the field. The present study offers one of the first extensive and comprehensive examinations of a statewide reform effort designed to reduce police use of force, assessing both implementation and impacts. It adds to the very limited research exploring how changes are implemented and sustained within law enforcement agencies.

III. NEW JERSEY USE OF FORCE REDUCTION INITIATIVE

Some have observed that State Attorneys General can be important agents for police reform and are instrumental to transformations in policing (Mazzone & Rushin, 2020). Leveraging its unilateral authority over law enforcement in the state, in 2020, the New Jersey Office of the Attorney General mandated an overhaul of the state's use of force policies and required retraining of every sworn law enforcement officer to reframe police interactions with community members—specifically prioritizing the protection of the life, liberty, and dignity of community members in every encounter (NJOAG, n.d.; see also *NJOAG Directive 2020-13*). Collectively, the work comprising this comprehensive reform initiative aims to reduce the frequency and severity of use of force by all of New Jersey's 31,000 state, county, and local law enforcement officers.

This comprehensive reform package, which we refer to as the Use of Force Reduction Initiative ("the Initiative"), includes three major components: (1) changes to statewide use of force policy; (2) mandatory use of force training for all sworn law enforcement; and (3) collecting and publishing uniform, comprehensive data around police use of force. Notably, the sweeping changes to the statewide use of force policy represented the first significant revisions to the policy in two decades. These revisions were informed by 21 listening sessions held for members of the public by County Prosecutors, the review of hundreds of public comments, and consideration of best practices for police use of force policies. The revised use of force policy, which took effect December 31, 2021, contains the following major changes:[2]

- Prohibiting all forms of physical force against a civilian, except as a last resort and only after the officer attempts to de-escalate the situation and provides the civilian with an opportunity to comply with the officer's instructions.
- Prohibiting all forms of deadly force against a civilian—including chokeholds and strikes to the head or neck—except as an absolute last resort when the officer reasonably believes that such action is immediately necessary to protect the officer or another person from imminent danger of death or serious bodily injury.

[2] Changes pulled directly from https://www.njoag.gov/ag-grewal-overhauls-statewide-police-use-of-force-policies/

- Prohibiting officers from firing weapons at a moving vehicle or engaging in a high-speed car chase, except under narrowly limited circumstances.
- Providing new guidance on the use of less-lethal force as an alternative to deadly force and as a tool for de-escalation.
- Establishing an affirmative "duty to intervene" that requires all officers—regardless of rank, title, or seniority—to intercede if they observe another officer engage in illegal or excessive force against a civilian.
- Establishing an affirmative "duty to provide medical assistance" that requires officers to request—and, where appropriate, personally provide—medical assistance after any use of force against a civilian.

The use of force policy also requires law enforcement agencies to conduct annual analyses of use of force incidents to examine trends, including racial disparities, and submit these analyses to their county prosecutor for review.[3] Although agencies may have their own use of force policy that may be *more* restrictive than the newly established requirements, these individual policies must align with the statewide policy. To educate officers of these changes, all law enforcement were required to complete eight hours of online training specific to the statewide use of force policy.

Also included in the Initiative was the implementation of a centralized platform for the submission of use of force reports. Powered by Benchmark Analytics, officers must submit a detailed report about an interaction with the public that resulted in force within 24 hours of the incident. This detailed report is now a uniform form across the state that collects many contextual variables, such as weather conditions, location type, and subject resistance, that have not been traditionally captured in force reports. Data from these reports feeds into a publicly accessible online dashboard, where users can download the entire dataset. Data captured in this dashboard includes reports from October 1, 2020, through the most recent full month of the year.

The final component of the reform initiative includes the mandatory participation of all sworn law enforcement officers in two in-person use of force training programs: *Active Bystandership for Law Enforcement* (ABLE) peer intervention training and *Integrating Communications, Assessment and Tactics* (ICAT) de-escalation training. Both are widely recognized use of force training programs, with hundreds of police departments implementing each of these programs.[4] Participation in these trainings was intended to

[3] As part of this work, the NPI created a guide for New Jersey law enforcement, available here: https://www.policinginstitute.org/publication/summarizing-use-of-force-data-for-the-public-a-how-to-guide-for-law-enforcement-in-new-jersey/

[4] https://www.law.georgetown.edu/cics/able/ ; https://www.policeforum.org/icat-training-guide

assist officers with implementing the new statewide use of force policy and provide them with tools and tactics to limit the use of force.

ABLE training, developed by Georgetown University and partners, is an eight-hour, single-day course designed around the science of active bystandership. Often referred to as peer intervention training, this program teaches officers skills to intervene—as well as instruction on the importance of accepting intervention—from peer officers and supervisors to avoid mistakes, prevent misconduct, and promote officer health and wellness.

ICAT training, developed by the Police Executive Research Forum (PERF), is a 12-hour, two-day course designed to provide officers with tools and skills to defuse potentially volatile interactions. PERF developed ICAT with input from hundreds of law enforcement professionals, including a specific focus on how policing is conducted in the United Kingdom, where officers do not typically have access to firearms. ICAT uses its Critical Decision-Making Model as a framework for officer responses to all encounters with the public, emphasizing the consideration of police powers and response proportionality when responding and the importance of continuous assessment of the effectiveness of their response.

Initially, the NJOAG required all sworn law enforcement to complete ICAT and ABLE training by December 31, 2021. Due to delays caused by the COVID-19 pandemic and other logistical challenges, the NJOAG extended this deadline to April 30, 2022 (see *NJOAG Directive 2021-7*). This directive also mandated counties and statewide law enforcement agencies to report their training progress to the NJOAG's Office of Public Integrity and Accountability (OPIA). After reviewing these updates, the OPIA noted that, while many agencies made significant progress, some counties faced delays and would not meet the April 2022 deadline. Consequently, in May 2022, *NJOAG Directive 2022-5* was issued, further extending the deadline to September 30, 2022. Nevertheless, the Department of Corrections and all county correctional agencies received a separate extension until December 31, 2022.

The plan for implementing ICAT and ABLE training was individually handled by each county (N = 21) or by three statewide agencies (New Jersey State Police, New Jersey Transit Police Department, and Rutgers University Police Department). An ICAT/ABLE coordinator was selected for each, typically a staff member of the county prosecutor's office or a member of the training staff at the statewide agency. This coordinator was responsible for scheduling, coordinating, and managing the ICAT and ABLE training programs and ensuring that every law enforcement officer within their jurisdiction completed training. The coordinator served as the primary point of contact for the

NJOAG regarding ICAT and ABLE training in their county/agency. Therefore, the exact timelines for training delivery and methods by which training was delivered varied by county despite the provision of statewide requirements (see *Report 3: Lessons Learned from Implementation* for additional discussion on training fidelity and implications from deviations).

Training rosters that were collected as part of these efforts were shared with the research team, and training timelines are provided in **Table 45** in **Appendix 1.** Training rosters collected from September 2021 through April 2023 confirm substantial compliance with the training mandates, indicating 29,474 officers completed ABLE and 29,225 officers completed ICAT, resulting in training compliance percentages of 94.6% and 93.8%, respectively. For more details on this training compliance, please see *Report 1: Impacts on Officer Attitudes and Self-Reported Behaviors* in this series.

IV. METHODOLOGY

This report is the second in a series of three that describes research findings from a larger evaluation of use of force reform for law enforcement in New Jersey.[5] The full evaluation includes several research methodologies with different forms of data collection and offers one of the most extensive examinations of police reform involving over 500 police departments representing over 31,000 sworn officers. A summary of the six data sources used for the full evaluation and their policy or research relevance is shown in **Table 2.** All data collection and related research activities were reviewed and approved by the University of Cincinnati's Institutional Review Board (IRB) for the period of August 2021 to October 2022, followed by the National Policing Institute's IRB from October 2022, forward. This report is focused on findings using statewide police administrative data and community-level data (shown in blue in **Table 2**). The research questions and data analysis plan used to inform this report are presented below.

Table 2. Data Sources and Relevance for Full Evaluation[6]

Data Source	Research / Policy Relevance
1. Officer Surveys • ICAT Pre-Training Survey • ICAT Post-Training Survey • ABLE Pre-Training Survey • ABLE Post-Training Survey • Follow-Up Survey – ICAT/ABLE Combined • Second Follow-Up Survey – ICAT/ABLE Combined	• Baseline rates of receptivity and reactions to training • Extent of knowledge acquisition after training • Self-reported use of training skills in the field • Influence of supervisory and agency support on reinforcing training principles • Measures of training decay • Comparison across officers, agencies, and counties
2. **Statewide Police Administrative Data**	• Assess changes in these outcomes over time (UOF frequency/severity, racial differences in UOF, officer and community member injuries) • Identify organizational factors associated with changes
3. **Police Use of Force Policies**	• Identify compliance with state requirements • Identify minor and major agency-specific additions
4. **Community-level Data**	• Baseline/control measures for models

[5] Other reports in this series may be found at https://www.policinginstitute.org/projects/new-jersey-evaluate-use-of-force-policies-training/

[6] Note that this table outlines the data sources for the project as of February 2025, after the discontinuation of case study sites from the research plan.

5. Semi-Structured Interviews • Interviews with county coordinators • Interviews with AG staff, police executives	• Identify general perspectives of statewide reform, anticipated and unanticipated consequences, and potential impediments of behavioral changes
6. Police Executive Survey	• Gather the views of police executives on implementation of reform, impacts of reform, and plans to sustain over time

RESEARCH QUESTIONS

The goal within this portion of the evaluation is to assess the impact of the NJOAG's Use of Force (UOF) Reduction Initiative on officer field behavior, as measured through police administrative reports, including use of force and civilian complaints. The primary research questions driving this plan include:

1. Does the NJOAG UOF Reduction Initiative impact the frequency of use of force?[7]
2. Does the NJOAG UOF Reduction Initiative have differential impacts across racial/ethnic groups in use of force?
3. Does the NJOAG UOF Reduction Initiative impact officer and community member injuries?
4. Does the NJOAG UOF Reduction Initiative impact civilian complaints?

Based on the goals of the UOF Reduction Initiative, we might expect changes across the primary outcomes of interest: frequency of use of force, the racial/ethnic composition in force incidents, officer or community member (subject) injuries during police encounters, and civilian complaints. From one perspective, reductions across these outcomes may be interpreted as the Initiative enhancing the safety and effectiveness of police-citizen interactions. In contrast, increases across outcomes might indicate differences in law enforcement reporting of use of force incidents (e.g., greater accuracy in reporting, see Soares, 2004) or reflect changes in community members' interactions with officers in the post-COVID world (e.g., officers responding to increased levels of incivility, see Ghaziri et al., 2021). In turn, null or mixed findings across the outcome measures may suggest changes in multiple components of behavior (i.e., reporting,

[7] This research question was also intended to assess the impacts on the *severity* of force events in New Jersey. However, due to issues in the reliability of the type of force from the historical force data and measurement issues in the more recent NJOAG-collected force data (e.g., type of force is a narrative variable, with several force options included in a single response), this evaluation is unable to examine changes in the *severity* of force as an outcome of the NJOAG Use of Force Reduction Initiative.

responses to resistance, etc.), highlighting the importance of exploratory analyses to provide additional context and understanding to these findings.

DATA SOURCES

The NJOAG Use of Force Reduction Initiative is designed to encourage officers to prioritize the use of de-escalation during interactions with the public, promote safer interactions, and encourage intervention to reduce police mistakes and mitigate improper use of force. The measures detailed below will help establish whether the desired changes were accomplished, any backfire (adverse) effects from the reform efforts, and/or if the Initiative had no impact on officer behaviors in New Jersey.

Outcomes of Interest

This study examined five outcomes of interest: (1) frequency of use of force, (2) racial/ethnic differences in use of force, (3) subject injuries during use of force, (4) officer injuries during use of force, and (5) civilian complaints.

1) USE OF FORCE

Use of force data used in this report was culled and merged from two sources: (1) historical reports provided by the NJOAG to the research team (Jan 2018 to Sep 2020); and (2) the NJOAG use of force dashboard[8] (Oct 2020 to Dec 2024). These two sources of data were merged using agency name and county name fields. Historical use of force data was provided in the form of PDF reports, separated by the 21 counties in New Jersey, but with little systematic naming for files. Report styles varied both across and within (dependent on time of report) law enforcement agencies, with some entirely electronic and some in the form of scanned copies of handwritten forms.[9]

To extract CSV file data from the historical PDF forms, the research team enlisted a computer scientist to build a program to process the electronic and handwritten PDF forms.[10] The process was able to successfully read and pull information from 40,459

[8] https://www.njoag.gov/force/

[9] This methodological approach (training by county training onset) led to the removal of the following non-county agencies: Department of Corrections, Division of Criminal Justice, Division of Fish and Wildlife, New Jersey Transit Police, New Jersey Juvenile Justice Commission, New Jersey State Human Services, Park Police, New Jersey State Police, and New Jersey State Parole Board.

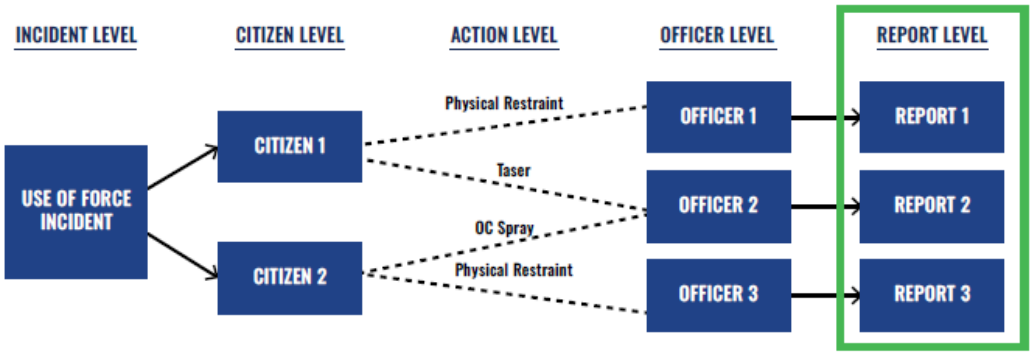
[10] Note that this process was identified after it was determined that the use of manual data entry was too time- and resource-intensive, with an average entry speed of 11 reports per hour. Manual entry of historical use of force reports was discontinued and replaced with an automated coding process after conversations and approval from Arnold Ventures.

forms.[11] The research team validated the extracted data by implementing a validation scheme through MS Access, which included reviewing a sample of extracted data cases. The random sample (n=40) comprised five reports from eight New Jersey agencies with the highest frequency of use of force reports. For each report, the scanned PDF file was compared with the extracted data in MS Access across key variables of interest to ensure correct input. The review indicated no errors in coding subject race, subject sex, subject injury, or officer injury from scanned PDFs. Type of force, however, had a much higher error rate and was therefore not considered a reliable measure. Due to issues in the reliability of the type of force from the historical force data and measurement issues in the more recent NJOAG-collected force data (e.g., type of force is a narrative variable, with several force options included in a single response), *this evaluation is unable to examine changes in the severity of force as an outcome of the NJOAG Use of Force Reduction Initiative*.

Use of force events gleaned from the NJOAG data portal are measured at the report-level, as demonstrated in **Figure 2.** Historical use of force is also captured at the report level, but we cannot be certain that each law enforcement agency had a single officer fill out each report (e.g., if the unit of analysis is the same across all 500+ departments). It is possible that the historical data (Jan 2018 to Sep 2020) may have definitional differences across agencies, but we use all data that was appropriate based on the analysis.

We assess changes in, and correlates of, the frequency of use of force through descriptive review, crossover count regressions, interrupted time series models, and quantile regressions.

Figure 2. Use of Force Unit of Analysis



[11] A small number of forms could not be processed due to the submission of incorrect file types (e.g., screenshots of Blue Team or IA Pro), incomplete forms (e.g., use of force narrative only), or corrupt files.

A CAUTIONARY NOTE ON NEW JERSEY USE OF FORCE DATA

Over 500 independent law enforcement agencies operate in New Jersey, and each has historically collected its own data related to use of force. Agencies varied in how they measured force and the details they included in their reports. We are uncertain how similar/different reports of officers' use of force were across these agencies.

In 2020, the NJOAG launched a statewide use of force data collection platform. Using this platform, all officers involved in use of force incidents are required to enter a report detailing their interaction with the person upon whom force was used. An online dashboard allows the public to search reports on police use of force from all law enforcement agencies as far back as October 2020. The transition to systematic data collection and consistency in reporting in this dashboard enhances our capacity to compare use of force across New Jersey agencies.

In some of our more rigorous analyses, we rely only on data collected after the transition to the systematic data collection platform. A few analyses rely on data across the full timeline (2018 to 2024), but only comprise a small subset of consistent agency data. More information on this process is included in **Section VI. Trends in Use of Force Encounters**, ***Interrupted Time Series Models***. We identified substantial differences in the overall count of use of force reports collected before and after the introduction of the use of force data portal. Specifically, we found 81% of law enforcement agencies with 42 or more annual use of force reports had substantially different annual counts from pre- to post-portal *in both directions*, based on mean and variance instability over time. While we cannot be sure that these differences do (or do not) reflect actual changes in the frequency of use of force across the two periods, our detailed analyses suggest they are likely a function of changes in reporting.

2) RACIAL/ETHNIC DIFFERENCES IN USE OF FORCE

Based on single-subject use of force reports from the data source described above, we extracted the subject's race or ethnicity to assess differences in changes in the frequency of use of force over time for each group. We compare these to changes in the overall frequency of use of force events. We employed comparative analyses for Black, Hispanic, and White subjects. We assessed changes in, and correlates of, racial and ethnic groups involved in use of force through descriptive review, crossover count regressions, interrupted time series models, and quantile regressions.

3) SUBJECT INJURIES DURING USE OF FORCE EVENTS

Based on use of force reports, we extracted information on the injuries incurred by individuals upon whom force was used, referred to as "subjects," during police use of

force events. Subject injury information is available for review and analysis from 2018 to 2024. Like the report data, the unit of analysis included in this evaluation is at the individual level for all injury analyses. Counts may be higher for subject injury data than for use of force report data if more than one subject was injured by a single officer during a use of force encounter (~2% of the sample), depending on the analysis at hand. We assess changes in, and correlates of, subject injuries through descriptive review, crossover count regressions, quantile regressions, group-based trajectory analysis, and hierarchical generalized linear modeling. More specifics on how injury data were used in the analysis are provided in **Section VI. Trends in Use of Force Encounters** and **Section VII. Trends in Injuries During Use of Force.**

4) OFFICER INJURIES DURING USE OF FORCE EVENTS

Also gleaned from use of force reports, we extracted information on police officers injured during use of force events. Information on officer injury is available for review and analysis from 2018 to 2024. We assess changes in, and correlates of, the frequency of officer injuries through descriptive review, crossover count regressions, and quantile regressions.

5) CIVILIAN COMPLAINTS

In 2022, the NJOAG began compiling systematic, statewide data on Internal Affairs ("IA") reports. Agencies must upload annual summaries for all IA investigations that were open at any point in the preceding calendar year. IA data, including complaints that were generated from civilians, was culled from the NJOAG Internal Affairs Dashboard.[12] Reliable IA data is available from 2021 to 2023.

A single IA incident may involve one or more officers, but the unit of analysis used here is at the officer-level (same as use of force), referred to as an "investigation." We present IA data that is both internally generated (e.g., the agency initiates the investigation) and externally generated (e.g., the civilian files a complaint), but we focus most of our analyses on those investigations that were externally generated—civilian complaints. We focus our analysis on descriptive trends related to the most relevant categories of civilian complaints, as well as complaints that were deemed to be sustained after internal investigation; more specifics are provided in **Section VIII. Trends in Civilian Complaints**.

[12] https://www.njoag.gov/iadata/

Other Measures

We drew upon multiple other data sources to facilitate the analyses presented in this report. The variables outlined below were used as covariates or control measures in these analyses.

1) CENSUS MEASURES

Two key structural measures were extracted from the 2023 American Community Survey (five-year estimates) from the US Census to gauge strained resources as well as residential instability (see Burgard et al., 2012; Kasarda, 1993): percent in poverty (i.e., the number of households below the poverty level/total household population) and residential instability. Census data is used at the census tract level and then aggregated up to the county level as necessary. Residential instability was operationalized as the average of two z-score indicators: (a) the percentage of owner-occupied homes whose owners moved in within the past five years, and (b) the percentage of housing units that are renter-occupied. Higher values signal contexts with more recent movers and a greater share of renters, both common manifestations of residential turnover.

2) SERIOUS OFFENSES

Serious offense data was gathered from a statewide Uniform Crime Report (UCR) repository managed by the New Jersey State Police Uniform Crime Reporting Unit, containing all index crimes (UCR Part I crimes). These data include counts of offenses reported by law enforcement agencies for each year, separated by county. While the data files confirm the number of months reported for each year, not all agencies reported 12 months of data. This report only relies on the 436 agencies that provided a full year (12 months) of data. Data is available for the full years of 2018 through 2023.[13]

3) ARRESTS

Statewide arrest data is pulled from the same statewide UCR repository as the offense data. Similarly, annual arrest counts (for UCR Part I crimes) are provided for each law enforcement agency for each year. Data is available for the full years of 2018 through 2023[14] for the 436 agencies that provided full years of data, and is measured at the agency-level or county-level, depending on the analysis.

[13] Only Quarter 1 (Jan – Mar) data is available for 2024, so these counts are not included in this report.

[14] Only Quarter 1 (Jan – Mar) data is available for 2024, so these counts are not included in this report.

4) SWORN OFFICER COUNTS

We rely on sworn officer counts to account for agency size and inform rate calculations for agency-level measures. We rely on the most recent counts of sworn officer size available from the NJOAG Police Recruiting Data Dashboard, based on 2023 counts, also used in our other two final reports in this series. It is possible that the number of sworn law enforcement officers within an agency might vary across each year, but we expect that these differences do not dramatically vary over the years.

5) USE OF FORCE TRAINING FIDELITY MEASURES

Two variables based on qualitative data gathered during the research team's interviews with ICAT/ABLE county coordinators[15] are available at the New Jersey county level (n=21). These variables measure adherence to training guidelines outlined by the NJOAG, with one measuring fidelity to ICAT training and one to ABLE training. ICAT Training Fidelity is measured as High (12 hours or more of training and no modifications to delivery), Medium (10 to 12 hours of training but includes modifications to delivery), or Low (less than 10 hours of training and/or includes major modifications to delivery). ABLE Training Fidelity is measured as High (8 hours of training and no modifications to delivery), Medium (8 hours of training and minor modifications to delivery), and Low (Less than 8 hours of training). Both *ICAT Training Fidelity* and *ABLE Training Fidelity* are measured using an ordinal scale of 1=Low, 2=Medium, and 3=High.

ANALYSIS PLAN

We employ a variety of analytic techniques to detect different levels of effects across the same outcome. In addition to descriptive analyses, which will be presented for all outcomes, five distinct advanced statistical techniques are used to assess the outcomes of interest: 1) Crossover Count Regression, 2) Interrupted Time-Series Analysis, 3) Quantile Regression Analysis, 4) Hierarchical Generalized Linear Modeling, and 5) Group-Based Trajectory Analysis (combined with Logistic Regression). The specific analytic methods are selected based on the viability of the data collected through the project. For all analyses, we rely on valid data only; missing data are dropped from their respective analyses.[16] We also conduct sensitivity analyses to assess whether the obtained results

[15] Information on these interviews and their findings can be found in the third report in this series, *Report 3: Lessons Learned from Implementation.*

[16] Missing data was not much of a concern in this study because the crossover pre/post periods were late 2021 onwards, and by this period the missing data concern was very limited (< 10% of any total distribution at any point in time). By contrast the interrupted time series analyses that attempted to model long-term (2018-2019-2020 pre-intervention data) were extremely limited due to missing data and changes in reporting (more detail on this funneling down process in the interrupted time series chapter).

are sensitive to the method used. Additional details on how specific data and measures were used in these analyses are provided in **Section VI. Trends in Use of Force Encounters** and **Section VII. Trends in Injuries During Use of Force,** containing our study results.

1. Crossover Count Regression Modeling

A crossover methodology is a repeated measurements design where each unit, in this case, New Jersey law enforcement agencies, receives treatment during different time periods (see Navidi, 2007). The agencies cross over from no treatment to treatment over time. Crossover regressions are used to detect whether there was a change in outcomes (e.g., use of force; injuries) when the agencies transitioned into the treatment condition.

We conduct a series of crossover analyses that focus on the short- (6 months before and after training), medium- (9 months before and after training), and long-term (12 months before and after training) association between use of force training (ICAT or ABLE) and the outcomes of interest. A limitation of the case-crossover analyses used for this study is that the design is centered on equivalent pre-/post-periods and conducted mostly short-term assessments of impact (at crossover). This approach does not include the long-term (i.e., additional observations available), as multiple years are necessary to establish a robust baseline to detect precise divergences from long-term trends (St. Clair, Hallberg, and Cook, 2016).

2. Interrupted Time Series Analyses

For the event count analyses, specifically use of force, our team relies on interrupted time series analyses to assess whether a break or change in the average number of outcome events corresponds with the timing of the training period (fall 2021 to fall 2022)[17] and the change in UOF policy (December 31, 2021). Interrupted time series modeling provides a robust quasi-experimental counterfactual framework where treatment-to-control matching is not possible or where targeted outcome measures are unavailable in non-treatment settings. It allows us to detect precise changes in event outcomes after controlling for a long-term, stable, pre-intervention time series (Cook and Campbell, 1979). In this case, the pre-training and policy change outcomes will serve as the control period and post-training and policy change outcomes at each site will serve as the estimation of the treatment impact (McCleary & Hay, 1980; also see Bushway & McDowall, 2006, who referred to the interrupted time series design as a preferred analytic strategy to test whether specific types of crime alter at specific points in time).

[17] Note that training schedules varied by county. The final training deadline was September 30, 2022, but a handful of counties continued to train past this deadline.

The interrupted time series design is not without its limitations and empirical concerns. We aim to minimize these concerns using a number of guided steps. As noted by Baicker & Svoronos (2019), estimates derived from the use of a single interrupted time series (in this case per site) can be accurate and valid when the models are conducive to the following conditions: (1) falsification tests (such as the Supremum Wald test for structural breaks) indicate the theorized break corresponds with the maximum value among potential breaks within the series; and (2) the pre-intervention data do not have obvious variance instabilities (i.e., spikes or dips) that immediately precede the intervention date. We also control for the lengthiest pre-training intervention periods as possible (using a variety of indicator variables to control for the March 2020-February 2021 COVID impact on use of force outcomes), seasonality, and time trends. However, in the absence of these conditions, the single-site interrupted time series models can create bias and invalid results. Our research team tests these conditions before conducting any analyses; interrupted time series estimates are not performed in settings where model assumptions are not met.

3. Quantile Regression Modeling

Quantile regression modeling overcomes some of the disadvantages of the conditional mean framework, which tends to lose information toward the different ends of a given distribution (Hao & Naiman, 2007). The goal of modeling is to assess whether certain structural and agency characteristics correspond differently among agencies at high, medium, and low quantiles for the outcomes of interest. Simultaneous quantile regression accounts for the non-normal distribution of error terms and heteroskedasticity (Koenker & Bassett, 1978; Koenker & Hallock, 2000). Unlike traditional linear models, such as OLS regression, that assume that estimates have a constant effect on outcomes of interest, simultaneous quantile regression can illustrate if independent variables have non-constant or variant effects across the full distribution of the dependent variable. We pool total counts for the outcomes of interest by agency and use quantile regression estimation to fit a regression line through the conditional quantiles of the outcome (Koenker & Bassett, 1978; Koenker & Hallock, 2000). We thus estimate three quantiles: the 25th quantile (bottom quarter); the 50th quantile (the middle of the distribution); and the 75th quantile (upper quarter) for the outcomes, using a series of predictor variables. We present equality of coefficients tests to assess differences between the 25th, 50th, and 75th quantiles on relevant (training-specific measurements) covariates of interest.

Notably, a limitation of quantile regression modeling is that the outcome is pooled across years, and therefore, year-to-year changes are not accounted for. Additionally,

quantile regression modeling does not allow for the inclusion of secondary-level (e.g., county-level) covariates.

4. Hierarchical Generalized Linear Modeling

Hierarchical Generalized Linear Modeling (HGLM) is a modified form of ordinary least squares (OLS) regression used to analyze variance in outcome variables when the predictors are at varying hierarchical levels (Woltman et al., 2012). HGLM accounts for the shared variance in hierarchically structured data. The use of HGLM is prevalent across many disciplines and has shared names, including multi-level, mixed-level, mixed-linear, mixed-effects, random effects, random coefficient, and complex covariance components modeling (Raudenbush & Bryk, 2002).

We use HGLM logistic regression to examine the relevance of ABLE and ICAT fidelity (as level 2 covariates), controlling relevant structural and organizational covariates that have the potential to correlate with subject injuries in use of force encounters. HGLM (also referred to as a mixed-effects model) is a multilevel model that can analyze agency-level information (level 1) within county contextual information (level 2), simultaneously without the problems associated with shared error variance (given the non-independent nature of observations at level 1 nested within shared contexts). The result is the creation of two levels of effect across agencies (level 1) and between counties (level 2). These effects can be modeled by partitioning variances into within-group and between-group components (see Raudenbush & Bryk, 2002).

5. Group-Based Trajectory Analysis

Group-Based Trajectory Analysis (GBTA) allows for longitudinal data with large numbers of units of analysis (in this case, police agencies) to be grouped by their similar longitudinal patterns (Nagin, 1999; Nagin & Tremblay, 2005). GBTA is based on semiparametric, group-based modeling and is similar to hierarchical or latent growth curve modeling. Trajectory analysis is often used for exploratory analysis and to develop hypotheses to explain differences across certain groups (see Nagin & Tremblay, 2005). For example, Lum & Vovak (2018) drew upon GBTA analyses when analyzing misdemeanor arrest rates across police departments, which they used to create a classification for police agencies' use of misdemeanor arrests as high increasers, middle increasers, middle stable, and low stable agencies. They also used logistic and other multivariate frameworks (e.g., multinomial logistic regression) when comparing population and organizational correlates *across* the various classified groups.

GBTA involves an iterative process of estimating a series of polynomial functions of varying numbers of groups (i.e., 1, 2, 3, etc.) and order (linear, quadratic, or cubic) to a

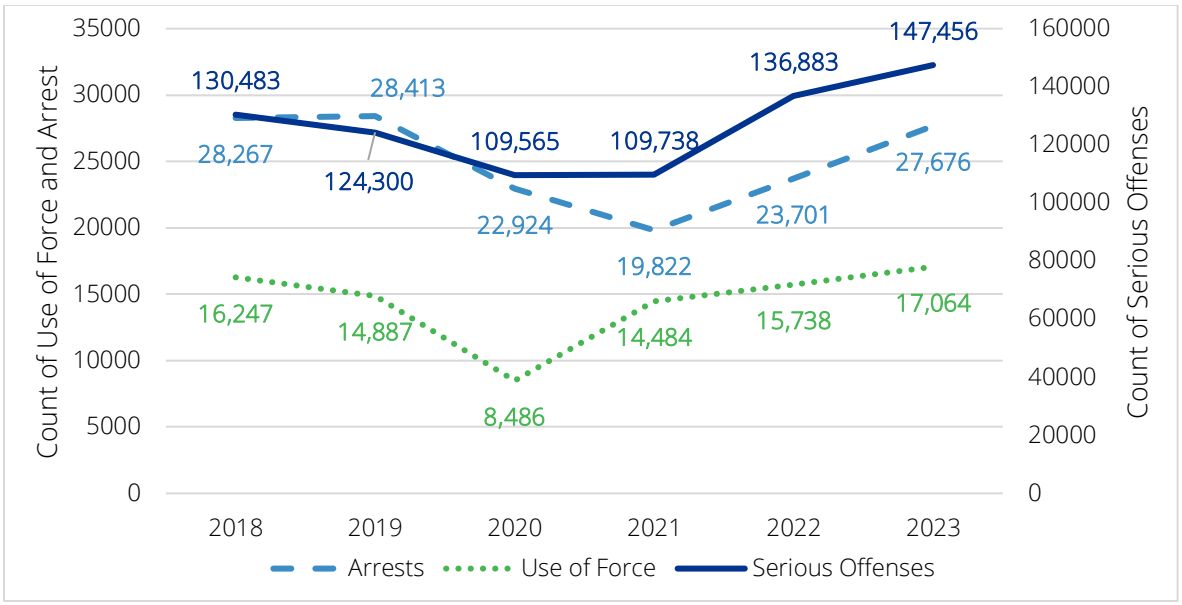
set of longitudinal data to discern the best fit to the longitudinal outcome data. In this case, law enforcement agencies are assigned a probability of membership to each group in the model based on their own individual trajectory. Nested model fit is determined using Bayesian Information Criteria (BIC) statistics for each model. As the number and order of functions fit the data varies, BIC statistics are used to assess the most suitable model fit.

V. TRENDS IN STATEWIDE POLICE ACTIVITY

Before delving into the outcomes of interest for this report, we examined statewide police data to identify shifts in overall police activities, including serious offenses (UCR Part I), arrests (for UCR Part I offenses), and use of force. Calls for service data, another common measure of police activity, is not available statewide for analysis. Use of force, arrest, and offense data from the 436 agencies that reported data for the 72-month period under examination (Jan 2018 – Dec 2023) is displayed in **Figure 3**.

Figure 3 shows a dual-axis trend graph with the annual counts of serious offenses (right axis) compared to arrests and use of force (left axis). These three measures of police activity generally follow similar patterns, with declines from 2018 reaching their lowest in 2020/2021, followed by a recovery in 2022/2023 to levels similar to pre-pandemic counts. For serious offenses, there was an overall 13% increase from 2018 to 2023 and a 7.7% increase from 2022 to 2023. Arrest counts declined by 2.1% from 2018 to 2023 but increased by 15.8% from 2022 to 2023. Use of force counts increased by 5.0% from 2018 to 2023 and by 8.4% from 2022 to 2023. Overall, all three measures of police activity indicate a rise in recent years, with 2023 showing the highest counts for both offenses and use of force. This suggests that while use of force appears to increase after the NJOAG Use of Force Reduction Initiative, serious offenses and arrests also rise, implying that trends in use of force are not independent.

Figure 3. Annual Use of Force, Arrests, and Serious Offenses (2018-2023)



Given how statewide arrest and serious offense data were collected from the New Jersey State Police data repository, only annual counts were available for the descriptive (univariate and bivariate graphics) and cross-sectional analyses (e.g., the quantile regressions). We are unable to conduct the monthly crossover regressions and monthly interrupted time series to account for these trends, given their annual count format. However, arrests and serious offense trends are accounted for in all cross-sectional analyses (i.e., quantile regressions and logistic regression models) due to their association with the risk of use of force, subject injury, and officer injury at the agency-level.

VI. TRENDS IN USE OF FORCE ENCOUNTERS

The primary focus of this evaluation is estimating the effect of the NJOAG Use of Force (UOF) Reduction Initiative ("the Initiative") on incidents involving use of force. Our analysis centers on longitudinal trends in statewide use of force reporting collected directly from agencies with careful attention to significant changes in data collection methodology that occurred during the study period. Notably, reports from January 1, 2018, through September 30, 2020, were collected and coded directly by the research team from individual law enforcement agencies statewide. Thus, definitions, data fields, and reporting structures varied across agencies until October 2020, when the NJOAG launched a systematic data collection platform for use of force. All New Jersey law enforcement officers are now required to directly submit use of force reports to a statewide data portal, reducing variation in reporting by individual agencies. However, data heterogeneity creates inherent challenges for cross-agency comparisons and temporal trend analysis. We advise readers to be aware that data from 2018 to 2020 may reflect definitional differences between agencies and counties, which can make direct comparisons across agencies and with data from 2021-2024 (post-portal implementation) challenging.

In some cases, we separately analyze data based on whether it is from before or after the platform rollout, which occurred from October 2020 to December 2024. All Initiative effects should be reflected in the post-statewide platform, but the use of this historical data, although sometimes challenging, allows for the evaluation of a wider time period to assess changes. Note that policy changes went into effect on December 31, 2021, and all mandated use of force training (ICAT and ABLE training) should have been completed by September 30, 2022.

This section begins with a descriptive review of statewide trends in use of force over time, including rates of subject race/ethnicity and trends across the 21 counties in New Jersey. Building on these analyses, we more rigorously examine how use of force counts have changed over time through a series of multivariate analyses. First, we present crossover count regression models to identify whether changes in use of force counts are linked to mandated training timelines, policy shifts, and the combined impact of training and policies. Second, we use interrupted time series analyses to determine if there are consistent patterns in use of force changes among agencies with long-term pre-statewide portal data. Finally, we use quantile regression analyses to explore

whether training, agency, and structural factors are associated with different levels of use of force risk (low, middle, high) across New Jersey from 2021 to 2024.

DESCRIPTIVE TRENDS

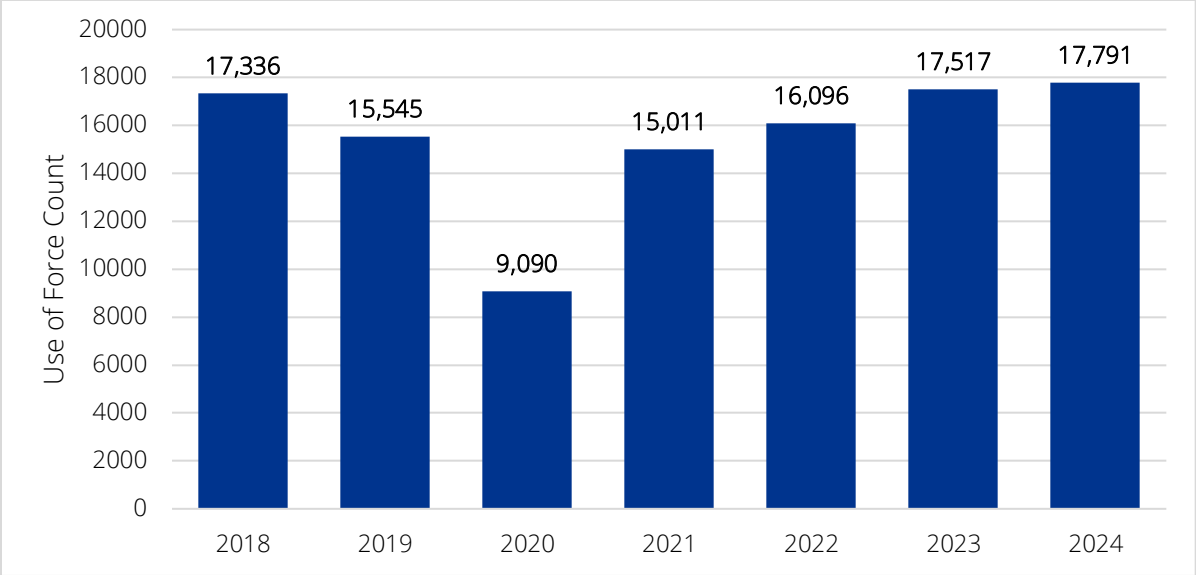
Between 2018 and 2024 data collected directly from agencies and from New Jersey's statewide use of force reporting platform recorded 108,386 individual use of force (UOF) reports, logged by more than 550 agencies distributed across all 21 New Jersey counties. Averaged across the seven-year span, officers reported the use of force roughly 15,500 times per year, or close to 300 times each week. The statewide total, however, masks stark geographic concentration and demographic variation. For example, Essex County alone accounts for nearly 12,000 incidents (~11%), Hudson for just over 10,000 (~9%), Camden for almost 10,000 (~9%), and Ocean for roughly 8,500 (~8%). Taken together, these four counties generate a little more than one-third of all force reports. Additionally, their racial composition varies sharply: almost 70 percent of Essex encounters involve Black subjects, whereas 64 percent of Ocean's involve White subjects. These initial findings highlight the areas that will be discussed in greater detail below.

Statewide Use of Force Trends

The annual distribution of police use of force reports, shown in **Figure 4**, reveals significant variation over the seven-year observation period. The data shows a notable decline from 2019 to 2020, followed by a substantial recovery in recent years. In 2018, law enforcement agencies reported 17,336 use of force reports statewide. This number fell to 15,545 reports in 2019, marking a 10.3% decrease from the previous year.

The most dramatic reduction occurred in 2020, when use of force reports fell sharply to 9,090 cases—a 41.5% decrease from 2019 and nearly 48% below the 2018 baseline. This notable decline likely reflects the effects of COVID-19 pandemic restrictions, fewer police-civilian interactions, and possible changes in policing practices during this time. Additionally, shifts in agency data and reporting, from individual agency practices to the late-2020 state-mandated use of force reports, may have also influenced some patterns. An increase in reported force began in 2021 with 15,011 incidents, up 65.2% from 2020 but still below pre-pandemic levels. The upward trend continued through 2022 (16,096 incidents), 2023 (17,517 incidents), and peaked in 2024 with 17,791 incidents, the highest number in the dataset and 2.6% above the 2018 baseline.

Figure 4. Statewide Use of Force Reports by Year (2018-2024)

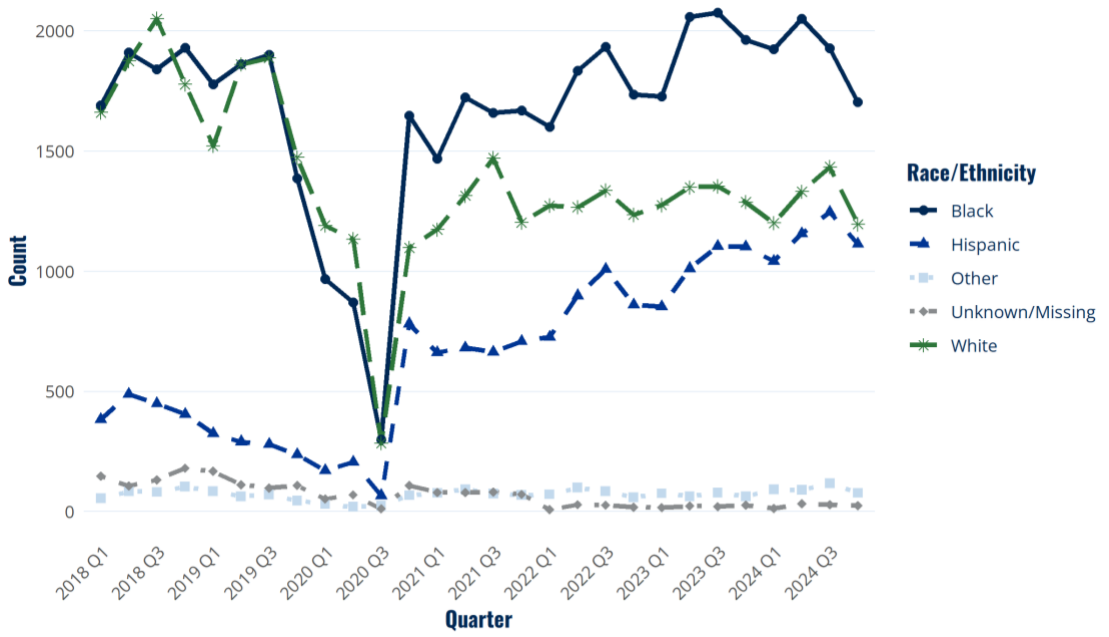


Statewide Use of Force Rates by Race/Ethnicity

Next, we analyze quarterly counts of use of force by subject race. The quarterly breakdown of use of force encounters by race/ethnicity shows clear patterns across demographic groups and notable variations over time, especially during the COVID-19 pandemic period. (See **Figure 5**.) Black individuals consistently experienced the highest rates of police use of force throughout the study period. From 2018 through early 2020, reports of use of force involving Black individuals ranged between roughly 1,800 and 2,100 per quarter, with some seasonal fluctuations but generally stable overall trends.

The pandemic period marked a dramatic shift in these patterns. Starting in the second quarter of 2020, reports of use of force involving Black individuals dropped sharply to about 300 cases, an 80–85% decrease from pre-pandemic levels. This sharp decline was followed by a steady recovery that continued into 2024, with quarterly numbers reaching around 1,700–1,800 incidents in recent quarters—approaching but not fully returning to, pre-pandemic levels.

Figure 5. Quarterly Use of Force Counts by Race/Ethnicity (2018-2024)



White individuals represented the second-highest group in absolute numbers of use of force reports. Pre-pandemic quarterly counts typically ranged from 1,500–2,000 incidents, with the peak occurring in the first quarter of 2019 at approximately 2,000 cases. The pandemic impact was similarly severe, with incidents dropping to roughly 100 cases per quarter in mid-2020. The recovery pattern showed gradual increases through 2021–2022, stabilizing at approximately 1,200–1,400 quarterly incidents in recent periods—substantially below pre-pandemic levels.

Hispanic individuals experienced notably lower baseline levels of use of force involvement, with pre-pandemic quarterly counts ranging from approximately 300–500 cases. The pandemic reduction was proportionally similar to other groups, with incidents declining to fewer than 100 cases per quarter in mid-2020. The recovery trajectory showed steady growth through 2022–2024, with recent quarterly counts reaching approximately 1,100–1,200 incidents—representing levels that substantially exceed pre-pandemic baselines.

The "Other" and "Unknown/Missing" categories maintained consistently low levels throughout the observation period, typically representing fewer than 200 incidents per quarter each (less than 10%), with minimal variation across time periods. These categories showed similar pandemic-related declines and gradual recovery patterns, but their small frequencies limit meaningful interpretation of trends.

County-Level Use of Force Trends

Table 3 presents the use of force report counts by subject race, sorted by the frequency of use of force in each county. The county-level analysis reveals substantial geographic variation in both the number and demographic makeup of use of force reports across New Jersey's 21 counties. Three counties account for nearly one-third of all statewide incidents: Essex County leads with 11,952 reports, followed by Hudson County with 10,335, and Camden County with 9,766. Together, these three counties total 32,053 reports, which is about 29.2% of all recorded use of force cases statewide.

The demographic composition of use of force incidents varies dramatically across counties. Essex County demonstrates the highest proportion of incidents involving Black individuals at 69.7% (8,327 cases), while White individuals account for 11.6% (1,387 cases) and Hispanic individuals represent 13.9% (1,661 cases). In contrast, Ocean County shows a markedly different pattern with White individuals comprising 64.1% (5,433 cases) of incidents, Black individuals accounting for 19.7% (1,672 cases), and Hispanic individuals representing 11.3% (954 cases).

Several counties exhibit relatively balanced demographic distributions. Hudson County shows 40.4% Black individuals (4,176 cases), 24.1% White individuals (2,491 cases), and 30.8% Hispanic individuals (3,179 cases). Camden County reports 55.5% of their force incidents involve Black individuals (5,420 cases), 27.4% White individuals (2,677 cases), and 15.4% Hispanic individuals (1,502 cases). Passaic County presents a notable pattern with Hispanic individuals representing 37.0% (1,799 cases), Black individuals 36.4% (1,773 cases), and White individuals 23.3% (1,134 cases).

The data reveals significant variation in use of force report counts across counties. While Essex, Hudson, and Camden counties each exceed 9,000 incidents, smaller counties show substantially lower volumes. Sussex County recorded the fewest incidents at 852 cases, followed by Salem County (672 cases) and Hunterdon County (461 cases). Mid-sized counties such as Ocean (8,475 cases), Monmouth (7,982 cases), and Union (7,714 cases) fall between these extremes.

Table 3. County-Level Use of Force Distribution by Race/Ethnicity (2018-2024)

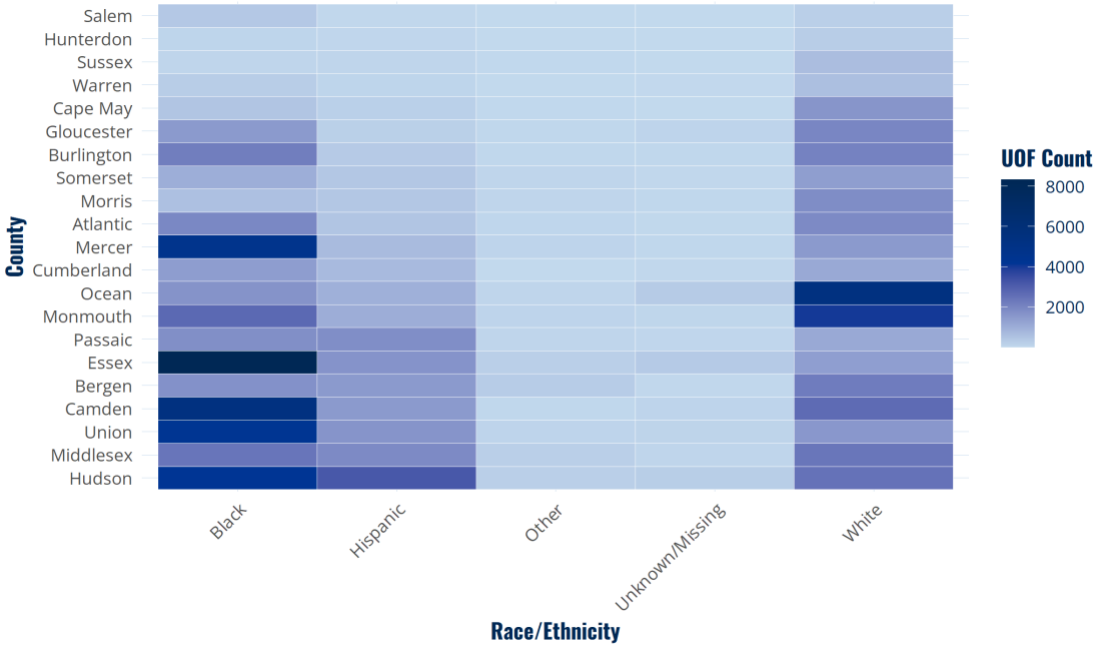
County	Total UOF	Black N (%)	White N (%)	Hispanic N (%)	Other N (%)	Unknown/Missing N (%)
Essex	11,952	8,327 (69.7%)	1,387 (11.6%)	1,661 (13.9%)	228 (1.9%)	349 (2.9%)
Hudson	10,335	4,176 (40.4%)	2491 (24.1%)	3,179 (30.8%)	225 (2.2%)	264 (2.6%)
Camden	9,766	5,420 (55.5%)	2,677 (27.4%)	1,502 (15.4%)	57 (0.6%)	110 (1.1%)
Ocean	8,475	1,672 (19.7%)	5,433 (64.1%)	954 (11.3%)	85 (1.0%)	331 (3.9%)
Monmouth	7,982	2,738 (34.3%)	4,033 (50.5%)	1,021 (12.8%)	116 (1.5%)	74 (0.9%)
Union	7,714	4,279 (55.5%)	1,557 (20.2%)	1,646 (21.3%)	108 (1.4%)	124 (1.6%)
Mercer	7,014	4,646 (66.2%)	1,495 (21.3%)	697 (9.9%)	117 (1.7%)	59 (0.8%)
Middlesex	6,995	2,406 (34.4%)	2,387 (34.1%)	1,882 (26.9%)	231 (3.3%)	89 (1.3%)
Bergen	5,784	1,714 (29.6%)	2,227 (38.5%)	1,496 (25.9%)	305 (5.3%)	42 (0.7%)
Passaic	4,868	1,773 (36.4%)	1,134 (23.3%)	1,799 (37.0%)	98 (2.0%)	64 (1.3%)
Burlington	4,693	2,184 (46.5%)	2,075 (44.2%)	340 (7.2%)	50 (1.1%)	44 (0.9%)
Atlantic	4,384	1,943 (44.3%)	1,883 (43.0%)	459 (10.5%)	71 (1.6%)	28 (0.6%)
Gloucester	3,855	1,490 (38.7%)	1,986 (51.5%)	215 (5.6%)	50 (1.3%)	114 (3.0%)
Cumberland	3,333	1,430 (42.9%)	1,133 (34.0%)	722 (21.7%)	11 (0.3%)	37 (1.1%)
Morris	2,965	583 (19.7%)	1,816 (61.2%)	416 (14.0%)	92 (3.1%)	58 (2.0%)
Somerset	2,952	1,010 (34.2%)	1,397 (47.3%)	411 (13.9%)	96 (3.3%)	38 (1.3%)
Cape May	2,329	464 (19.9%)	1,622 (69.6%)	212 (9.1%)	24 (1.0%)	7 (0.3%)
Warren	1,005	285 (28.4%)	600 (59.7%)	100 (10.0%)	6 (0.6%)	14 (1.4%)
Sussex	852	92 (10.8%)	647 (75.9%)	91 (10.7%)	18 (2.1%)	4 (0.5%)
Salem	672	387 (57.6%)	229 (34.1%)	40 (6.0%)	6 (0.9%)	10 (1.5%)
Hunterdon	461	104 (22.6%)	287 (62.3%)	64 (13.9%)	4 (0.9%)	2 (0.4%)

To complement the table above, we include a heatmap visualization, presented in **Figure 6**, to depict the geographic and demographic distribution of use of force reports and subject race across New Jersey counties. The visualization confirms the concentration of reports in specific county-demographic combinations, with the darkest shading indicating the highest report counts. Essex County shows the highest concentration in

the Black category, representing the single largest county-demographic combination statewide. Ocean County demonstrates the highest concentration in the White category, appearing as the darkest shading in that demographic group.

Several counties show notable concentrations across multiple demographic categories. Hudson County displays substantial report counts across Black, White, and Hispanic categories, with relatively balanced distribution compared to other high-volume counties. Camden County shows primary concentration in the Black category with secondary concentrations in the White category. The visualization clearly illustrates that most counties with higher overall incident volumes tend to have their highest concentrations in either the Black or White demographic categories, with fewer counties showing primary concentrations in the Hispanic category.

Figure 6. Heatmap of Use of Force by County and Race/Ethnicity



MULTIVARIATE FRAMEWORK

To more rigorously examine whether, and to what extent, use of force counts changed over time after the NJOAG's UOF Reduction Initiative, we employ a three-phase multivariate design: (1) a series of crossover count regressions, modeling changes in use of force counts that were observed by centering the pre- and post-Initiative periods across all New Jersey law enforcement agencies; (2) interrupted time series analyses on

use of force counts used to detect whether there were any consistent patterns in use of force changes among agencies where longer-term pre-Initiative data existed, and where the assumptions of the time series analyses were met; and, (3) quantile regression analyses to detect whether training, agency, and structural covariates cross-correlated with use of force risk at different levels in the distribution of force in New Jersey (low, middle, and high) from 2021–2024.

CROSSOVER ANALYSIS METHODOLOGY AND RESULTS

A primary research question from this study concerned how the Initiative's key behavioral change mechanisms—mandated use of force training programs, the standardized statewide policy, and the combination of both (e.g., the "Full Initiative")—influenced use of force incident rates over time. The Initiative's multifaceted design requires careful analytical attention to implementation timing. Rather than a single intervention, the Initiative involved coordinated policy changes and training programs that rolled out across agencies at different rates. Our regression models specifically examine how this staggered implementation influenced use of force patterns over time. We tracked ICAT and ABLE training completion across all 519 New Jersey law enforcement agencies spanning 21 counties, then aggregated agency-specific start, midpoint, and completion dates to the county level for analysis.

In our crossover regressions, we examined three different 'transitional periods' across the state. First, the mandated use of force training periods, which varied by agency and county. Given their different training schedules, we conducted these analyses for both ABLE and ICAT training, which ranged from June 1, 2021 (training onset) through September 30, 2022 (training completion). We operationalized ICAT and ABLE training (0 = pre-training, and 1 = post-training) for each agency based upon the county completion rate of training that equated to 80% training completion for its law enforcement officers for both ICAT and ABLE (separate and unique dates for each training program). Second, we examined the transition of the statewide policy change onset, which was enacted on January 1, 2022. Third, we examined the transitional, combined period where all New Jersey law enforcement agencies were 100% trained in ICAT and ABLE and where the statewide policy was in full effect (January 2023). For each analysis, we relied on a balanced, centered approach to modeling the pre-/post-intervention periods. Our analysis examined training impacts across three time periods: six months (short-term), nine months (medium-term), and 12 months (long-term) following training completion.

For policy changes and the Initiative's full implementation, we analyzed outcomes using 12-month pre- and post-intervention comparison periods.[18]

The following analyses employ a Poisson count regression case-crossover design (Navidi, 2007) that leverages the staggered implementation of Initiative components across New Jersey law enforcement agencies. In this repeated-measures framework, each agency serves as its own control, transitioning from pre-intervention to post-intervention status at different time points. Agencies that have not yet received training or policy implementation serve as contemporaneous controls for those that have, until they cross over to the treatment condition. This design allows us to isolate the causal effect of Initiative components on use of force incident counts by comparing outcomes before and after each agency's transition while controlling for time-varying confounders.

To isolate the causal effect of each Initiative component, we analyzed monthly use of force counts at the agency level using repeated measures count regression models. We centered the analysis window around each agency's transition date, comparing monthly report counts in equivalent time periods before and after implementation. This approach fixes the temporal comparison window while allowing agencies to serve as their own controls across the transition period.[19]

Use of force events were classified into four outcomes of interest: total use of force and racial/ethnic group specific uses of force (Black, White, or Hispanic), where the force is classified at the subject level.[20] Analytically, we balanced pre/post analysis of observational data prior to- and after the completion of each Initiative element (training, policy, full implementation) across each regression model (more detail below on training completion operationalization).

[18] Staggering the results for the full policy implementation periods yielded no significant or substantive differences from the 12-month models.

[19] An alternative approach was to select the mid-point of training for both ICAT and ABLE and then include six-months of pre/post training around that specific period (e.g., March 2022 was the mid-point of ABLE training for the entire state of New Jersey). In this alternative analysis, the total number of pre/post months varied by agency where some agencies could have as long as five months pre-training and one-month post-training as short as two months of pre-training and four months of post-training, depending on the month where 80% of the agencies were trained. Thus, time was fixed while the number of pre/post months of training varied. The results of these models were virtually identical to the “centered” approach presented in the main body of the text.

[20] Of the 72,390 use of force reports populated in the New Jersey online database, 71,286 reports had a single subject (98.4% of all reports were single subject reports). Our count regressions focused solely on the single subject reports, which were the near totality of all reports. This provided the greatest confidence in the analysis of events where the race/ethnicity of the subject was selected, which avoided the rare multi-race, multi-ethnicity reports.

Each use of force behavioral outcome was estimated by relying upon the following regression equation:

$$Y^{J}_{it} = \beta 0 + \beta 1 T_{it} + \theta_i + \rho_t + \varepsilon_{it}$$

In each equation, Y^{J}_{it} represents the number of behavioral outcomes of type J (use of force by total use of force, and race/ethnic specific use of force counts) generated by New Jersey police agencies in each county i in time period t. T_{it} represents the contemporaneous timing of the permanent movement into the treatment group (i.e., ICAT or ABLE training, the post-policy period, or both) for agencies assigned to county i in time period t, and where θ_i and ρ_t represent county fixed effects (given the shared time periods of training for each agency in each county) and time period (i.e., monthly fixed effects), respectively, that account for time- and county-level unobserved heterogeneity. Finally, ε is based on Huber-White Robust sandwich estimators to ensure the coefficient variances were robust to violations of homoscedastic error distributions.

We operationalized the ICAT and ABLE training timelines (0 = pre-training, and 1 = post-training) for each agency based upon the county's completion rate of training, which equated to 80% training completion for its law enforcement officers for both ICAT and ABLE (separate and unique dates for each training program).[21] For the post-policy change, we classified time into the following categories: 0 = pre-January 2022; 1 = January 2022 onward. For the post combined use of force policy and all law enforcement agencies fully trained, we classified time as follows: 0 = pre-January 2023; 1 = January 2023 onward. We included county-level fixed effects for each agency, given the shared commonality of training completion dates, to control for all time-invariant county characteristics between the agencies and minimize bias due to unobserved covariates at the county level. Finally, we included monthly dummy variables for all repeated measures to account for the consistent seasonal shocks in use of force counts over time.

Statewide Training Crossover Models

Table 4 provides the results of the short-term crossover regressions (six month pre- and post-training periods) for total uses of force, and uses of force where the subject was Black, White, or Hispanic in the 519 New Jersey law enforcement agencies located in 21 counties. The results indicate that there is no evidence that ABLE training completion impacted total uses of force (Model 1A), nor use of force for Black subjects (Model 2A), White subjects (Model 3A), or Hispanic subjects (Model 4A). The point estimates for the ABLE training completion were near zero for total, Black, and White uses of force

[21] See Table 45 in Appendix 1 for a list of training dates by county.

indicating near equilibrium between pre- and post-training periods for all New Jersey law enforcement agencies.

Table 4. Poisson Regressions - Crossover Design (6 Month Pre/Post ABLE training)

	Model 1A Total UOF		Model 2A Black UOF		Model 3A White UOF		Model 4A Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.863*	0.144	0.033	0.225	0.035	0.147	-1.167*	0.227
Post-ABLE	0.014	0.065	-0.009	0.098	-0.024	0.057	0.136	0.089
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.131		0.168		0.061		0.157	
Wald X^2	719.3*		592.1		322.9		659.1	
# Obs.	6,228		6,228		6,228		6,228	
# Agencies	519		519		519		519	

[#] - F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
**$p < 0.05$, ** $p < 0.01$

Table 5 presents the results for the short-term crossover (six months pre- and post-training) for ICAT, net of monthly controls and county-level fixed effects. The results mirror the ABLE training impact in that none of the post-ICAT training estimates were statistically significant for total uses of force (Model 1B), use of force where the subjects were Black (Model 2B), White (Model 3B), or Hispanic (Model 4B).

Table 5. Poisson Regressions - Crossover Design (6 Month Pre/Post ICAT training)

	Model 1B Total UOF		Model 2B Black UOF		Model 3B White UOF		Model 4B Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.830*	0.143	-0.021	0.228	0.046	0.147	-1.23*	0.236
Post-ICAT	0.013	0.064	0.000	0.096	-0.054	0.057	0.149	0.090
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.130		0.170		0.061		0.157	
Wald X^2	713.9		582.9		325.3		659.7	
# Obs.	6,228		6,228		6,228		6,228	
# Agencies	519		519		519		519	

[#] - F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

Table 6 displays the results of the medium-term crossover impact of ABLE training across the 519 law enforcement agencies in New Jersey. Total uses of force did not have

any statistically significant change in the medium-term impact models, as seen in Model 1C. Similarly, uses of force for both Black and White subjects (Models 2C and 3C, respectively) did not show any significant or substantive change in use of force counts before and after ABLE training. Model 4C shows that Hispanic uses of force (that is, use of force reports where the subject was identified as Hispanic) showed a statistically significant increase post-ABLE training by roughly 26.4% (Exp(.234) – 1), net of controls. Thus, including a longer period review (above 6 months) of Hispanic uses of force shows a nonrandom, significant increase in event counts after ABLE training.

Table 6. Poisson Regressions - Crossover Design (9 Month Pre/Post ABLE training)

	Model 1C Total UOF		Model 2C Black UOF		Model 3C White UOF		Model 4C Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.915*	0.116	0.033	0.225	0.123	0.119	-1.09*	0.188
Post-ABLE	0.037	0.052	-0.009	0.098	-0.032	0.046	0.234*	0.071
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.129		0.171		0.059		0.158	
Wald X^2	1,091.2*		865.4		458.1		994.2	
# Obs.	9,342		9,342		9,342		9,342	
# Agencies	519		519		519		519	

[#] - F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

Table 7 displays the results of the medium-term crossover impact for ICAT training. Again, total uses of force did not have any statistically significant change in the medium-term impact models. Uses of force with Black and White subjects also did not demonstrate any statistically significant or substantive change in use of force counts before and after ICAT training. However, Model 4C shows that use of force reports involving Hispanic subjects experienced a statistically significant increase post-ICAT training by roughly 26.4% (Exp(.234) – 1), net of controls. Thus, statistically significant increases in Hispanic use of force counts are observed following the implementation of both ABLE and ICAT training (which had similar conclusion dates of training implementation).

Table 7. Poisson Regressions - Crossover Design (9 Month Pre/Post ICAT training)

	Model 1D Total UOF		Model 2D Black UOF		Model 3D White UOF		Model 4D Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.950*	0.119	0.113	0.189	0.141	0.121	-1.12*	0.189
Post-ICAT	0.032	0.051	0.012	0.078	-0.047	0.046	0.234*	0.070
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.128		0.171		0.059		0.157	
Wald X^2	1096.5		870.3		464.8		992.4	
# Obs.	9,342		9,342		9,342		9,342	
# Agencies	519		519		519		519	

- F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

Our final set of crossover analyses focused on the long-term association between peer intervention training dates and use of force counts across all New Jersey law enforcement agencies, shown in **Table 8**. Centering each law enforcement agency's pre- and post-treatment periods to 12 months before and after ABLE training, the results show that total uses of force did not change (Model 1E). Neither did Black nor White subject use of force counts, as seen in Models 2E and 3E, respectively. Again, we observed a statistically significant increase in Hispanic subject use of force counts over time, by roughly 24.2% (Exp(.217) – 1) in the year-long post-ABLE training period.

Table 8. Poisson Regressions - Crossover Design (12 Month Pre/Post ABLE training)

	Model 1E Total UOF		Model 2E Black UOF		Model 3E White UOF		Model 4E Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.978*	0.100	0.131	0.156	0.200	0.101	-1.15*	0.164
Post-ABLE	0.056	0.052	0.067	0.068	-0.024	0.040	0.217*	0.061
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.129		0.172		0.062		0.155	
Wald X^2	1422.4*		1,137.9		629.1		1261.9	
# Obs.	12,456		12,456		12,456		12,456	
# Agencies	519		519		519		519	

- F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

Similar to the ABLE analyses, the long-term ICAT analyses demonstrated that total, Black, and White use of force counts remained stable. However, Hispanic use of force counts increased by roughly 25.4% (Exp(.226) – 1) in the year-long post-ICAT training period as

shown in **Table 9**. Across all training-focused crossover regressions, we see that in the medium-term and long-term results, Hispanic individuals involved in use of force are the only groups to experience a significant increase in counts. There is no evidence to suggest that overall use of force increased, nor did use of force involving Black and White subjects increase in any of the models.

Table 9. Poisson Regressions - Crossover Design (12 Month Pre/Post ICAT training)

	Model 1F Total UOF		Model 2F Black UOF		Model 3F White UOF		Model 4F Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.973*	0.101	0.117	0.157	0.193	0.101	-1.12*	0.167
Post-ICAT	0.064	0.044	0.075	0.068	-0.109	0.040	0.226*	0.061
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.129		0.171		0.062		0.154	
Wald X^2	1418.2		1126.1		620.8		1246.6	
# Obs.	12,456		12,456		12,456		12,456	
# Agencies	519		519		519		519	

[#] - F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

Statewide Policy Crossover Models

Table 10 provides the policy onset crossover regressions (12-month pre/post policy periods) for total use of force, Black use of force, White use of force, and Hispanic use of force in the 519 New Jersey law enforcement agencies located in 21 counties. The results indicate no evidence that the statewide policy implementation in January 2022 was associated with a change in total use of force (Model 1G), use of force for Black subjects (Model 2G), or White subjects (Model 3G). However, the use of force counts for Hispanic subjects (Model 4G) experienced a statistically significant increase by roughly 29.3% (Exp(.257) – 1). Thus, while use of force counts were stable for Black and White subjects, use of force frequencies involving Hispanic subjects increased following the enactment of the NJOAG statewide use of force policy.

Table 10. Poisson Regressions - Crossover Design (12 Month Pre/Post Policy Enactment)

	Model 1G Total UOF		Model 2G Black UOF		Model 3G White UOF		Model 4G Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.078	0.044	-0.017	0.154	-0.014	0.106	-1.31*	0.181
Post-Policy	0.014	0.065	0.095	0.067	-0.005	0.039	0.257*	0.061
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.128		0.170		0.061		0.158	
Wald X^2	1,384.3*		1,104		622.1		1,257.1	
# Obs.	12,456		12,456		12,456		12,456	
# Agencies	519		519		519		519	

[#] - F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

Statewide Full Initiative Implementation Crossover Models

Moving to the full-scale Initiative implementation models (i.e., all agencies fully trained and statewide use force policy enacted; N=519), **Table 11** provides the 12-month crossover regressions for total use of force, and use of force where the subject was Black, White, or Hispanic. The results show that total use of force counts (Model 1H) increased in the post-Initiative period by roughly 9.5% (Exp(.091) – 1). There is no evidence that the increase in total use of force was calibrated with any significant changes in Black use of force counts (Model 2H) or White use of force counts (Model 3H). However, Model 4H shows that Hispanic use of force counts increased by 16.5% (Exp(.153) – 1), suggesting the increase in total use of force counts in the 2023 period onward was due to the increase in use of force incidents involving Hispanic subjects. Across *all* long-term models, we found results suggesting that the use of force events involving Hispanic individuals significantly increased.

Table 11. Poisson Regressions - Crossover Design (12 Month Pre/Post Full Initiative Implementation)

	Model 1H Total UOF		Model 2H Black UOF		Model 3H White UOF		Model 4H Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	0.969*	0.105	0.149	0.161	0.118	0.102	-1.05*	0.159
Post-Initiative	0.091*	0.044	0.104	0.067	0.041	0.040	0.153*	0.057
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.132		0.173		0.061		0.160	
Wald X^2	1,508.3		1,238.6		583.1		1396.5	
# Obs.	12,456		12,456		12,456		12,456	
# Agencies	519		519		519		519	

[#] - F.E. = Fixed Effects; included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*$p < 0.05$, ** $p < 0.01$

INTERRUPTED TIME SERIES MODELS

While the case-crossover analyses provided estimates of short, medium, and long-term changes in use of force reports by New Jersey police agencies, there are several limitations in this design as it applied to our New Jersey study. Specifically, our crossover design centered on equivalent pre- and post-periods and conducted mostly short-term assessments of impact (at crossover). This approach did not include long-term observations of pre-intervention use of force counts for multiple years—a criterion necessary to establish a robust baseline that facilitates the detection of precise divergences from long-term trends (St. Clair et al., 2016). Interrupted time series designs provide a robust analytical framework to detect the precise changes in event outcomes after controlling for a long-term, stable, pre-intervention time series (Cook & Campbell, 1979). Thus, where possible, we conducted a series of interrupted time series regression analyses drawing upon the 2018, 2019, and 2020 coded reports.

Dependent Variables

We used the use of force data collected between January 2018 and December 2024 to model the primary outcome measures and ultimately assess whether the various NJOAG Initiative elements and their associated timelines corresponded with a change in use of force counts. We were able to identify at least one use of force report in the pre-data transition (2018-2020) for 448 of the 519 New Jersey law enforcement agencies that also reported use of force data from 2021-2024 (86.3%). Based upon the monthly standard deviations and averages of the distributions in the reported data, roughly 302 New

Jersey law enforcement agencies were eliminated from agency-level interrupted time series due to limited statistical power.[22] This reduced the potential agencies available to analyze their total use of force counts to 146 potential New Jersey agencies. However, roughly 119 of the 146 agencies had use of force monthly counts that violated the Augmented Dickey Fuller Unit Root tests (mean and variance nonstationary in the pre-intervention/pre-training time series). Thus, the final count of New Jersey law enforcement agencies that were eligible for interrupted time series analyses on their use of force reports over time was 27. These are agencies that had: (1) enough statistical power in use of force reports, and (2) mean and variance stability in the longer-term pre-intervention time series (i.e., 2018-2020, accounting for the unilateral decline that almost all agencies observed in 2020 due to the COVID-19 pandemic).

This filtering process revealed a critical data quality issue: the transition from paper-based to online use of force reporting systems fundamentally altered reporting patterns for over 81% of agencies with substantial incident volumes (42+ reports annually). We attribute these changes primarily to reporting system differences rather than actual behavioral changes, based on detailed pattern analysis. Of the 119 agencies eliminated due to statistical instability, reporting changes varied dramatically in both directions following the October 2020 implementation of the use of force reporting platform. Approximately 70% of these agencies showed substantial decreases in reported incidents—averaging 48% fewer reports, which ranged from complete cessation to minimal decreases. For example, agencies reporting 1,100 incidents in 2019 dropped to 350 in 2021,[23] while others declined from 200 to 85 incidents over the same period.[24] Critically, these changes occurred entirely within the pre-intervention baseline period (2018-2021), before many officers were trained and before policy implementation.

Conversely, 30% of excluded agencies showed increases averaging 60% higher incident counts in 2021 compared to 2018-2019 baselines. These bidirectional shifts in reporting—occurring simultaneously across agencies during the same system transition—strongly suggest measurement artifacts rather than coordinated behavioral

[22] We relied upon G*Power software to estimate the minimum sample size necessary to detect a marginal (1-B = 0.80) change in monthly mean event counts (standard deviation = 6.9, MDE = 2.54). The minimum annual counts necessary was 42.05 observations. This meant that only 144 New Jersey law enforcement agencies (out of 519, or 27.7%) had enough use of force reports to conduct a monthly interrupted time series analysis to detect potential changes in this observed outcome. It speaks volumes to the fact that almost 3 out of every four agencies in New Jersey had so few use of force events that detecting a change would be virtually statistically impossible—illustrating the rarity of use of force encounters across the state (at least at the agency-level).

[23] This example is from Trenton Police Department in Mercer County, though it was by no means divergent relative to its peers.

[24] This example is from New Brunswick Police Department in Middlesex County.

changes. The magnitude and timing of these reporting discontinuities made robust interrupted time series analysis impossible for most agencies, as the fundamental assumption of measurement consistency was violated. This finding has important implications for interpreting statewide trends and underscores the value of the standardized reporting system implemented in 2020.

Independent and Control Variables

Each interrupted time series model examined one of three key intervention periods: individual training completion timelines (ICAT or ABLE), statewide policy implementation (January 2022), or full Initiative implementation when all agencies completed both training programs and the policy was fully operational (January 2023).

For training effects, we created binary indicators for ICAT and ABLE completion, coded as 0 (pre-training) and 1 (post-training) for each agency. Training completion was operationalized as the date when 80% of officers within an agency's county completed the respective training program. Because ICAT and ABLE followed different rollout schedules, each program generated separate completion dates and separate analytical models.

The policy implementation variable captured the January 2022 statewide implementation, when new use of force policy requirements became mandatory across all New Jersey law enforcement agencies. Finally, the full Initiative implementation variable identified the period beginning January 2023, when all agencies had completed both training programs and operated under the new policies simultaneously. This approach allows us to isolate the effects of individual Initiative components as well as their combined impact on use of force trends.

Additionally, since the time series models examine repeated and aggregated monthly count measures, it was important to include dynamic (i.e., time variant) control variables to account for potential "noise" or disturbances that could influence and ultimately lead to biased coefficients (Anderson, 1971). This was operationalized as monthly dummy variables, using December as the reference month, to account for seasonal effects (i.e., seasonal shocks) that occur during specific periods of the year (mostly in the late spring and early summer, which are also seen in the bivariate trend graphs).

Analytic Strategy

We used Generalized Linear Modeling (GLM) regression analysis (Long, 1997) to estimate the impact of the NJOAG Use of Force Reduction Initiative on use of force outcomes.

Traditional linear (i.e., least squares) regression models are inappropriate for analyzing count outcomes because count data do not follow or approximate a normal distribution. Analysis from these types of models would lead to biased and inconsistent estimates (King, 1988). Therefore, each use of force outcome modeled was estimated using a conditional Poisson distribution.[25] The Poisson distribution can be written as follows:

$$P(Y_i = y_i \mid x_i) = \frac{\exp(-\lambda)\lambda^{y_i}}{y_i!}$$

where Y_i is the random variable representing a count, y_i is a particular count value that denotes the number of monthly events (use of force events) actually observed (i.e., 0, 1, 2, 3, etc.) for a given period (i.e., between January 2018 to December 2024), and where λ_i can take on different values for different cases. Given that our interest was to model the systematic variation observed for λ_i for each outcome, we relied upon the loglinear model:

$$\ln(\lambda_i) = x_i^T \beta$$

where $x_i^T \beta$ is a linear combination of predictors for each case *i*, which in the current framework includes a post-use of force training variable (ICAT or ABLE) and monthly dummy variables to control for potential seasonality.

It is important to note that we relaxed the assumption of the Poisson process, requiring equidispersion between the expected mean and variance for the outcome variables examined (Frome, 1983). Following Long and Freese (2014), we re-estimated each Poisson regression model relying on the conditional negative binomial distribution and found the likelihood chi-square goodness of fit tests estimating the probability of overdispersion (i.e., variance > mean) were statistically significant ($p < .05$) in seven of the nine models estimated. Importantly, Berk and MacDonald (2008) illustrated that overdispersion in a count distribution is frequently more complex than simply any excessive variation in the data and is most likely to occur when theoretically relevant variables are omitted from the estimated models. When this is the case, the reliance on the negative binomial distribution to "correct" for the overdispersion would not address the specification errors due to the incomplete (i.e., mis-specified) models. Thus, we rely on the conventional Poisson distribution in the regression analyses, but note that the models are likely influenced by incomplete model specification.

[25] All Poisson regression results presented relied on the use of STATA 11.0 software.

As a final step in the analysis of the time series, we utilized the Bonferroni p-value correction test for multiple indicators to control for the bias of repeated testing effects (Shaffer, 1995). Given that the interest of the current study was to examine the post-Initiative estimates across 27 different New Jersey police agencies, it was important to control for the presence of inflated error due to multiple statistical tests. Therefore, after all unique and independent model estimates are presented, we display the more stringent Bonferroni p-value correction to reduce the error and subsequent bias associated with multiple hypothesis testing. We computed the modified Bonferroni p-value correction using the following equation:

$$\alpha/\eta$$

where α represents the desired p-value threshold and η represents the number of statistical models examined (i.e., 05/27, or .0055). This modified p-value ($p < .0018$) is an appropriate threshold used to retain our 95% confidence level across the 27 statistical tests.

Training Interrupted Time Series Models Results

Table 12 provides the results of the ABLE peer intervention training interrupted time series for the 27 New Jersey law enforcement agencies that were included in the time series of analyses of use of force counts from January 1, 2018 to December 31, 2024. The results display agency-specific point estimates for the training timeline parameter estimates (intercepts and dummy monthly seasonal shock variables for each of the 27 models are excluded for ease of interpretation across multiple regressions).

Three primary findings emerge. First, of the 27 interrupted time series, 19 sites (70%) did not experience any statistically significant mean change in use of force counts between pre- and post-ABLE training, accounting for the longer-term pre-training time series. Second, of the eight agencies that did have statistically significant point estimates, six of the eight had positive estimates (indicating statistically significant increases in use of force counts), controlling for seasonal shocks in the data over time. Only two sites (Bergen County Sheriff's Office and Lawrence Township PD) had a negative estimate, or a decline in use of force events. Finally, we drew upon the Bonferroni correction, which was used as a mechanism to control the increased probability of type I error due to the sheer number of tests that were conducted. This correction nullified all but three statistically significant tests. Of the three retained tests, two sites demonstrate negative point estimates (i.e., decrease in use of force events for Bergen County Sheriff's Office and Lawrence Township Police Department), while one site (West Orange Police Department) demonstrates an increase in use of force events. In sum, the timing of ABLE

training did not correspond with any consistent patterns or shifts in the frequency of use of force events among the 27 agencies included in this analysis.

Table 12. Poisson Regression Results for 27 New Jersey Agencies – Estimating the Impact of ABLE Training

County	LE Agency	B	SE	p-value	Bonferroni Corr. p-value
Atlantic	Pleasantville PD	0.198	0.135	0.141	--
Atlantic	Somers Point PD	-0.269	0.218	0.218	--
Bergen	Bergen Co. Sherriff	-0.861*	0.261	0.001	**
Burlington	Pemberton Township	0.423*	0.172	0.014	--
Camden	Camden PD	-0.103	0.380	0.787	--
Camden	Waterford Twp PD	0.309	0.202	0.126	--
Cape May	Ocean City PD	0.134	0.261	0.607	--
Cape May	Wildwood PD	0.193	0.147	0.191	--
Cumberland	Millville PD	0.025	0.121	0.837	--
Essex	Belleville PD	0.497*	0.164	0.002	--
Essex	Irvington PD	0.235	0.144	0.103	--
Essex	Montclair PD	0.014	0.198	0.943	--
Essex	Nutley PD	0.239	0.181	0.187	--
Essex	Orange PD	0.196	0.190	0.302	--
Essex	West Orange PD	0.474*	0.147	0.001	**
Gloucester	Deptford Twp PD	0.318*	0.115	0.006	--
Hudson	Secaucus PD	-0.226	0.194	0.244	--
Mercer	Ewing Twp PD	0.327*	0.138	0.018	--
Mercer	Lawrence Twp PD	-0.466*	0.179	0.010	**
Middlesex	North Brunswick PD	0.067	0.168	0.692	--
Middlesex	Perth Amboy PD	0.221*	0.102	0.031	--
Monmouth	Long Branch PD	0.045	0.108	0.678	--
Morris	Morris Twp PD	-0.493	0.379	0.077	--
Ocean	Toms River Twp PD	0.156	0.084	0.063	--
Somerset	Somerville PD	0.005	0.173	0.974	--
Union	Hillsdale PD	-0.361	0.205	0.079	--
Union	Plainfield PD	0.098	0.113	0.387	--

*Statistically significant at $p < 0.05$; **Statistically significant using Bonferroni p-value correction

Table 13 provides the results of the ICAT de-escalation training interrupted time series for the 27 New Jersey law enforcement agencies. The results mirror prior findings. Specifically, 19 of the 27 interrupted time series, or 70%, had non-significant estimates

via their unique regression models. Although there is considerable overlap with ABLE findings, not all the same agencies experienced significant changes in the ICAT models. Of the eight agencies that have statistically significant point estimates, seven show positive estimates (indicating statistically significant increases in use of force counts), controlling for seasonal shocks in the data over time. Only Bergen County Sheriff's Office shows a statistically significant decrease in use of force counts. Drawing upon the Bonferroni correction, only four agencies had statistically significant estimated changes in use of force counts (three increases and one decrease). Like the prior ABLE findings, the timing of ICAT training did not correspond with any consistent pattern or shifts in the frequency of use of force events. The findings primarily suggest no change, or, in those instances where changes were observed, increases in reported counts of force.

Table 13. Poisson Regression Results for 27 New Jersey Agencies – Estimating the Impact of ICAT Training

County	LE Agency	B	SE	p-value	Bonferroni Corr. p-value
Atlantic	Pleasantville PD	0.190	0.138	0.167	--
Atlantic	Somers Point PD	-0.261	0.222	0.241	--
Bergen	Bergen Co. Sherriff	-0.861*	0.261	0.001	**
Burlington	Pemberton Twp PD	0.423*	0.172	0.014	--
Camden	Camden County PD	0.468*	0.086	0.000	**
Camden	Waterford Twp PD	0.322	0.202	0.111	--
Cape May	Ocean City PD	0.134	0.261	0.607	--
Cape May	Wildwood PD	0.193	0.147	0.191	--
Cumberland	Millville PD	0.025	0.120	0.837	--
Essex	Belleville PD	0.497*	0.163	0.002	--
Essex	Irvington PD	0.235	0.144	0.103	--
Essex	Montclair PD	0.014	0.198	0.943	--
Essex	Nutley PD	0.239	0.181	0.187	--
Essex	Orange PD	0.196	0.190	0.302	--
Essex	West Orange PD	0.474*	0.147	0.001	**
Gloucester	Deptford Twp PD	0.318*	0.115	0.006	--
Hudson	Secaucus PD	-0.226	0.194	0.244	--
Mercer	Ewing Twp PD	0.327*	0.138	0.018	--
Mercer	Lawrence Twp PD	-0.466	0.179	0.010	**
Middlesex	North Brunswick PD	0.067	0.164	0.684	--
Middlesex	Perth Amboy PD	0.261*	0.102	0.011	--
Monmouth	Long Branch PD	0.048	0.110	0.660	--
Morris	Morris Twp PD	-0.493	0.379	0.077	--
Ocean	Toms River Twp PD	0.151	0.085	0.078	--
Somerset	Somerville PD	0.005	0.173	0.974	--
Union	Hillsdale PD	-0.361	0.205	0.079	--
Union	Plainfield PD	0.098	0.113	0.387	--

*Statistically significant at $p < 0.05$; **Statistically significant using Bonferroni p-value correction

Statewide Policy Interrupted Time Series Models Results

In this step, we examined the changes in each agency's use of force counts, focusing on the intervention date related to the statewide use of force policy change (January 1,

2022). A total of 11 New Jersey law enforcement agencies reported statistically significant changes in their use of force counts from January 2018 through December 2024, with January 2022 serving as the intervention period. Shown in **Table 14**, nine of these 11 agencies reported statistically significant increases in use of force counts, while the two exceptions—Bergen County Sheriff's Office and Lawrence Township PD—showed significant decreases. We also applied the Bonferroni correction (0.05/27 = 0.005) as a control for the number of independent time series, and the results showed a similar pattern. Six agencies experienced shifts beyond what would be expected by chance when accounting for the number of tests conducted. Of these, four agencies (Camden PD, Belleville PD, West Orange PD, and Toms River PD) reported statistically significant increases in use of force counts, while two agencies (Bergen County Sheriff's Office and Lawrence Township PD) reported significant decreases. Overall, most New Jersey agencies saw no change in use of force counts; when changes occurred, they were most likely increases.

Table 14. Poisson Regression Results for 27 New Jersey Agencies – Estimating the Impact of Post Use of Force Policy, January 2022

County	LE Agency	B	SE	p-value	Bonferroni Corr. p-value
Atlantic	Pleasantville PD	0.200	0.134	0.136	--
Atlantic	Somers Point PD	-0.360	0.219	0.100	--
Bergen	Bergen Co. Sherriff	-1.39*	0.284	0.000	**
Burlington	Pemberton Township	0.422*	0.169	0.013	--
Camden	Camden PD	0.719*	0.080	0.000	**
Camden	Waterford Twp PD	0.510*	0.207	0.014	--
Cape May	Ocean City PD	0.151	0.263	0.565	--
Cape May	Wildwood PD	0.181	0.147	0.220	--
Cumberland	Millville PD	-0.016	0.123	0.895	--
Essex	Belleville PD	0.559*	0.172	0.001	**
Essex	Irvington PD	0.210	0.148	0.158	--
Essex	Montclair PD	0.163	0.213	0.445	--
Essex	Nutley PD	0.195	0.185	0.291	--
Essex	Orange PD	0.201	0.189	0.288	--
Essex	West Orange PD	0.480*	0.150	0.001	**
Gloucester	Deptford Twp PD	0.225*	0.114	0.046	--
Hudson	Secaucus PD	0.036	0.205	0.859	--
Mercer	Ewing Twp PD	0.330*	0.139	0.018	--
Mercer	Lawrence Twp PD	-0.435*	0.176	0.013	**
Middlesex	North Brunswick PD	0.115	0.167	0.448	--
Middlesex	Perth Amboy PD	0.266*	0.102	0.009	--
Monmouth	Long Branch PD	0.011	0.110	0.917	--
Morris	Morris Twp PD	-0.481	0.276	0.082	--
Ocean	Toms River Twp PD	0.232*	0.086	0.008	**
Somerset	Somerville PD	0.004	0.169	0.998	--
Union	Hillsdale PD	-0.346	0.205	0.091	--
Union	Plainfield PD	0.122	0.113	0.278	--

*Statistically significant at $p < 0.05$; **Statistically significant using Bonferroni p-value correction

Full Initiative Implementation Interrupted Time Series Models Results

In this step, we examined the changes in each agency's use of force counts, identifying the intervention date as the full implementation of the NJOAG's Use of Force Reduction Initiative (i.e., January 1, 2023, when all agencies were fully trained and all statewide policy components were enacted). A total of 14 New Jersey law enforcement agencies reported statistically significant changes in their use of force counts from January 2018 through December 2024, with January 2023 serving as the focal point, as shown in **Table**

15. This was just over half of all New Jersey agencies that were included in these analyses.

Ten of the 14 agencies reported statistically significant increases in use of force counts, with four exceptions: Bergen County Sheriff's Office, Lawrence Township PD, Morris Township, and Hillsdale, which reported significant decreases in use of force counts. Eight agencies experienced shifts that were above and beyond random when controlling the number of tests we conducted, with only two (Bergen County Sheriff's Office and Lawrence Township PD) reporting statistically significant decreases in use of force counts. The remaining six agencies (Camden PD, Wildwood PD, Belleville PD, Orange PD, West Orange PD, and Perth Amboy PD) show increases. Thus, when we examine January 1, 2023, as the post-implementation period, over half of the agencies included in the analysis demonstrate significant shifts in use of force counts, many of which reported increases in the total count of use of force incidents.

Table 15. Poisson Regression Results for 27 New Jersey Agencies – Estimating the Impact of the Full Use of Force Reduction Initiative, January 2023

County	LE Agency	B	SE	p-value	Bonferroni Corr. p-value
Atlantic	Pleasantville PD	0.348*	0.136	0.010	--
Atlantic	Somers Point PD	-0.250	0.240	0.296	--
Bergen	Bergen Co. Sherriff	-1.70*	0.302	0.000	**
Burlington	Pemberton Twp PD	0.305	0.164	0.064	--
Camden	Camden County PD	0.719*	0.080	0.000	**
Camden	Waterford Twp PD	0.446*	0.195	0.023	--
Cape May	Ocean City PD	0.084	0.280	0.764	--
Cape May	Wildwood PD	0.410*	0.134	0.002	**
Cumberland	Millville PD	-0.179	0.138	0.195	--
Essex	Belleville PD	0.525*	0.152	0.001	**
Essex	Irvington PD	0.148	0.145	0.305	--
Essex	Montclair PD	-0.142	0.215	0.506	--
Essex	Nutley PD	0.357	0.190	0.060	--
Essex	Orange PD	0.576*	0.167	0.001	**
Essex	West Orange PD	0.528*	0.143	0.000	**
Gloucester	Deptford Twp PD	0.277*	0.125	0.027	--
Hudson	Secaucus PD	-0.063	0.211	0.766	--
Mercer	Ewing Twp PD	0.509*	0.132	0.000	**
Mercer	Lawrence Twp PD	-0.681*	0.185	0.000	**
Middlesex	North Brunswick PD	0.136	0.180	0.452	--
Middlesex	Perth Amboy PD	0.249*	0.096	0.009	--
Monmouth	Long Branch PD	0.130	0.109	0.236	--
Morris	Morris Twp PD	-1.13*	0.415	0.006	--
Ocean	Toms River Twp PD	0.128	0.091	0.157	--
Somerset	Somerville PD	0.080	0.185	0.663	--
Union	Hillsdale PD	-0.529*	0.234	0.024	--
Union	Plainfield PD	0.111	0.119	0.349	--

*Statistically significant at $p < 0.05$; **Statistically significant using Bonferroni p-value correction

QUANTILE REGRESSIONS

Pooling use of force counts for 2021 to 2024, we used quantile regression estimation to fit a regression line through the conditional quantiles of the use of force count distribution (Koenker and Bassett, 1978; Koenker and Hallock, 2000). Quantile regression addresses some limitations of the conditional mean framework, which tends to lose information at the extremes of a distribution (Hao and Naiman, 2007). Therefore, we estimate three quantiles: the 25th percentile (bottom quarter), the 50th percentile

(middle), and the 75th percentile (top quarter) of use of force reports using a series of predictor variables, including ABLE and ICAT training fidelity measures.

The equation for the quantile regression models presented herein is as follows:

$$y = \beta 0(\tau) + \beta 1(\tau)x + \varepsilon$$

Where τ represents the quantile of interest (i.e., 0.25 = 25th percentile, 0.5 = median, and 0.75 = 75th percentile). The purpose of this analysis is to assess whether there are certain modeled structural and agency characteristics that correspond differently among agencies at high, medium, and low risk of use of force. Simultaneous quantile regression accounts for the non-normal distribution of error terms and heteroskedasticity (Koenker & Bassett, 1978; Koenker & Hallock, 2000). Unlike traditional linear models, such as OLS regression, that assume that estimates have a constant effect, simultaneous quantile regression can illustrate if independent variables have non-constant or variable effects across the full distribution of the dependent variable. We present equality of coefficients tests to assess differences between the 25th, 50th, and 75th quantiles on relevant (training-specific measurements) covariates of interest.

We drew upon multiple data sources to facilitate the analyses presented here. The primary dependent variable is use of force counts, collected from the NJOAG use of force dashboard. Each officer-level report was pooled at the agency-level and was year-specific (for years 2021-2024).

The primary covariates of interest were the fidelity to training (for both ICAT and ABLE), collected by our research team (collected at the county-level). These variables measure adherence to training guidelines outlined by the NJOAG, with one measuring fidelity to ICAT training and one to ABLE training. Both *ICAT Training Fidelity* and *ABLE Training Fidelity* are measured using an ordinal scale of 1=Low, 2=Medium, and 3=High. Additional details on these definitions are provided in **Section IV. Methodology**.

A series of control variables is included in each of the following regression analyses. Three structural measures were collected at the city, county, or township level where each New Jersey law enforcement agency resided, given that structural constraints have been linked to injuries in trauma research (Meyers et al., 2025). Two key structural measures were extracted from the 2023 American Community Survey (five-year estimates) from the US Census to gauge strained resources as well as residential instability (see Burgard et al., 2012; Kasarda, 1993): *percent in poverty* (i.e., the number of households below poverty level/total household population) and *residential instability*. Residential instability was operationalized as the average of two z-score indicators: (a)

the percentage of owner-occupied homes whose owners moved in within the past five years, and (b) the percentage of housing units that are renter-occupied. Higher values signal more instability—contexts with more recent movers and a greater share of renters, both common manifestations of residential turnover.

We also calculated three agency-level covariates to include in models. Two rates were related to police operations, measuring risk of force exposure (see Klinger, 1997): *Serious Offense Rate* and *Arrest Rate.* Counts for serious offenses (Part I UCR offenses per month) and for arrests (per month) from 2018–2023 were pooled to the agency level and divided by the number of sworn law enforcement officers in each agency to calculate a rate.[26] The serious offense and arrest rates (the number of arrests reported by each agency) were the average (the number of offenses/months) count of events per officer. Higher arrest and serious offense rates reflected higher crime and arrest police-subject encounters, by agency, over time. Finally, the frequency of use of force is potentially confounded by the agency-cultural frequency of subject complaints, or manifestations of police illegitimacy (Kane, 2005), which we can proxy measure with *excessive force complaint rate* at the agency level—a measure generated by taking the total number of civilian complaints for excessive force complaints by subjects per officer.

Table 16 presents the results of the simultaneous quantile regressions at the lower, middle, and upper strata in agency use of force counts while including the ABLE fidelity covariate in each regression. Higher levels of ABLE implementation fidelity corresponded with significantly fewer use of force counts at the 25th percentile ($b = -11.20$, $p < 0.05$); however, this association was not observed elsewhere in the middle or upper ends of the use of force count distribution, suggesting that agencies situated in counties that implemented ABLE with fidelity and in lower risk contexts report significantly fewer use of force incidents.

[26] Given the 72-month observation period between 2018-2023, we only included the 477 agencies (out of 523 agencies) that provided 70 or more monthly observations during this period (91.2% of all NJ agencies).

Table 16. Simultaneous Quantile Regression Results Total Use of Force – ABLE

	25th Quantile		50th Quantile		75th Quantile	
Covariate	**B**	**BSE**	**B**	**BSE**	**B**	**BSE**
ABLE Score	-11.20*	4.90	-12.15	8.83	-28.06	17.58
Structural						
% Poverty	2.28*	1.02	9.26*	1.84	22.11*	3.67
Residential Instability	0.493	0.387	-0.185	0.697	-1.17	1.38
Organizational						
Serious Offense Rate	9.83	6.72	41.38*	12.10	34.83	24.08
Arrest Rate	0.051	0.475	0.980	0.854	2.12	1.70
Excessive Force Rate	0.694	28.91	-32.05	52.02	71.58	103.5
Constant	16.50	18.09	7.27	32.56	49.28	64.81
Pseudo R-Square	0.056		0.109		0.201	

BSE = Bootstrapped Standard Errors; +p < 0.10; * p< 0.05

Table 17 shows that fidelity to ICAT training had no significant association with use of force counts at the 25th, 50th, and/or 75th quantiles. None of the ICAT fidelity measures correspond with any of the use of force counts in any context. However, factors such as poverty and arrest rates were positively associated with use of force counts.

Table 17. Simultaneous Quantile Regression Results Total Use of Force – ICAT

	25th Quantile		50th Quantile		75th Quantile	
Covariate	**B**	**BSE**	**B**	**BSE**	**B**	**BSE**
ICAT Score	14.46	8.63	21.71	12.47	40.94	26.90
Structural						
% Poverty	2.25	1.22	9.76*	1.77	21.52*	3.81
Residential Instability	0.702	0.460	-0.064	0.664	-0.433	1.43
Organizational						
Serious Offense Rate	13.01	8.10	36.52*	11.71	17.24	25.26
Arrest Rate Per Officer	0.357	0.561	1.77*	0.810	4.42*	1.75
Excessive Force Rate	-15.83	34.57	-16.58	49.94	135.16	107.72
Constant	-47.25*	24.84	-77.55*	35.8	-125.0	77.40
Pseudo R-Square	0.050		0.110		0.203	

BSE = Bootstrapped Standard Errors; * $p < 0.05$

SUMMARY OF TRENDS IN USE OF FORCE

A primary focus of this evaluation is estimating the impact of the NJOAG Use of Force Reduction Initiative on the frequency of use of force incidents reported statewide. We examined trends in police use of force reports, connecting historical use of force reports (Jan 2018 to Sep 2020) to the newer statewide collection of use of force reports (Oct 2020 to Dec 2024). This section outlined some of the persistent challenges in linking these two data sources for analysis (e.g., inconsistencies in definitions, reporting criteria, and

counts). Where feasible, we carried out long-term analyses using a variety of analytic techniques.

A descriptive review of the trends in use of force from 2018 to 2024 highlights a notable decline during 2019–2020, likely due to the COVID-19 pandemic and restrictions on police activities. This decline was followed by a significant rebound in recent years. Statewide use of force reports reached their highest point during the seven-year period in 2024 (n=17,791), marking a 1.6% increase from the previous year and a 2.6% rise from the 2018 baseline. Over the entire period, Black subjects consistently experienced the highest rates of police use of force, and these rates remained relatively stable over time. White subjects ranked second in the total number of use of force reports, but their counts decreased from 2022 to 2024 compared to 2018 and 2019. Hispanic individuals had lower baseline levels of use of force involvement, but the rebound period from 2022 to 2024 demonstrated substantial increases in use of force reports identifying Hispanic subjects.

The county-level analysis reveals substantial geographic variation in both the volume and demographic composition of use of force reports across New Jersey's 21 counties. Three counties account for nearly one-third of all statewide incidents: Essex County leads with 11,952 incidents, followed by Hudson County with 10,335 incidents, and Camden County with 9,766 incidents. A heatmap visualization **(Figure 6)** shows that most counties with higher overall report volumes tend to have their highest concentrations in either the Black or White demographic groups, with fewer counties primarily concentrated in the Hispanic category.

We employed crossover regressions to examine the rolling nature of the Initiative's implementation, onset, and overall impact on use of force counts. We examined three different 'transitional periods' across the state in our crossover regressions to account for (1) the varying timelines of the ICAT and ABLE training schedules, (2) the statewide rollout of the use of force policy, and (3) the combined period when all New Jersey law enforcement agencies were fully trained in ICAT and ABLE and the policy was fully in effect. For the different training periods, we analyzed short-, medium-, and long-term impacts (six, nine, and twelve months), and for the policy change and full Initiative implementation, we used twelve-month pre- and post-intervention periods. Four outcomes were tested in the models: total use of force, use of force involving White subjects, use of force involving Black subjects, and use of force involving Hispanic subjects.

The short, medium, and long-term statewide training crossover models, controlling county-level fixed effects and seasonal shocks, had very similar findings across both

ABLE and ICAT training periods. Specifically, there was no evidence of any change in the short-term for any of the four groups of results (i.e., total, Black, White, or Hispanic). While the same lack of significant changes was true in the medium-term and long-term regressions for total, Black, and White uses of force, Hispanic use of force counts did significantly increase. Specifically, Hispanic uses of force significantly increased in the medium and long-term cycles, regardless of which training parameter was estimated (ABLE or ICAT).

The crossover regression models for policy enactment (12-month pre/post periods) demonstrated similar findings to the medium- and long-term training models, with no changes in total use of force or use of force against Black and White subjects related to the timing of the policy. However, there was a significant increase in the number of use of force reports identifying Hispanic subjects. In the full-scale implementation models (i.e., all agencies fully trained and use of force policy enacted), we also observed a significant rise in total use of force reports and use of force involving Hispanic subjects, while no significant changes were found for use of force reports involving White or Black subjects. When examining the univariate trends for use of force by subject race, it is evident that the increase in Hispanic uses of force counts did not occur in a single step or shock (that corresponded with the timing of the Initiative) but rather was a steady, steep, linear increase over time. This suggests an underlying increase in Hispanic use of force between 2021 and 2024 across multiple New Jersey police departments.

We also conducted a series of supplemental analyses and sensitivity tests to assess whether agencies at different levels within force distributions experienced different changes in use of force counts after completing their use of force training. Regardless of whether the agencies were among the highest risk for use of force counts (i.e., in the top ten percent of law enforcement agencies by force counts), above the median (top 50%), or below the median (bottom 50%), the results were consistent: use of force counts did not change for total, Black, or White subjects—only for Hispanic subjects. The nuanced results from these sensitivity tests are shown in **Appendix 2**. In summary, there is no evidence that use of force training, policies, or the full Initiative had a statewide impact on use of force counts over time based on our crossover analyses; and over time, use of force involving Hispanic subjects showed statistically significant, stable, and steady increases.

We used interrupted time series modeling to provide a robust analytical framework to detect the precise changes in event outcomes after controlling for a long-term, stable, pre-intervention time series (which we were unable to do using crossover regressions). Our time series models relied on 2018–2020 historical use force reports, where enough data was provided to achieve the necessary statistical power and did not violate

assumptions. Thus, the final eligible New Jersey law enforcement agencies for interrupted time series analyses on their use of force counts over time was 27 sites, which had (1) enough statistical power in uses of force, and (2) mean and variance stability in the longer-term pre-intervention time series (i.e., 2018-2021, accounting for the uniliteral decline that almost all agencies observed in 2020 due to the COVID-19 pandemic).

Of the interrupted time series analyses conducted, most findings indicated that use of force patterns did not change in any meaningful, sizable, or statistically significant way, suggesting that the Initiative did not alter the longer-term patterns of force use over time. In the training-focused analyses, only eight of the 27 agencies showed significant changes in use of force from January 2018 through December 2024, with most showing increases while only one or two showed reductions, after controlling for seasonal fluctuations in the data over time. Not all the same agencies had significant changes in both ABLE and ICAT models, although there was considerable overlap. In the policy-focused time series analyses, 11 of the 27 agencies experienced statistically significant changes in their use of force counts (nine agencies increased and two decreased). When accounting for the number of independent time series, six agencies experienced shifts that went beyond what would be expected randomly, with four reporting significant increases and two reporting significant decreases in use of force counts. In the full Initiative implementation analyses, 14 of the 27 agencies showed significant changes in their use of force counts from January 2018 through December 2024 (n increased and four decreased). Of those, eight agencies experienced shifts beyond random expectations, with six increasing and two decreasing. Overall, based on the set of interrupted time series models, most New Jersey agencies saw no change in use of force counts; when changes occurred, they were most often increases.

Finally, we used quantile regressions to identify whether there are certain structural or agency characteristics that correspond differently among agencies at high, medium, and low risk levels of use of force. We found that higher fidelity in implementing ABLE training was associated with significantly fewer use of force incidents in the low-risk group (at the 25th percentile). No correlation was found between ICAT training fidelity and use of force across quantiles. Factors like poverty, serious offenses, and arrest rates were positively associated with use of force counts across many risk groups (quantiles). This suggests that agencies in lower risk contexts that implemented ABLE with higher fidelity experienced fewer use of force incidents; however, this fidelity was not significant for agencies in middle or higher risk contexts.

VII. TRENDS IN INJURIES DURING USE OF FORCE

A crucial next step examines the Initiative's impact on injuries during use of force incidents by analyzing trends in subject and officer injuries recorded in use of force reports. This section begins with a descriptive analysis of injury patterns for subjects and officers, including county-level comparisons in injury rates before and after the availability of the statewide use of force data collection platform in 2020. Building on these descriptive findings, we employ multivariate regression analyses on force-related injuries, using methods similar to those in our use of force analyses. Crossover regression models examine whether subject and officer injury counts changed as agencies transitioned through training completion (ICAT or ABLE), statewide use of force policy adoption, or full Initiative implementation.

Additionally, we use quantile regression models to explore how ABLE and ICAT training implementation fidelity relates to injury risk across different levels (low, medium, high) of total subject and officer injuries (2021–2024), while controlling for relevant factors. Finally, for subject injuries—the only outcome with sufficient statistical convergence—we apply Group-Based Trajectory Analysis and Hierarchical Generalized Linear Modeling to agencies with consistently high subject injury rates during this period. These advanced modeling procedures help identify whether certain agencies follow distinct injury risk trajectories over time and allow us to partition county-level effects from agency-specific injury patterns. We conclude with a summary of the major findings from these analyses.

DESCRIPTIVE TRENDS

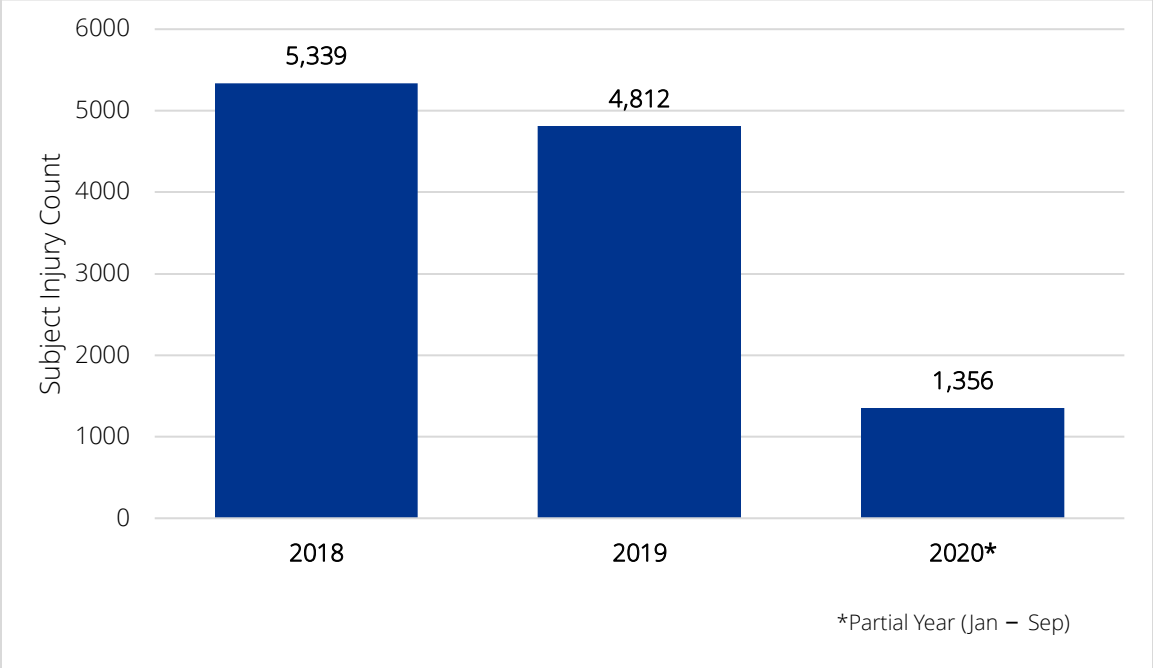
This section presents descriptive (univariate) trends in subject and officer injuries during use of force events. We analyze data separately for the pre-transition period (agency-specific, paper-based forms; 2018–Sep 2020) and post-transition period (standardized NJOAG forms; Oct 2020–2024), then compare patterns across these periods. This was a necessary step in the analytical process due to the large deviation in injury reporting between the two periods. Our analysis examines both statewide and county-level variation in injuries.

Subject Injuries by Year (Pre-Data Transition)

The analysis of subject injuries during the pre-period (2018–2020) reveals a declining trend in civilian harm during use of force encounters, displayed in **Figure 7.** In 2018, 5,339 subjects sustained injuries during use of force incidents. This number decreased to 4,812 injuries in 2019, representing a 9.9% decline from the previous year. The trend continued in 2020, with 1,358 recorded subject injuries through September, reflecting a 71.8% decrease from 2019 levels when accounting for the partial year data collection period.

The substantial reduction in subject injuries during 2020 corresponds with the overall decline in use of force incidents during the same period, though it also likely reflects the impact of COVID-19 pandemic restrictions, reduced police-civilian interactions, and potential changes in policing practices during this period. The injury data provides important context for understanding the human impact of police use of force encounters beyond simple incident counts, demonstrating that civilian harm also decreased substantially during this timeframe, even before the implementation of the NJOAG Use of Force Reduction Initiative.

Figure 7. New Jersey Force-Related Subject Injuries by Year, Pre-Data Collection Transition

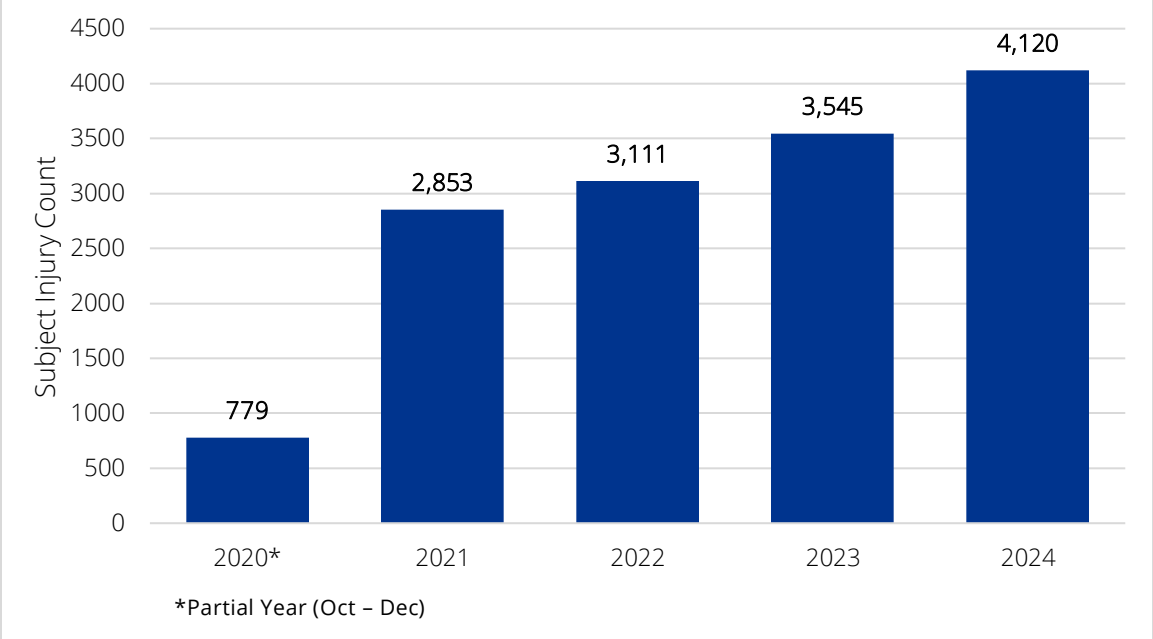


Subject Injuries by Year (Post-Data Transition)

Data extracted from the statewide use of force data collection platform ("post-data transition") reveals a substantial increase in subject injuries from 2020 through 2024, illustrated in **Figure 8**. Only 779 subject injuries were reported in 2020, though this number reflects a partial year's worth of use of force data (October–December). There were 2,853 subject injuries reported in 2021. This count increased in 2022 with 3,111 subject injuries (9.0% increase from 2021), followed by 3,545 injuries in 2023 (14.0% increase from 2022), and reaching 4,120 injuries in 2024 (16.2% increase from 2023).

The post-period subject injury totals substantially exceed pre-period levels when compared to comparable full-year data. The 2024 total of 4,120 subject injuries represents a 14.4% decrease from the 2019 pre-period total of 4,812 injuries, indicating that while subject injuries have increased in recent years, they have not returned to pre-period levels. The consistent year-over-year increases throughout the post-period demonstrate a clear recovery pattern in civilian injuries during use of force encounters.

Figure 8. New Jersey Force-Related Subject Injuries by Year, Post-Data Collection Transition



We examined differences in subjects who reported injuries compared to those who did not. In terms of demographics, subjects who were injured in use of force events were more likely to be male (85.0% of subjects injured compared to 75.3% not injured).[27] The

[27] Pearson Chi-Square results demonstrated statistically significant gender injury difference – $p < 0.05$.

average age of subjects who were injured was 34.2 years old (for those 18 or older),[28] which is slightly older than the distribution of subjects who were not injured (32.5 years). In terms of race and ethnicity, Black subjects make up a similar, though slightly smaller percentage of those reporting injuries compared to those who did not (40.8% injured vs. 45.2% non-injured). In contrast, White subjects make up a slightly larger percentage of injured subjects than non-injured (33.6% vs. 29.6%, respectively). Finally, similar percentages of Hispanics are both injured and not injured (22.2% vs. 21.7%, respectively).[29]

It is noteworthy that of the 14,294 subjects who were injured during the use of force encounter, roughly 14.8% were listed as injured prior to the force contact (n = 2,116).[30] Other situational information regarding the perceived condition of the subject injured during a use of force event is shown in **Table 18.** This table reveals that 42.5% of individuals were perceived to be under the influence of drugs and/or alcohol and another 18.6% were perceived to be experiencing a potential mental health incident. However, 34.5% were listed as having no unusual condition and only 4.3% were other/missing or unknown.

Table 18. Subject Injury Situational Event Characteristics (N=13,171)

Perceived Condition	N	%
Under Influence (Drugs and/or Alcohol)	6,079	42.5%
Potential Mental Health Incident	2,663	18.6%
No Unusual Condition Noted	4,927	34.5%
Other Conditions/Unknown	625	4.3%
Total	14,294	100.0%

Officer Injuries by Year (Pre-Data Transition)

Officer injury data, displayed in **Figure 9** during the pre-data transition period shows a different pattern compared to subject injuries. In 2018, 2,123 officers sustained injuries during use of force encounters. This figure remained relatively stable in 2019 with 2,080 officer injuries, representing only a 2.0% decrease from the previous year. The 2020 data show 575 officer injuries through September, indicating a substantial decline that corresponds with the overall reduction in use of force incidents during this period. The

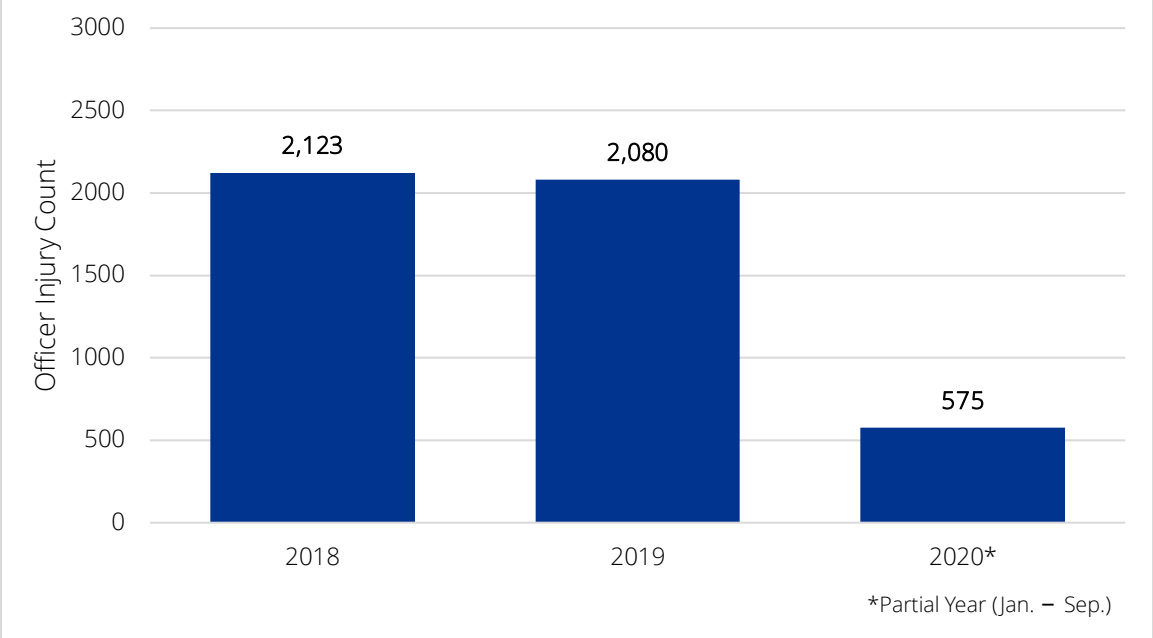
[28] 732 subjects (0.9% of the sample) were under 18 or had unknown age and thus were excluded from the mean age calculation.

[29] Pearson Chi-Square results demonstrated statistically significant race/ethnicity difference – $p < .05$.

[30] The typical narrative or contextual factor associated with pre-existing injury was an incident that took place indoors (rather than outdoors), in a bar or alcohol-based establishment, and where the subject was arrested in the encounter.

officer injury counts demonstrate that law enforcement personnel also experienced reduced harm during the period of decreased use of force activity.

Figure 9. New Jersey Force-Related Officer Injuries by Year, Pre-Data Collection Transition



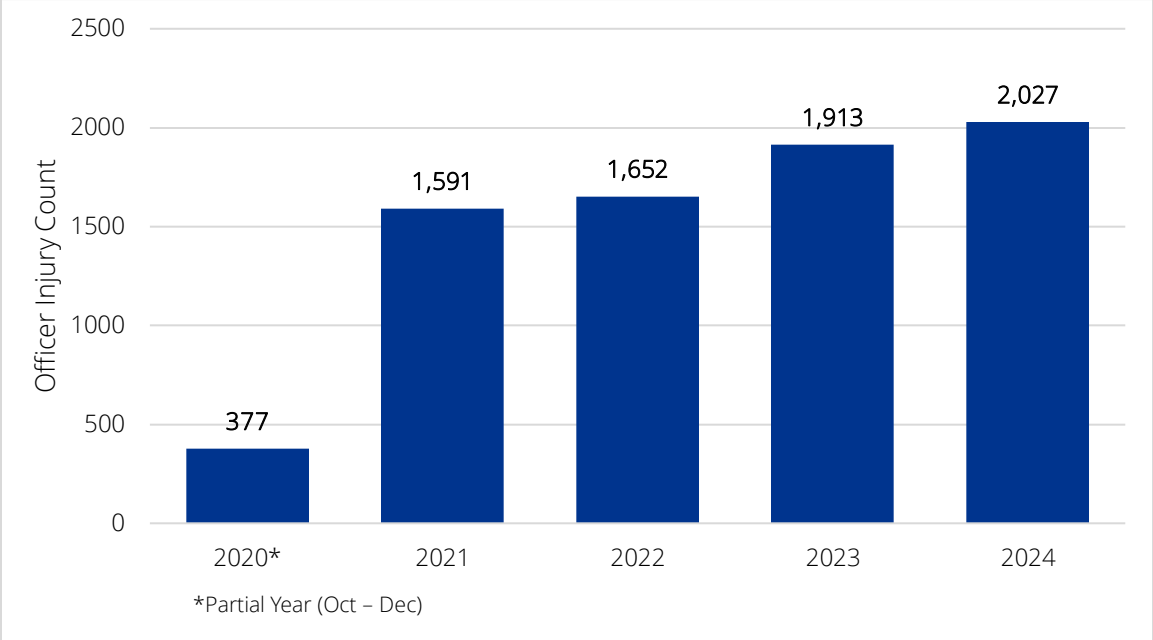
Officer Injuries by Year (Post-Data Transition)

Officers reported injuries in approximately 10% of all use of force reports from 2020 through 2024. Of those injuries, the research team then categorized them into hierarchical groupings that assign each officer to exactly one category based on the most severe injury present. The hierarchy prioritizes injuries by severity: gunshot wounds, fractures/dislocations, concussions, chest/breathing issues, cuts/scrapes, bruising, pain complaints, not injured, unknown, and other. When multiple injury types were documented for a single officer, only the highest-severity injury was used for classification, ensuring mutually exclusive categories. Analysis of 7,560 officer injury records revealed that cuts and scrapes (abrasions, lacerations, punctures) were the most common injury type, affecting 50.45% of injured officers. Pain complaints without visible injury accounted for 26.56% of cases, while bruising represented 15.5%. More severe injuries were relatively rare, with fractures/dislocations affecting 2.08% of officers, concussions affecting 0.6%, and gunshot wounds affecting only 0.11%. The predominance of minor physical injuries and pain complaints suggests that most officer injuries during use of force incidents are relatively minor, though the substantial proportion of pain-only complaints may indicate under-documentation of visible injuries or delayed-onset symptoms.

Officer injury data during the post-data transition period shows a substantial recovery from the exceptionally low counts during the first nine months of 2020 (n =377; only Oct–Dec data shown). In 2021, the first full year of post-data, 1,591 officer injury counts were reported. The marginal growth continued in 2022 with 1,652 officer injuries (3.8% increase from 2021), followed by 1,913 injuries in 2023 (15.8% increase from 2022), and reaching 2,027 injuries in 2024 (6.0% increase from 2023).

The post-period officer injury, shown in **Figure 10**, demonstrates a recovery pattern similar to subject injuries but with different relative magnitudes. The 2024 total of 2,027 officer injuries represents a 2.5% decrease from the 2019 pre-period total of 2,080 injuries, indicating that officer injuries have nearly returned to pre-period levels. This contrasts with subject injuries, which remain substantially below pre-period levels despite significant recovery.

Figure 10. New Jersey Force-Related Officer Injuries by Year, Post-Data Collection Transition



County-Level Pre vs. Post Subject Injury Comparison

The comparative analysis of subject injuries between the pre-period (Jan 2018–Sep 2020; 33 months) and the post-period (Oct 2020–Dec 2024; 50 months) reveals substantial variation in injury patterns across counties. These comparisons are shown in **Table 19**. When examining changes, several counties appear to demonstrate dramatic increases in subject injury counts. For example, Hunterdon County demonstrated the largest

proportional increase at 636.4%, rising from 11 pre-period injuries to 81 post-period injuries. However, these comparisons are not equivalent, given that counts for the 33-month pre-period are being compared to counts for the 50-month post-period. Therefore, **Table 19** also presents counts of the average number of subject injuries per month for each period, along with percent-change scores for these two metrics.

When examining monthly injury rates, the patterns become more nuanced. Ten counties demonstrated a reduction in the average number of subject injuries per month, whereas 11 counties demonstrated an increase. For example, Mercer County showed the highest pre-period monthly rate at 54.3 injuries per month, declining to 11.8 injuries per month in the post-period (78.3% reduction). Somerset County demonstrated a similar pattern, decreasing from 24.7 to 5.7 injuries per month (76.9% reduction). Conversely, Camden County increased from 20.6 to 24.1 injuries per month (17% increase), and Middlesex County increased from 11.0 to 19.6 injuries per month (78.2% increase).

Subject injury rates, calculated as the percentage of use of force reports resulting in injury, declined substantially across most counties. Mercer County's injury rate decreased from 51.7% to 17.2%, while Somerset County declined from 58.2% to 18.8%. Essex County showed a decrease from 32.3% to 14.7%, and Monmouth County declined from 44.6% to 17.5%.

Table 19. County-Level Pre vs. Post Subject Injury Comparison (2018-2024)

County	# Subject Injuries (Pre)	# Subject Injuries (Post)	Subject Injury Rate (Pre)	Subject Injury Rate (Post)	Avg. Subject Injuries /mo. (Pre)	Avg. Subject Injuries /mo. (Post)	Avg. Subject Injury/mo. Δ%
Mercer	1,793	604	51.7%	17.1%	54.3	11.8	-78.3%
Somerset	814	291	58.2%	18.8%	24.7	5.7	-76.9%
Union	968	658	25.9%	16.8%	29.3	12.9	-56.0%
Gloucester	554	477	34.2%	21.4%	16.8	9.4	-44.0%
Salem	128	110	43.0%	29.6%	3.9	2.2	-43.6%
Monmouth	1,004	997	44.6%	17.4%	30.4	19.5	-35.9%
Essex	1,193	1,209	32.3%	14.6%	36.2	23.7	-34.5%
Burlington	657	705	36.0%	24.6%	19.9	13.8	-30.7%
Hudson	934	1,195	24.8%	18.2%	28.3	23.4	-17.3%
Ocean	763	1,065	25.7%	19.4%	23.1	20.9	-9.5%
Cumberland	284	464	21.5%	23.1%	8.6	9.1	+5.8%
Morris	206	361	17.6%	20.1%	6.2	7.1	+14.5%
Camden	680	1,231	23.0%	18.1%	20.6	24.1	+17.0%
Passaic	393	720	28.9%	20.5%	11.9	14.1	+18.5%
Cape May	147	333	15.9%	23.7%	4.5	6.5	+44.4%
Middlesex	364	999	16.9%	20.6%	11	19.6	+78.2%
Warren	49	144	14.8%	21.3%	1.5	2.8	+86.7%
Sussex	32	98	13.6%	15.9%	1	1.9	+90.0%
Atlantic	163	664	11.4%	22.5%	4.9	13	+165.3%
Bergen	140	708	10.8%	15.8%	4.2	13.9	+231.0%
Hunterdon	11	81	20.4%	19.9%	0.3	1.6	+433.3%

Pre-period = Jan 2018 – Sept 2020; Post-period = Oct 2020—Dec 2024. Rates = injuries ÷ force reports. Injuries per month normalize for unequal period lengths.

County-Level Pre vs. Post Officer Injury Comparison

The comparative analysis of officer injuries reveals similar patterns compared to subject injuries, with most counties experiencing increases in the volume of officer injury counts from the pre-data transition period to the post-period. Bergen County demonstrated the most dramatic increase at 2,080.0%, rising from 25 pre-period injuries to 545 post-period injuries. Hunterdon County showed a 580.0% increase from 10 to 68 injuries, while Middlesex County experienced a 228.2% increase from 149 to 489 injuries.

Monthly officer injury averages reveal more moderate changes when accounting for period length differences. As shown in **Table 20**, eight counties demonstrated decreases, whereas 13 counties demonstrated increases in percent change. Somerset and Mercer Counties showed the highest declines in average monthly injuries, with a 78.5% and 70.7% reduction in average monthly injuries, respectively. In contrast, Camden County's average monthly officer injury count rose from 6.6 in the pre-period to 12.3 in the post-period (86.4% increase).

Officer injury rates generally declined across the pre- and post-periods, but the decreases were typically smaller than those observed for subject injury rates. Mercer County's officer injury rate decreased from 20.4% to 9.1%, while Somerset County declined from 35.1% to 10.6%. Essex County showed a decrease from 17.4% to 8.5%, and Monmouth County declined from 15.8% to 8.9%. Several counties showed modest increases in officer injury rates, including Warren County (12.4% to 14.5%) and Salem County (13.1% to 14.5%).

Table 20. County-Level Pre vs. Post Officer Injury Comparisons (2018-2024)

County	# Officer Injuries (Pre)	# Officer Injuries (Post)	Officer Injury Rate (Pre)	Officer Injury Rate (Post)	Avg. Officer Injuries/mo. (Pre)	Avg. Officer Injuries/mo. (Post)	Avg. Officer Injury/mo. Δ%
Somerset	491	164	35.1%	10.6%	14.9	3.2	-78.5%
Mercer	709	320	20.4%	9.1%	21.5	6.3	-70.7%
Gloucester	255	227	15.7%	10.2%	7.7	4.5	-41.6%
Burlington	270	326	14.8%	11.4%	8.2	6.4	-22.0%
Cumberland	133	163	10.1%	8.1%	4	3.2	-20.0%
Essex	642	704	17.4%	8.5%	19.5	13.8	-19.2%
Salem	39	54	13.1%	14.5%	1.2	1.1	-8.3%
Monmouth	355	508	15.8%	8.9%	10.8	10	-7.4%
Union	269	432	7.2%	11.0%	8.2	8.5	+3.7%
Ocean	235	410	7.9%	7.5%	7.1	8	+12.7%
Passaic	220	424	16.2%	12.1%	6.7	8.3	+23.9%
Hudson	365	713	9.7%	10.9%	11.1	14	+26.1%
Morris	100	202	8.5%	11.3%	3	4	+33.3%
Warren	41	98	12.4%	14.5%	1.2	1.9	+58.3%
Sussex	25	67	10.6%	10.9%	0.8	1.3	+62.5%
Cape May	48	135	5.2%	9.6%	1.5	2.6	+73.3%
Camden	217	626	7.3%	9.2%	6.6	12.3	+86.4%
Atlantic	92	292	6.4%	9.9%	2.8	5.7	+103.6%
Middlesex	149	489	6.9%	10.1%	4.5	9.6	+133.3%
Hunterdon	10	68	18.5%	16.7%	0.3	1.3	+333.3%
Bergen	25	545	1.9%	12.2%	0.8	10.7	+1237.5%

Pre-period = Jan 2018 – Sept 2020; Post-period = Oct 2020—Dec 2024. Rates = injuries ÷ force reports. Injuries per month normalize for unequal period lengths.

The comparison between subject and officer injury changes reveals important patterns. Counties that experienced the largest decreases in subject injuries (Mercer and Somerset) also showed substantial decreases in officer injuries, and counties with dramatic increases in officer injuries (Bergen, Hunterdon, Middlesex) also showed substantial increases in subject injury counts, suggesting systematic changes in use of

force practices or encounter characteristics in these jurisdictions. Still, some counties (Union, Ocean, Hudson) showed mixed trends across the two outcomes. Overall, this suggests that factors influencing civilian and officer harm may operate through different mechanisms across jurisdictions.

Notably, several counties that experienced increases in absolute injury counts still showed declining injury rates, indicating that the increases in injuries were proportionally smaller than increases in overall use of force incidents. However, we cannot be sure that shifts in injury counts from the pre-period to the post-period reflect true shifts or are simply measurement error, as definitions and data collection instruments have substantially changed. The large observed variation across counties (and agencies) thus limited the research team's ability to conduct analyses across the full time period. Due to these variations (and related concerns of the validity of Pre/Post analysis due to data variability), subsequent injury analyses focus solely on post-period injuries, to ensure that data across departments is captured systematically and using the same criteria and definitions across agencies.

MULTIVARIATE FRAMEWORK

Following the methodology in the multivariate use of force analyses, we examined whether the Initiative components affected injury rates during use of force encounters. Our injury analyses draw from the complete dataset of use of force reports for 2021 through 2024 (N = 72,385).[31] To ensure analytical precision, we restricted subject injury analyses to the 97.7% of these reports that involve a single subject, avoiding the analytical complexity and validity concerns introduced by multi-subject encounters.[32] Among these single-subject events, just under 19% resulted in subject injury, while approximately 10% resulted in officer injury.

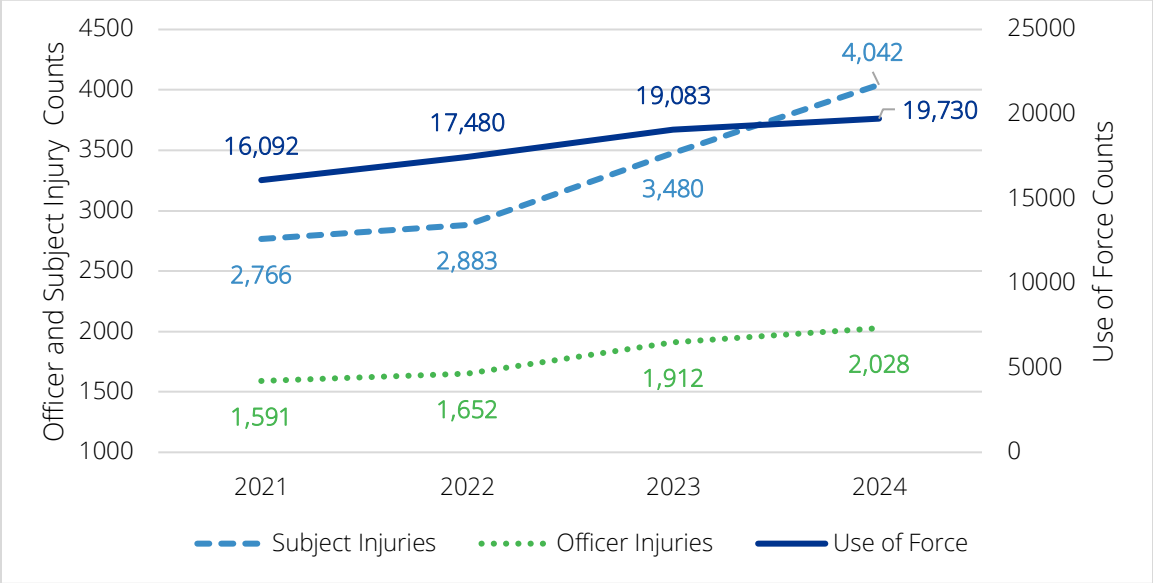
As noted previously, use of force reports demonstrated an increase from 2021 to 2024; thus, we anticipated parallel trends in officer and subject injuries. In **Figure 11**, we present a dual-axis trend graph of the total use of force counts (right axis) and subject and officer injury counts (left axis). Total use of force counts increased steadily from a

[31] We restricted our examination of use of force events to the following dates: January 1, 2021 through December 31, 2024 (i.e., while October, November, and December 2020 data were available, we restricted this analysis to complete years of data, given that the pre-training periods used in crossover analyses never extended earlier than January 2021).

[32] This leaves roughly 1,694 uses of force reports that included multiple subjects. Of these 1,694 uses of force reports remaining (in each case in these reports there were multiple subjects who had force used on them), 1,226 reports (72.3% = 1,226 / 1,694) had confirmation that not a single subject was injured. Thus, 27.6% of this multi-subject use of force reports, at least one subject was confirmed to have sustained an injury.

low of 16,092 in 2021 to a high of 19,730 in 2024 (22% increase). Officer injury counts followed a similar trajectory, rising from 1,591 in 2021 to 2,028 in 2024 (27% increase). Subject injuries increased considerably in 2023 and 2024, particularly when compared to 2021 and 2022, from a low of 2,766 in 2021 to a high of 4,042 in 2024 (46% increase).

Figure 11. Annual Use of Force, Officer Injury, and Subject Injury Counts (2021-2024)



To delve further into some of the nuances of these trends, we conducted a series of multivariate regression analyses on injuries. First, we replicated the crossover regression approach used for the use of force report analysis, applying it to both subject and officer injury counts. These models tested whether there was a significant change in injuries when agencies completed training, after the enactment of the statewide use of force policy, and when the Use of Force Reduction Initiative was fully implemented across the state (e.g., all agencies trained and the statewide use of force policy enacted).

Second, we employed quantile-regression models to examine how ABLE and ICAT training implementation fidelity related to injury distributions across agencies from 2021–2024. These models compared agencies at different injury risk levels (bottom, middle, and upper quartiles) while controlling for theoretically relevant factors, allowing us to determine whether training effects varied by baseline injury rates. Finally, for subject injuries (the only outcome that converged using this technique), we conducted Group-Based Trajectory Analysis (GBTA) on the agencies that consistently had the highest percentage of injuries within use of force events for 2021 to 2024. GBTA identified distinct agency clusters following different injury risk trajectories over time. We then used binary logistic regression to compare these trajectory groups on key

covariates from our quantile models, testing whether factors associated with injury risk in cross-sectional analyses maintained consistent effects across the four-year study period. The results of each set of regression models are presented herein.

CROSSOVER ANALYSIS METHODOLOGY AND RESULTS

We applied the same analytical framework used for use of force trends to examine how Initiative components influenced injury outcomes during use of force events. This approach recognizes that the Initiative comprised coordinated policy changes and training programs implemented at different times across agencies, rather than a single uniform intervention. Our regression models specifically examine how this staggered implementation influenced injury outcomes across the 519 New Jersey law enforcement agencies represented in this data set.

Our crossover regression models examine three distinct transitional periods. First, we analyzed mandated training completion effects for both ABLE and ICAT programs, which rolled out from June 1, 2021, through September 30, 2022. Training completion was operationalized as binary variables (0 = pre-training, 1 = post-training) based on when each county reached 80% officer completion rates for each program.[33] Second, we examined the enactment of the statewide use of force police, effective January 1, 2022. Third, we analyzed the full Initiative implementation period beginning January 2023, when all agencies had completed both training programs and operated under the new use of force policy.

For each analysis, we relied on a balanced, centered approach to modeling the pre- and post-intervention periods. Training impacts were examined across three distinct time intervals: six months (short-term), nine months (medium-term), and 12 months (long-term) following training completion. For policy changes and the Initiative's full implementation, we analyzed outcomes using 12-month pre- and post-intervention comparison periods.[34]

Each injury outcome was estimated by relying upon the following regression equation:

$$Y^{J}_{it} = \beta 0 + \beta 1 T_{it} + \theta_i + \rho_t + \varepsilon_{it}$$

[33] See **Table 45** in Appendix 1 for a list of training dates by county.

[34] Staggering the results for the full policy implementation periods yielded no significant or substantive differences from the 12-month models.

In each equation, Y^{J}_{it} represents the number of behavioral outcomes of type J (officer injury counts or subject injury counts) generated by New Jersey police agencies in each county in time period t. For Equation 1, T_{it} represents the contemporaneous timing of the permanent movement into the treatment group (i.e., ICAT or ABLE training) for agencies assigned to county i in time period t, and where θ_i and ρ_t represent county fixed effects (given the shared time periods of training for each agency in each county) and time period (i.e., monthly fixed effects), respectively, that account for time- and county-level unobserved heterogeneity. Finally, ε is based on Huber-White Robust sandwich estimators to ensure the coefficient variances are robust to violations of homoscedastic error distributions.

For all models, we included county-level fixed effects for each agency, given the shared commonality of training completion dates. We also controlled for all time-invariant county characteristics between the agencies to minimize bias due to unobserved covariates at the county level. Finally, we included monthly dummy variables for all repeated measures to account for the consistent seasonal shocks in the use of force injuries over time.

Statewide Training Crossover Models

We conducted a series of crossover analyses that focused on the short, medium, and long-term association between use of force training (ICAT or ABLE) and officer or subject injury within use of force reports across all New Jersey law enforcement agencies. **Table 21** presents the short-term results comparing six-month periods before and after ABLE (Models 1–2) and ICAT (Models 3–4) training completion. The findings show no statistically significant changes in use of force reports involving either subject or officer injuries following completion of either training program.

Table 21. Poisson Regressions - Crossover Design (6 Month Pre/Post ABLE and ICAT training)

	Model 1A Officer Injuries Post-ABLE		Model 2A Subject Injuries Post-ABLE		Model 3A Officer Injuries Post-ICAT		Model 4A Subject Injuries Post-ICAT	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	-1.24*	0.202	-0.511*	0.211	-1.33*	0.206	-0.659*	0.219
Post-Training	0.015	0.078	0.061	0.080	0.013	0.080	0.084	0.080
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.067		0.079		0.066		0.078	
Wald X^2	1422.4*		295.4		256.4		292.0	

# Obs.	6,228	6,228	6,228	6,228
# Agencies	519	519	519	519

[#] - Included in Models (Results Available Upon Request; for parsimony estimates not included in table); *p < 0.05, ** p < 0.01

Our medium-term models (9 months) examined the association between use of force training and injury outcomes during use of force incidents across all New Jersey law enforcement agencies. **Table 22** presents results comparing nine-month periods before and after ABLE (Models 1–2) and ICAT (Models 3–4) training completion. The findings show no statistically significant changes in use of force reports involving either subject or officer injuries following completion of either training program.

Table 22. Poisson Regressions - Crossover Design (9 Month Pre/Post ABLE and ICAT training)

	Model 1A Officer Injuries Post-ABLE		Model 2A Subject Injuries Post-ABLE		Model 3A Officer Injuries Post-ICAT		Model 4A Subject Injuries Post-ICAT	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	-1.18*	0.164	-0.623	0.175	-1.17	0.168	-0.567*	0.172
Post-Training	0.020	0.064	0.075	0.063	0.025	0.064	0.104	0.064
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.058		0.076		0.057		0.155	
Wald X^2	336.3		414.3		334.6		411.2	
# Obs.	9,342		9,342		9,342		9,342	
# Agencies	519		519		519		519	

[#] - Included in Models (Results Available Upon Request; for parsimony estimates not included in table); *p < 0.05, ** p < 0.01

Our final set of crossover analyses that account for divergent training periods focuses on the long-term association between training and subject or officer injury. Centering each law enforcement agency's pre- and post-treatment periods to 12 months before and after ABLE and ICAT training, the results shown in **Table 23** demonstrate two distinct but consistent patterns. First, officer injuries did not significantly change in any of the pre/post models for ICAT or ABLE training completion. Second, the number of use of force events that resulted in subject injuries increased at statistically significant levels in both the ABLE and ICAT models in the pre/post-intervention 12-month analyses. Specifically, subject injuries increased by roughly 13.5% post-ABLE and 14.4% post-ICAT. These findings suggest a lagged, moderate increase in subject injuries after use of force training across New Jersey police agencies.

Table 23. Poisson Regressions - Crossover Design (12 Month Pre/Post ABLE and ICAT training)

	Model 1A Officer Injuries Post-ABLE		Model 2A Subject Injuries Post-ABLE		Model 3A Officer Injuries Post-ICAT		Model 4A Subject Injuries Post-ICAT	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	-1.30*	0.144	-0.057*	0.146	-1.26*	0.142	-0.606	0.146
Post-Training	0.079	0.055	0.127*	0.056	0.076	0.055	0.135*	0.056
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.061		0.077		0.060		0.077	
Wald X^2	443.6		538.8		449.3		538.8	
# Obs.	12,456		12,456		12,456		12,456	
# Agencies	519		519		519		519	

[#] - Included in Models (Results Available Upon Request; for parsimony estimates not included in table); *p < 0.05, ** p < 0.01

Statewide Policy Crossover Models

Next, we examined the changes in subject and officer injuries, covering the 12 months before and after the statewide policy change on January 1, 2022. As shown in **Table 24**, officer injuries did not significantly change in any of the pre/post models. All post-policy estimates for the officer injury models remained nearly the same, focusing on 2022 as the post-change period. Similarly, subject injuries did not show any statistically significant changes during this same period. These findings suggest that subject and officer injuries remained stable in 2021 (before the statewide policy) and 2022 (after the statewide policy).

Table 24. Poisson Regressions - Crossover Design (12 Month Pre/Post Use of Force Policy, 2021-2022)

	Model 1A Officer Injuries Post-2022		Model 2A Subject Injuries Post-2022	
Parameter	**B**	**SE**	**B**	**SE**
Intercept	-1.39*	0.153	-0.687*	0.151
Post-Policy	0.041	0.056	0.047	0.055
Months	#		#	
County	#		#	
Pseudo R^2	0.605		0.074	
Wald X^2	445.1		509.4	
# Observations	12,456		12,456	
# of Agencies	519		519	

[#] - Included in Models (Results Available Upon Request; for parsimony estimates not included in table); *p < 0.05, ** p < 0.01

Statewide Full Initiative Implementation Crossover Models

Our final crossover analyses examined the cumulative impact of the full Initiative (combining mandated training completion and policy implementation). Centering each law enforcement agency's pre- and post-treatment periods to 12 months before and after 2023, the results show a consistent pattern. First, officer injuries experienced a statistically significant increase during this period of examination by roughly 15.4%, net of controls. Second, the use of force events that resulted in subject injuries also increased at a statistically significant level. Specifically, subject injuries increased by roughly 21.5% post-2023. These findings, shown in **Table 25**, suggest a lagged, moderate increase in both officer and subject injuries after use of force training and the new use of force policy was enacted across all New Jersey police agencies. However, the increase in the number of injuries for both officers and subjects was consistent with the increase in total use of force counts for the same period, suggesting that the increase in injuries was driven by the increase in use of force counts for the same period of inquiry.[35]

[35] Clogg Z coefficient difference tests (see Clogg et al., 1995; Paternoster et al., 1998) modeling the estimated change in officer injuries relative to total uses of force change (seen in Table 11, **Section VI Trends in Use of Force Encounters**) was not statistically significant (Z = (0.091 - 0.143) / 0.068 = -0.75, p = 0.45). Similarly, the change in subject injuries relative to total uses of force changes was also not statistically significant (Z = 1.50, p = 0.13). Thus, for both subject and officer injuries, the change (increase) in injuries mirrored the change in use of force counts based on this comparative analytical framework. The change in injuries was not unique to the change in use of force counts.

Table 25. Poisson Regressions - Crossover Design (12 Month Pre/Post Use of Force Policy and Training Completion Periods, 2022 to 2023)

	Model 1A Officer Injuries Post-Full Initiative		Model 2A Subject Injuries Post-Full Initiative	
Parameter	**B**	**SE**	**B**	**SE**
Intercept	-1.31*	0.141	-0.607*	0.145
Post-Full Initiative	0.143*	0.053	0.195*	0.053
Months	#		#	
County	#		#	
Pseudo R^2	0.067		0.077	
Wald X^2	534.9		591.4	
# Observations	12,456		12,456	
# of Agencies	519		519	

- Included in Models (Results Available Upon Request; for parsimony estimates not included in table); *p < 0.05, ** p < 0.01

QUANTILE REGRESSIONS: SUBJECT AND OFFICER INJURY COUNTS

We aggregated subject and officer injury counts, by agency, from 2021 to 2024 as the outcome measure of interest. We then used quantile regression estimation to fit a regression line through the conditional quantiles of this distribution of injury counts (Koenker & Bassett, 1978; Koenker & Hallock, 2000). Quantile regression overcomes some of the disadvantages of the conditional mean framework, which tends to lose information toward the different ends of a given distribution (Hao & Naiman, 2007). We thus estimate three quantiles: the 25th quantile (bottom quarter), the 50th quantile (the middle of the distribution), and the 75th quantile (upper quarter) of injury counts for officer and subject alike, using a series of predictor variables including ABLE and ICAT training fidelity measures.

The equation for the quantile regression models presented herein is as follows:

$$y = \beta 0(\tau) + \beta 1(\tau)x + \varepsilon$$

Where τ represents the quantile of interest (i.e., 0.25 = 25th percentile, 0.5 = median, and 0.75 = 75th percentile). The purpose of this analysis was to assess whether there were certain modeled structural and agency characteristics that corresponded differently among agencies at high, medium, and low risk of subject and officer injury counts. Simultaneous quantile regression accounts for the non-normal distribution of error

terms and heteroskedasticity (Koenker & Bassett, 1978; Koenker & Hallock, 2000). Unlike traditional linear models, such as OLS regression, that assume that estimates have a constant effect, simultaneous quantile regression can illustrate if independent variables have non-constant or variable effects across the full distribution of the dependent variable. We present equality of coefficients tests to assess differences between the 25th, 50th, and 75th quantiles on relevant (training-specific measurements) covariates of interest.

We drew upon multiple data sources to facilitate the various injury analyses presented herein. First, the primary dependent variables, officer and subject injuries, were collected from the NJOAG use of force dashboard. Each incident where an officer injury was reported—via a populated text field "officer injury type" measure that included the nature and type of injury the officer sustained—was pooled to the agency-level and was year-specific (for years 2021–2024). Similarly, subject injuries, drawn from the same data source and (subject injury=yes) were year- and agency-specific as well, and pooled to the agency-level.

The primary covariates of interest were the fidelity to training (for both ICAT and ABLE), collected by our research team (collected at the county-level). These variables measure adherence to training guidelines outlined by the NJOAG, with one measuring fidelity to ICAT training and one to ABLE training. Both *ICAT Training Fidelity* and *ABLE Training Fidelity* are measured using an ordinal scale of 1=Low, 2=Medium, and 3=High. Additional details on these definitions are provided in **Section IV Methodology**.

A series of control variables is included in each of the following regression analyses. Three structural measures were collected at the city, county, or township level where each New Jersey law enforcement agency resided, given that structural constraints have been linked to injuries in trauma research (Meyers et al., 2025). Two key structural measures were extracted from the 2023 American Community Survey (five-year estimates) from the US Census to gauge strained resources as well as residential instability (see Burgard et al., 2012; Kasarda, 1993): *percent in poverty* (i.e., the number of households below the poverty level/total household population) and *residential instability*. Residential instability was operationalized as the average of two z-score indicators: (a) the percentage of owner-occupied homes whose owners moved in within the past five years, and (b) the percentage of housing units that are renter-occupied. Higher values signal contexts with more recent movers and a greater share of renters, both common manifestations of residential turnover.

We also calculated three agency-level covariates to include in models. Two rates were related to police operations, measuring risk of force exposure (see Klinger, 1997): *Serious*

Offense Rate and *Arrest Rate.* Counts for serious offenses (Part I UCR offenses per month) and for arrests (per month) from 2018–2023 were pooled to the agency level and divided by the number of sworn law enforcement officers in each agency to calculate a rate.[36] The serious offense and arrest rates (the number of arrests reported by each agency) were the average (the number of offenses/months) count of events per officer. Higher arrest and serious offense rates reflected higher crime and arrest police-subject encounters, by agency, over time.

Finally, injuries at both subject and officer levels, are potentially confounded by the agency-cultural frequency of subject complaints, or indicators of police illegitimacy (Kane, 2005), which we can proxy measure with *excessive force complaint rate* at the agency level—a measure generated by taking the total number of civilian complaints for excessive force complaints by subjects per officer.

Subject Injury Results

Table 26 presents the results of the simultaneous quantile regressions examining subject injury counts at the lower, middle, and upper strata in subject use of force injury counts while including the ABLE fidelity covariate in each regression. The analysis reveals distinct covariate effects at different points in the injury distribution. First, higher levels of ABLE implementation fidelity corresponded with significantly fewer subject injuries at the 25th percentile ($b = -2.21$, $p < 0.05$); however, this covariance was not observed in the middle or upper ends of the subject injury distribution. This suggests that high-fidelity ABLE implementation was most beneficial for agencies with historically lower injury rates, rather than those with a higher risk for subject injury. Similarly, serious offense rates corresponded with higher counts of subject injuries in lower risk contexts ($b = 2.77$, $p < 0.05$) but did not correlate with higher levels of injuries in mid-to-high risk contexts.

Interestingly, poverty was not correlated with subject injuries in low-risk contexts, but higher levels of poverty corresponded with higher frequencies of subject injuries in middle-to-high risk contexts. Similarly, arrests were uncorrelated with subject injuries in low-risk contexts, but in the middle to upper ends of the distribution, more arrests corresponded with more subject injuries.

[36] Given the 72-month observation period between 2018-2023, we only included the 477 agencies (out of 523 agencies) that provided 70 or more monthly observations during this period (91.2% of all NJ agencies).

Table 26. Simultaneous Quantile Regression Results Subject Injuries – ABLE

	25th Quantile		50th Quantile		75th Quantile	
Covariate	**B**	**BSE**	**B**	**BSE**	**B**	**BSE**
ABLE Fidelity Score	-2.21*	0.996	-2.71	1.88	-6.04	3.95
Structural						
% Poverty	0.290	0.208	1.59*	0.394	3.71*	0.826
Residential Instability	0.065	0.078	0.013	0.152	-0.078	0.312
Organizational						
Serious Offense Rate	2.77*	1.36	2.87	2.58	5.90	5.41
Arrest Rate	0.065	0.096	0.493*	0.182	1.00*	0.382
Excessive Force Rate	-2.57	5.86	8.59	11.11	0.248	23.3
Constant	3.34	3.67	.440	6.95	9.85	14.57
Pseudo R-Square	0.059		0.112		0.213	

BSE = Bootstrapped Standard Errors; *$p < 0.05$, ** $p < 0.01$

Table 27 shows that while several control variables showed context-dependent associations with subject injuries (e.g., poverty in low and middle but not high-risk contexts, and that higher arrest rates per officer correspond with more subject injuries in high-risk contexts), none of the ICAT fidelity measures correspond with any of the injury counts in any context. Unlike ABLE training, ICAT implementation fidelity was unrelated to injury outcomes regardless of agency risk level.

Table 27. Simultaneous Quantile Regression Results Subject Injuries – ICAT

	25th Quantile		50th Quantile		75th Quantile	
Covariate	**B**	**BSE**	**B**	**BSE**	**B**	**BSE**
ICAT Fidelity Score	2.86	1.64	2.73	2.66	5.66	5.63
Structural						
% Poverty	0.460*	0.333	1.69*	0.377	3.77	0.798
Residential Instability	0.133	0.087	0.099	0.142	0.017	0.300
Organizational						
Serious Offense Rate	2.25	1.54	2.67	2.50	5.02	5.28
Arrest Rate	0.166	0.107	0.507*	0.173	1.29*	0.366
Excessive Force Rate	-2.21	6.59	4.60	10.66	2.64	22.55
Constant	-10.68*	4.72	-12.09	7.66	-21.36	16.20
Pseudo R-Square	0.054		0.110		0.210	

BSE = Bootstrapped Standard Errors; *$p < 0.05$, ** $p < 0.01$

Officer Injury Results

Law enforcement agencies situated in counties with higher levels of fidelity to ABLE training had lower counts of officer injuries in use of force incidents, at both the bottom ($b = -1.24$, $p < 0.05$) and middle quartiles ($b = -1.60$, $p < 0.05$), net of other factors (see **Table 28**). Thus, fidelity to ABLE training was a protective factor in agencies at low-to-

middle risk of officer injury. In contrast, higher levels of poverty were universally associated with increased officer injuries in all quantiles. Similarly, higher rates of reported crimes (Part I) were also associated with increased officer injuries across all quantiles. Thus, the factors that influence officer injuries are criminal offense report rates, arrest rates, and poverty levels across different quantiles; however, fidelity to ABLE peer intervention training served as a mediator to these risk factors.

Table 28. Simultaneous Quantile Regression Results Officer Injuries – ABLE

	25th Quantile		50th Quantile		75th Quantile	
Covariate	**B**	**BSE**	**B**	**BSE**	**B**	**BSE**
ABLE Fidelity Score	-1.24*	0.534	-1.60*	0.819	-1.47	1.97
Structural						
% Poverty	0.216*	0.111	0.668*	0.171	1.43*	0.412
Residential Instability	0.083	0.042	0.107	0.064	0.126	0.155
Organizational						
Serious Offense Rate	1.51*	0.731	2.25*	1.12	6.68*	2.70
Arrest Rate	0.082	0.051	0.177*	0.079	0.177	0.190
Excessive Force Rate	-2.24	3.14	-1.69	4.82	9.75	11.61
Constant	0.791	1.96	0.513	3.01	-4.35	7.26
Pseudo R-Square	0.083		0.116		0.199	

BSE = Bootstrapped Standard Errors; *$p < 0.05$, ** $p < 0.01$

Like the subject injury models, ICAT training fidelity had no association with officer injuries at any quantile model, while many of the structural and agency-level features corresponded with officer injuries in predictable ways (e.g., higher poverty and higher arrest rates correspond with higher officer injuries, particularly in medium-risk contexts). These results are shown in **Table 29.** However, fidelity to ICAT was not statistically significantly related to officer injury counts over this study period.

Table 29. Simultaneous Quantile Regression Results Officer Injuries – ICAT

	25th Quantile		50th Quantile		75th Quantile	
Covariate	**B**	**BSE**	**B**	**BSE**	**B**	**BSE**
ICAT Fidelity Score	1.35	0.734	2.25	1.36	2.66	2.89
Structural						
% Poverty	0.291*	0.104	0.775*	0.193	1.38*	0.398
Residential Instability	0.102*	0.039	0.106	0.072	0.169	0.149
Organizational						
Serious Offense Rate	1.21	0.690	2.54	1.27	4.88	2.63
Arrest Rate	0.083	0.047	0.257*	0.088	0.184	0.183
Excessive Force Rate	-0.905	2.94	-2.65	5.45	14.99	11.25
Constant	-6.16*	2.11	-9.12*	3.91	-13.64	8.08
Pseudo R-Square	0.076		0.114		0.199	

BSE = Bootstrapped Standard Errors; *$p < 0.05$, ** $p < 0.01$

SENSITIVITY ANALYSES

While quantile regressions revealed how training fidelity and other factors relate to varying injury risk levels, this approach has two key methodological limitations that warrant further investigation. First, pooling injury outcomes across 2021–2024 obscures whether agencies maintain consistently high injury risks over time versus experiencing sporadic increases. Understanding temporal consistency is crucial for identifying agencies requiring sustained intervention versus those experiencing temporary spikes.

Second, our quantile models applied county-level training fidelity scores to individual agencies within those counties, potentially masking important cross-level interactions between county training implementation and agency-specific injury patterns. This aggregation may not adequately capture how county-level training quality translates to agency-level outcomes.

To address these methodological concerns, we conducted a sensitivity analysis on subject injuries[37] using a two-pronged approach: (1) Group-Based Trajectory Analysis on subject injury risk over time; and (2) Hierarchical Generalized Linear Modeling (modeling the subject injury trajectory groups among New Jersey law enforcement agencies) in order to partition the unique county-level effects of the training fidelity scores on agency-level subject injury risk, net of other agency-level control variables.

Group-Based Trajectory Analyses (GBTA) Findings

Group-based trajectory modeling (GBTA), also referred to as growth mixture modeling, is an application of finite mixture modeling designed to identify clusters of individuals who follow similar trajectories over time (Nagin, 2005). Originally developed to study the developmental course of criminal behavior among individuals, GBTA has been extended to study the developmental patterns of crime and risk across different geographic units of analysis, such as street segments (Weisburd et al., 2004) and arrest patterns in police agencies (Lum & Vovak, 2018). We employ GBTA to examine whether New Jersey law enforcement agencies follow distinct patterns of subject injury risk during use of force encounters from 2021 to 2024.

In terms of operationalization, we attempted multiple measurement approaches such as counts of injuries (i.e., counts per year), rates of injuries (rate per year), and agencies that fall below/above the annual average proportion of use of force encounters where

[37] We focus only on subject injuries because officer injuries did not converge as needed for this analytic technique. See more information below.

subjects are injured (i.e., a 0-1 beta distribution for each year). The zero-inflated Poisson models for counts and censored normal distribution for rates of injuries did not converge, meaning that there were no clear and consistent patterns of agencies on event counts or rates in unique and distinct trajectories.[38] However, models successfully converged when we operationalized agency performance relative to annual statewide averages. For each year (2021–2024), we classified agencies as either below average (coded 0) or above average (coded 1) for the proportion of use of force encounters resulting in subject injury. This binary approach, analyzed using the beta (logit) GBTA function, revealed meaningful trajectory patterns that distinguish agencies with consistently high injury proportions from those with consistently low or variable patterns.[39]

GBTA employs an iterative model selection process, testing polynomial functions with varying numbers of trajectory groups (1, 2, 3, etc.) and functional forms (linear, quadratic, cubic) to identify the best fit for longitudinal data. Each agency receives a probability of membership in each potential trajectory group based on its individual injury pattern over time.

Model selection relies primarily on Bayesian Information Criteria (BIC), with lower values indicating a better fit. However, Nagin (2005) emphasizes that additional criteria must be evaluated beyond BIC alone. Specifically, the posterior probability of group assignment should meet or exceed approximately 0.70 to ensure agencies are clearly classified into distinct trajectories rather than falling ambiguously between groups.

Given the four-year observation period, the linear trajectory models provided the most suitable functional form for the data.[40] **Table 30** presents the model comparison results showing that the best-fitting model was the two-group solution (BIC = -990.7). After confirming that both trajectory groups met the posterior probability distribution threshold (> 0.7), the two-group model was chosen.

[38] It is also worth noting that we attempted to model counts of injuries, rates of injuries, and 0/1 beta distributions (above/below average) for officer injuries and none of these models converged. Thus, we do not display similar trajectory analyses for officer injuries.

[39] The average proportion of subject injuries for each year 2021-2024 was as follows: 2021=.182; 2022=.181; 2023=.191; 2024=.215. For each year, agencies that had injuries in force events that were below the states average were classified as 0, and at or above the state average=1.

[40] Haviland et al., 2007 similarly used linear modeling to estimate GBTA membership for youths aged 11-13 (3 years of data) on violence indicators.

Table 30. Bayesian Information Criterion Statistics for Trajectory Models

# of Groups	BIC Value
1	-1031.8
2	-990.7
3	-1000.2

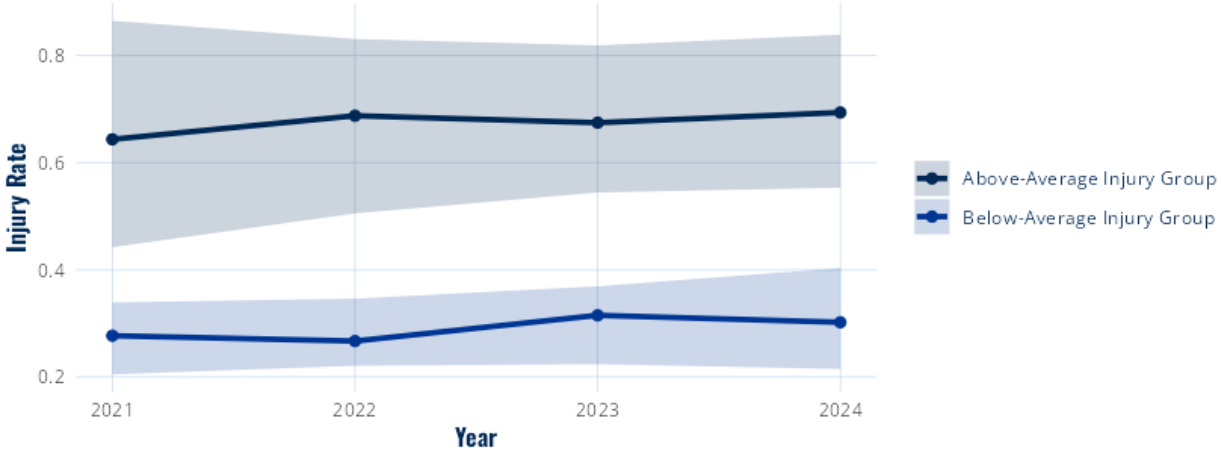
We next examined the posterior probabilities of group assignment for the two-group solution: low injury likelihood (61.6%) and high injury likelihood (38.4%).[41] **Table 31** displays the posterior probabilities of group assignment, demonstrating clear separation between trajectory groups. Agencies in the low injury likelihood group had an average posterior probability of 0.867 for correct classification, while high injury likelihood agencies averaged 0.870. These high probabilities (both > 0.70) confirm that agencies are distinctly classified rather than ambiguously positioned between groups. **Figure 12** provides additional validation, showing non-overlapping confidence intervals between the two trajectory groups, confirming their statistical distinctiveness. Just over three out of five New Jersey agencies were classified in the low injury likelihood trajectory group. Comparatively, roughly 38% of New Jersey agencies were classified as high injury likelihood agencies.

Table 31. Posterior Probabilities of Assignment to Trajectory Groups

Group Category	Low Injury Probability	High Injury Probability
Low Injury Likelihood	0.867	0.130
High Injury Likelihood	0.133	0.870

[41] The total N=1,720 trajectories over 4 years x 430 agencies (without missing injury data).

Figure 12. Two Group Trajectory Results on Subject Injury Likelihood in Use of Force Encounters Across New Jersey Police Agencies (2021-2024)



Hierarchical Generalized Linear Model (HGLM) Regression Findings

The second phase employed Hierarchical Generalized Linear Models (HGLM) to examine how county-level training fidelity (Level 2) and agency characteristics (Level 1) predict trajectory group membership. HGLM accounts for the nested structure of agencies within counties, properly partitioning variance between agency-level and county-level effects while addressing non-independence of observations (see Raudenbush & Bryk, 2002).

Table 32 below shows that agencies situated in counties with higher ABLE training fidelity were significantly less likely to be classified within the high injury trajectory group (b = -0.415, SE = 0.734, OR = 0.66). Specifically, the odds that a New Jersey law enforcement agency was classified as a high injury trajectory group decreased by 34% if its county scored higher on the ABLE fidelity measure. This indicates that high-fidelity training implementation at the county level translated to lower injury risk at the agency level (as seen in Model 1).

Model 2 examines the individual-level (agency-level) factors associated with high injury trajectory classification compared to low injury trajectory classification. Higher levels of residential instability and increased arrest rates raise the likelihood that an agency was classified as a high injury trajectory group. Finally, the full model (Model 3, controlling for relevant Level 1 factors) demonstrates that county-level ABLE training fidelity remains a significant protective factor even after accounting for agency characteristics (b = -0.291, SE = 0.134, OR = 0.747). This indicates that the quality of county-level training implementation has independent effects on agency injury outcomes beyond local

structural and operational factors. Notably, findings on the impact of ABLE training fidelity are also mirrored in the quantile regression results.

Table 32. HGLM Logistic Regression Results Modeling Subject Injuries Trajectories (Low Risk vs. High Risk), including ABLE Fidelity Score

	Model 1 Level 2 Only		Model 2 Level 1 Only		Model 3 Combined Levels	
Covariate	**b**	**SE**	**b**	**SE**	**b**	**SE**
Level 2 Factors						
ABLE Fidelity Score	-0.415*	0.734	---	---	-0.291*	0.134
Level 1 Factors						
% Poverty	---	---	0.005	0.028	0.009	0.028
Residential Instability	---	---	0.026*	0.010	0.023*	0.010
Serious Offense Rate	---	---	-0.006	0.010	-0.006	0.009
Arrest Rate	---	---	0.061*	0.015	0.059*	0.015
Excessive Force Rate	---	---	0.000	0.110	0.000	0.110
Constant	0.144	0.345	-2.20*	0.356	-1.57*	0.456

*$p < 0.05$, ** $p < 0.01$

Table 33 shows that fidelity to ICAT de-escalation training at the county level was unrelated to subject injury trajectory group classification in New Jersey (seen in both Models 1 and 3). Thus, there is no evidence that ICAT fidelity was associated with lower subject injury risk at the agency level.

Table 33. HGLM Logistic Regression Results Modeling Subject Injuries Trajectories (Low Risk vs. High Risk), Including ICAT Fidelity Score

	Model 1 Level 2 Only		Model 2 Level 1 Only		Model 3 Combined Levels	
Covariate	**b**	**SE**	**b**	**SE**	**b**	**SE**
Level 2 Factors						
ICAT Fidelity Score	-0.169	0.381	---	---	-0.054	0.305
Level 1 Factors						
% Poverty	---	---	0.005	0.028	0.005	0.029
Residential Instability	---	---	0.026*	0.010	0.026*	0.010
Serious Offense Rate	---	---	-0.006	0.010	-0.006	0.009
Arrest Rate Per Officer	---	---	0.061*	0.015	0.060*	0.015
Excessive Force Rate	---	---	0.000	0.110	0.000	0.110
Constant	.-0.603*	0.547	-2.20*	0.356	-2.17*	0.376

*$p < 0.05$, ** $p < 0.01$

SUMMARY ON INJURY DURING USE OF FORCE FINDINGS

Overall, our analyses highlight that the Initiative's impact on use of force injuries varied significantly by agency context and implementation quality. Overall, injuries of both subjects and officers from 2021 to 2024 were proportional to increases in total use of force incidents, indicating stable injury risk per encounter. However, ABLE training fidelity emerged as a protective factor against both subject and officer injuries in lower-risk agencies, while showing no benefits in higher-risk contexts where structural challenges like poverty and high arrest rates predominated. ICAT training fidelity showed no association with injury outcomes across any context.

Descriptive statistics presented the statewide trends in officer and subject injuries occurring in use of force incidents from Jan 2018 to Sep 2020 (pre-data transition period) and Oct 2020 to Dec 2024 (post-data transition period). The analysis of subject injuries during the pre-period (2018–2020) reveals a declining trend in civilian harm during use of force encounters, with a nearly 10% reduction in subject injury counts from 2018 to 2019, suggesting these injuries showed initial declines even before the NJOAG Use of Force Reduction Initiative. Data from the post-transition period showed the opposite trends, with continual increases in subject injury counts year after year from 2021 through 2024. Still, subject injury counts in the post-transition period do not return to the pre-period levels.

Officer injuries during force events show a different pattern compared to subject injuries. While counts from 2018 to 2019 appeared relatively stable, the annual officer injury counts from 2021 to 2024 demonstrated a moderate, steady increase each year, with 2024 counts slightly lower than the pre-period counts.

When examining monthly injury rates across the 21 New Jersey counties, patterns become more nuanced. Ten counties demonstrated a reduction in the average number of subject injuries per month in the post-period compared to the pre-period, whereas 11 counties demonstrated an increase. Similarly, the average number of officer injuries per month increased across 13 counties from pre-period to post-period and decreased across eight counties. These variations begin to reveal some of the inconsistent changes across the state, even when statewide trends in injury counts appear to be continually increasing in recent years.

In using multivariate regression analyses to assess changes in force-related injuries, we relied on data from 2021 to 2024 that were characterized by greater uniformity in collection. Crossover regression modeling was used to detect whether there was a change in injuries in use of force events across three transitional periods: (1) when the

agencies transitioned into the trained condition (based on county training dates), (2) when the use of force policy took effect, and (3) when the full Use of Force Reduction Initiative was fully implemented across the state.

There was no systematic evidence via our crossover regressions that *officer* injuries changed in any meaningful way after either ABLE or ICAT training took place in the short-term, medium-term, or long-term analyses. These findings suggest that while an individual police setting may or may not have experienced a change in officer injuries after the mandated use of force training, there were no statewide changes that corresponded to the timing of either training program, despite the varying and different onsets and crossover periods. In contrast, while there is no evidence for meaningful changes in *subject* injury during the short or medium term, we found a modest but significant increase in subject injuries long term (12 months) after use of force training across New Jersey police agencies. These findings suggest a lagged moderate, increase in subject injuries after both ABLE and ICAT use of force training across New Jersey police agencies.

In assessing changes in injuries based on the full-scale implementation of the use of force policy change (which took effect January 1, 2022), the cross-over model did not detect any significant changes, suggesting subject and officer injuries were stable in 2021 (pre-statewide policy) and 2022 (post-statewide policy). Finally, we used crossover regressions to assess the cumulative total impact of the mandated use of force training and use of force policy implementation across all New Jersey law enforcement agencies. We found that both officer and subject injuries significantly increased during this period of examination (21.5% for subjects and 15.4% for officers). However, the increase in the number of injuries for both officers and subjects was consistent with the increase in total use of force counts for the same period. In other words, the change in injuries relative to changes in total use of force was not statistically significant. There are similar increases in both use of force reports and reports of injury demonstrated in the 2023 data.

Quantile regressions were used to identify whether there are certain structural or agency characteristics that corresponded differently among agencies at high, medium, and low risk groups of subject and officer injury counts, net of theoretically relevant control measures. We found that higher levels of ABLE training fidelity and serious offense rate corresponded significantly with subject injuries *only* in the lowest risk group. This suggests that agencies situated in counties that were true to ABLE training implementation had lower rates of subject injuries, compared to those agencies in the lowest risk group that had poor fidelity to ABLE training implementation. Similarly, serious offense rates corresponded with higher counts of subject injuries in lower-risk contexts.

Interestingly, poverty was an uncorrelated covariate to subject injuries in low-risk contexts, but higher levels of poverty corresponded with higher frequencies of subject injuries in middle and high-risk groups. Similarly, arrests were uncorrelated with subject injuries in low-risk contexts, but in the middle and upper ends of the distribution, more arrests corresponded with more subject injuries. There was no association between ICAT training fidelity measures and subject injury counts across any of the groups.

Law enforcement agencies situated in counties with higher levels of fidelity to ABLE training had lower counts of officer injuries in use of force incidents, at both the bottom and middle risk groups. Higher levels of poverty, higher rates of serious crime, and higher arrest rates were significantly associated with increased officer injuries across all risk groupings. However, implementation fidelity to ABLE peer intervention training served as a mediator to these risk factors, but ICAT training fidelity had no association with any of the groups. In other words, we demonstrated that law enforcement agencies situated in counties with the highest levels of fidelity to ABLE peer intervention training consistently had lower levels of subject and officer injuries, net of other factors, in lower risk contexts according to the quantile regression results.

Finally, for subject injuries, we conducted Group-Based Trajectory Analysis (GBTA) on the agencies that consistently had the highest percentage of injuries within use of force events for 2021–2024 to determine whether there were agencies that fell into specific trajectories of injury risk over time. Binary logistic regression estimation was used to compare covariates on relative trajectories to determine if the relevant covariates modeled in the quantile regressions had a sustained association with injuries each year of this study period. These analyses on subject injuries show that agencies that scored higher on fidelity to ABLE peer intervention training had a lower risk of subject injuries both before and after peer intervention training. Contextually, agencies that did not experience high levels of use of force, or the problems associated with use of force (e.g., subject and officer injuries), were more likely to engage in model fidelity in the ABLE training; however, the agencies that were in higher-risk contexts were less likely to engage in model fidelity in ABLE training. In contrast, ICAT training fidelity had no relationship with any risk of subject or officer injury in these analyses.

Conversely, in agencies that had the highest frequencies of officer injuries, ABLE training fidelity was unrelated to officer injury counts. Thus, whatever association ABLE training fidelity had to lower counts of subject and officer injuries, it only had a mediating impact against poverty, arrest counts, and criminal offenses in low-risk settings. This is not to suggest ABLE training fidelity led to reductions in injuries; however, the potentially unmeasured factors associated with ABLE training fidelity (e.g., receptivity to training, integration of training tenets into operational management, service-orientation policing

styles that frequently occur in lower-risk contexts; see Wilson, 1978) might explain lower levels of both subject and officer injury in use of force events. Interestingly, none of the ICAT training fidelity covariates corresponded with any levels of risk of either subject or officer injury counts in any of the quantile regression models.

Thus, fidelity to ABLE seemed to have some correlation with lower numbers of injuries for subjects and officers in agencies that had the fewest officer and subject injuries in New Jersey. However, given the cross-sectional nature of these data, we do not imply causation or that implementation of ABLE led to fewer subjects and officer injuries. It could well be that exposure to risk in the pre-training period is the primary mechanism by which training fidelity took place. What is certainly clear, and unsurprising, is that the risk of subject and officer injury is not monolithic and uniform but rather variant and heterogeneous depending on contextual features.

VIII. TRENDS IN CIVILIAN COMPLAINTS

This section provides an overview of univariate trends in complaints against law enforcement officers that resulted in an agency investigation as another method to assess the impact of the NJOAG Use of Force Reduction Initiative, tied to our fourth research question. Through its online platform, the NJOAG compiles internal affairs (IA) data on investigations stemming from complaints of police misconduct.[42] From 2021 to 2023,[43] law enforcement agencies across New Jersey launched 45,232 IA investigations associated with 33 different complaint categories. Civilian-initiated complaints were typically focused on rule violations, demeanor, criminal violations, differential treatment, and excessive force, compared to agency-initiated complaints, which typically focused on attendance issues, body-worn camera policy violations, failed drug tests, DUI arrests, loss of property, or failing to follow direct orders. Civilian-initiated complaints accounted for 26,575 complaints, or 59% of all filed complaints over the three-year period, while agency-initiated complaints comprised 18,657 cases (41%). These patterns are fairly consistent from year to year (with a slight increasing trend), ranging from 56% of complaints being made by civilians in 2021, 59% in 2022, to 62% in 2023. This distribution suggests that external oversight through civilian complaints serves a substantial role in IA processes, though internal agency monitoring and self-reporting also contribute significantly to complaint generation.

This section prioritizes the examination of civilian complaints against officers, aiming to better understand the types, numbers, and outcomes of complaints filed across the state by community members during the Initiative's implementation. Thus, the descriptive analyses are limited to those complaints resulting directly from civilians and exclude agency-initiated complaints. Findings from these analyses are presented below.

CIVILIAN COMPLAINTS BY YEAR

The annual analysis of civilian complaints reveals relatively stable patterns across the three-year observation period, with notable variation in 2022, as shown in **Figure 13**. In 2021, civilians filed 8,379 complaints against law enforcement officers. This figure increased substantially to 9,548 complaints in 2022, representing a 14.0% increase from

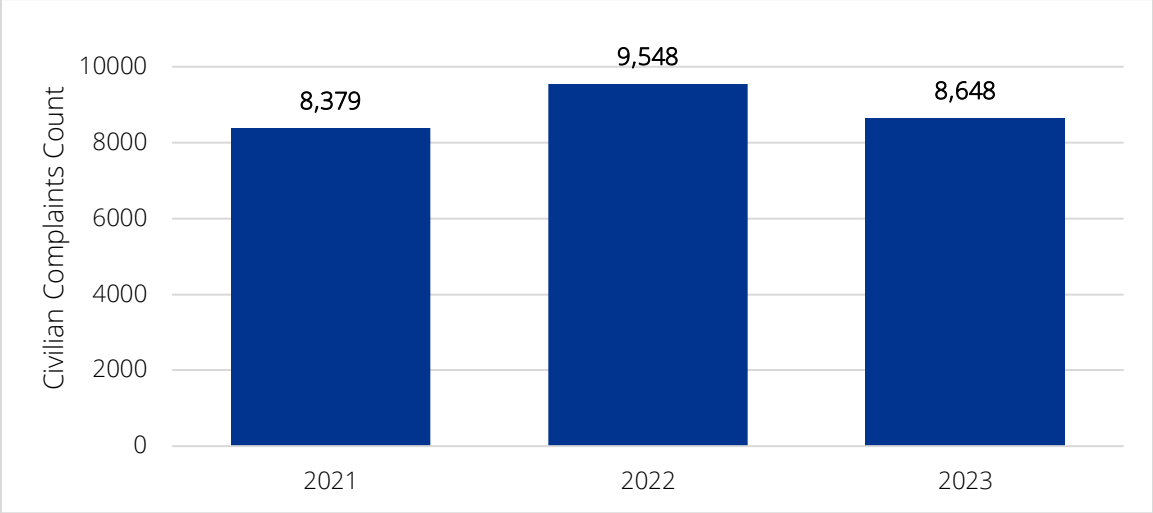
[42] The online platform presenting New Jersey Law Enforcement Internal Affairs Investigations was launched in 2022 and is distinct from the aforementioned use of force reporting platform.

[43] 2021–2023 are the only full years of data available for analysis as of May 2025.

the previous year and the highest annual total during the observation period. Civilian complaints declined to 8,648 in 2023, representing a 9.4% decrease from the 2022 level, though remaining 3.2% above the 2021 baseline.

The 2022 peak in civilian complaints represents a notable deviation from the otherwise relatively stable complaint patterns. The year-over-year variation suggests potential temporal factors influencing civilian complaint-filing behavior or changes in policing practices that generated increased community concern during this period. Of interest, 2022 represents a period that is mid-Initiative implementation. Statewide policy changes were enacted in January 2022, but most counties were continuing to train in ICAT and ABLE until the training deadline of September 2022. Civilian complaints declined in 2023—the first year the Initiative was fully implemented—compared to 2022.

Figure 13. Statewide Civilian Complaints by Year (2021-2023)



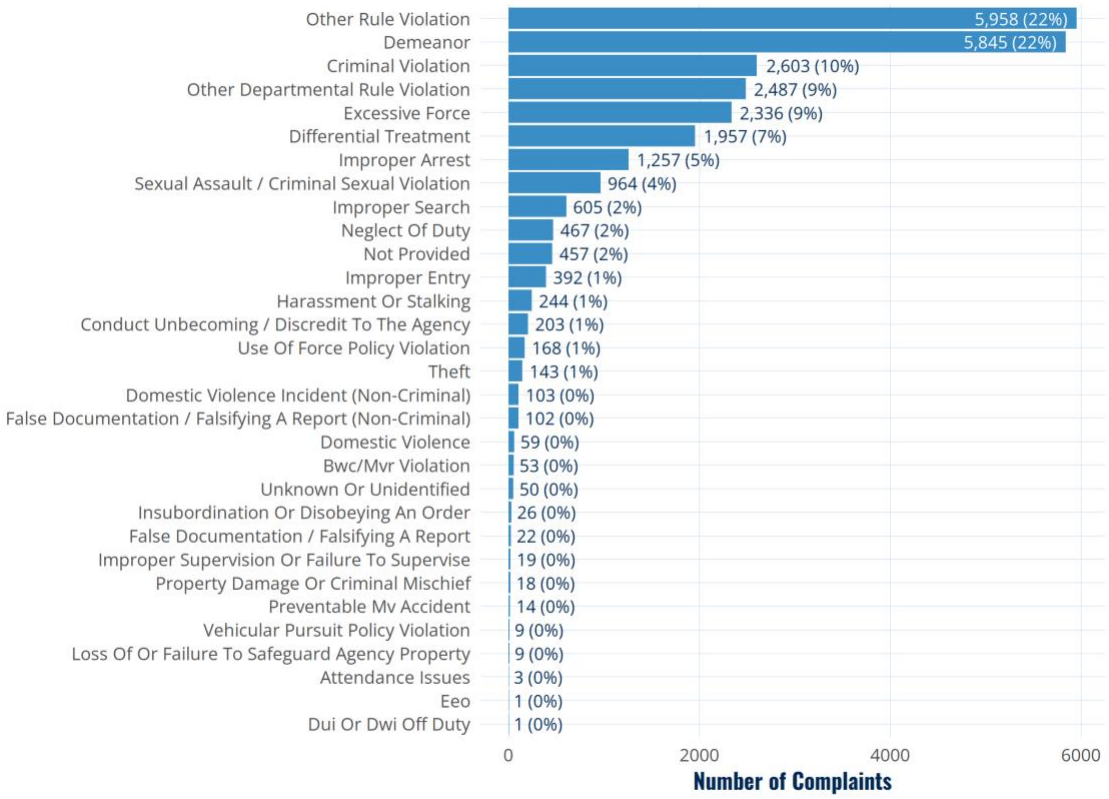
CIVILIAN COMPLAINTS BY TYPE

Our review of complaint types reveals substantial diversity in the nature of civilian concerns about police conduct. Shown in **Figure 14**, the data comprises 33 different complaint categories, with complaint types appearing at the top of the figure representing the majority of all complaints filed. "Other Rule Violation" represents the single largest category with 5,958 complaints (22% of all civilian complaints), followed closely by "Demeanor" complaints with 5,845 cases (also 22% of total complaints). Criminal violations represent a larger portion of civilian complaints, with "Criminal Violation" accounting for 2,603 complaints (10% of total). "Other Departmental Rule Violation" contributed 2,487 complaints (9%), while "Excessive Force" complaints totaled

2,336 cases (9% of all complaints). These top five categories combined account for 19,229 complaints, representing 72% of all civilian complaints during the period.

Mid-level complaint categories include "Differential Treatment," with 1,957 complaints (7%), "Improper Arrest" with 1,257 complaints (5%), and "Sexual Assault/Criminal Sexual Violation" with 964 complaints (4%). Several categories show substantial absolute numbers despite representing smaller percentages: "Improper Search" (605 complaints), "Neglect of Duty" (467 complaints), and "Not Provided" (457 complaints) each represent meaningful portions of civilian concerns.

Figure 14. Distribution of Civilian Complaint Types (2021-2023)



Although there is a comprehensive breadth of categories for complaints, most fall within relatively broad buckets that have little definitional or practical utility (e.g., “Other Rule Violation”, “Other Departmental Rule Violation”). Thus, it proves difficult to use this data for meaningful or deeper analysis to examine the potential impact of the Initiative on civilian complaints resulting in IA investigations. However, we provide further descriptive analysis focused primarily on those categories that are likely to experience the largest impacts from the Initiative (e.g., improper force, discourtesy).

Civilian Complaints by Most Relevant Categories

To align our descriptive analyses with the use of force reforms, we aggregated the data categories captured by the NJOAG. Specifically, we collapsed several complaint categories into broader, more theoretically and practically relevant buckets. We are largely focused on two complaints that prior research indicates are most relevant to police use of force: improper force and discourtesy (Terrill & Ingram, 2016). We also consider other more common complaint types related to professional policing, such as improper search or arrest, differential treatment, and criminal violation.

Complaints were aggregated into the following categories:

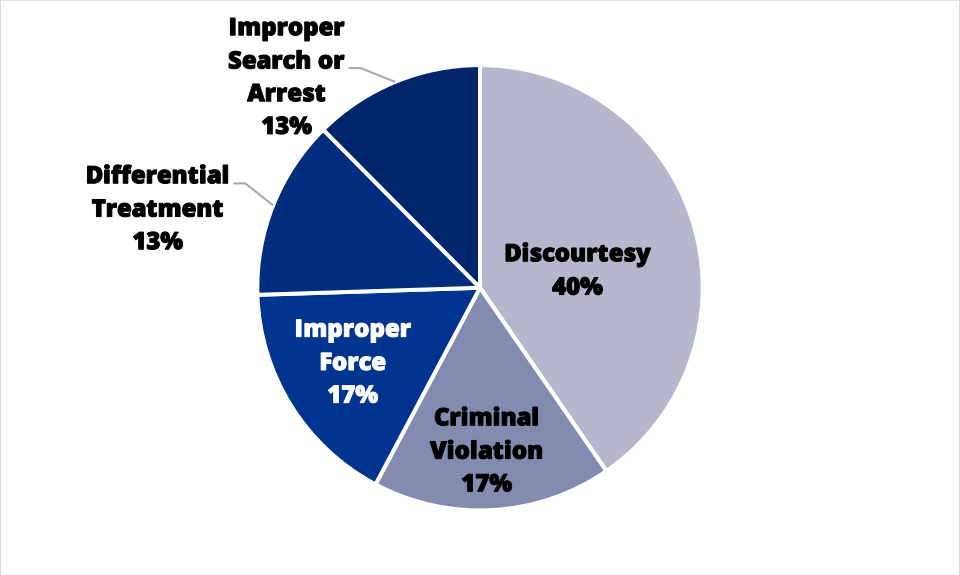
1. **Improper Force**: Excessive Force; Use of Force Policy Violation
2. **Discourtesy**: Demeanor; Conduct Unbecoming / Discredit to the Agency
3. **Improper Search or Arrest**: Improper Arrest; Improper Search
4. **Differential Treatment**: Differential Treatment
5. **Criminal Violation**: Criminal Violation
6. **Other**: All other civilian-initiated complaints

Notably, even when civilian complaints are categorized across these six groups, the largest category is “Other,” representing 44% of the data. Breaking down this category, the most common complaint type is for “Other Rule Violation,” with all remaining categories representing 5% or less of the total. Because these are not practically related to the Initiative, we move forward with inspecting the other five operational complaint categories, as shown in **Figure 15.**

After excluding the broad "Other" category, "Discourtesy" emerges as the dominant concern, representing 6,048 complaints or 40% of complaints in defined categories. This substantial proportion indicates that civilian perspectives on officer demeanor and interpersonal conduct represent the primary area of community concern about police behavior.

The remaining categories show more balanced distributions. "Criminal Violation" and "Improper Force" complaints each represent 17% of defined-category complaints (2,603 and 2,504 complaints, respectively), indicating that serious misconduct allegations are the source of a substantial number of investigations into law enforcement officers. "Differential Treatment" complaints account for 13% (1,957 complaints), while "Improper Search or Arrest" represents 12% (1,862 complaints) of complaints in defined categories.

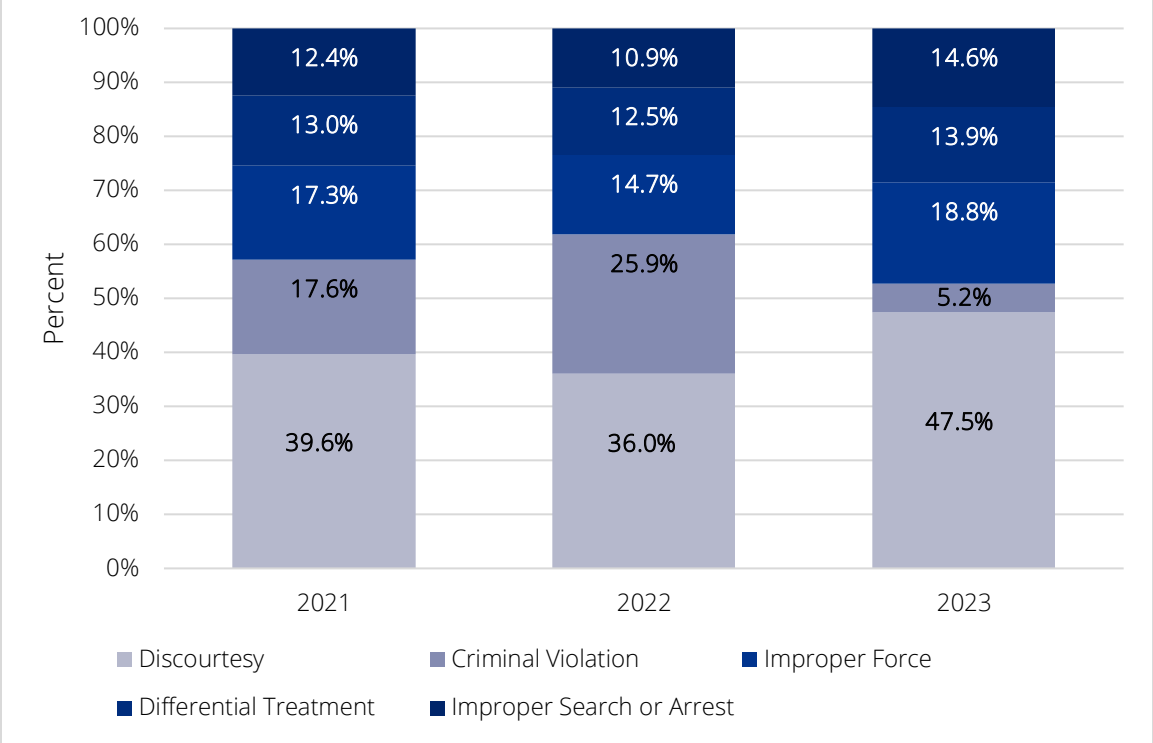
Figure 15. Distribution of Citizen Complaints by Category, Excluding "'Other" (N=14,974)



This distribution pattern suggests that while serious misconduct allegations (criminal violations and improper force) represent important components of civilian complaints, concerns about officer comportment and procedural fairness (discourtesy, differential treatment, improper search/arrest) comprise most civilian-initiated internal affairs activity.

Overall, complaint counts across these five categories increased from 2021 to 2022 (4,889 to 5,885 complaints) and then decreased in 2023 to a count lower than the 2021 baseline (4,200 complaints; an overall 14% reduction). **Figure 16** presents these complaints across years to assess changes in the proportions of complaint categories. Discourtesy complaints, the largest category, decreased modestly in 2022 compared to the previous year, and then appeared to increase in its overall proportion of complaints in 2023. Complaints for criminal violation appear to have increased by roughly 8% in 2022 compared to the 2021 proportion and then dramatically declined to 5.2% of complaints in 2023. Complaints for improper force, improper search or arrest, and differential treatment all appear to be relatively stable across years, with each group shifting in its proportion of overall complaints by less than 5%.

Figure 16. Civilian Complaints by Category and by Year (2021-2023)



SUSTAINED ALLEGATIONS OF CIVILIAN COMPLAINTS

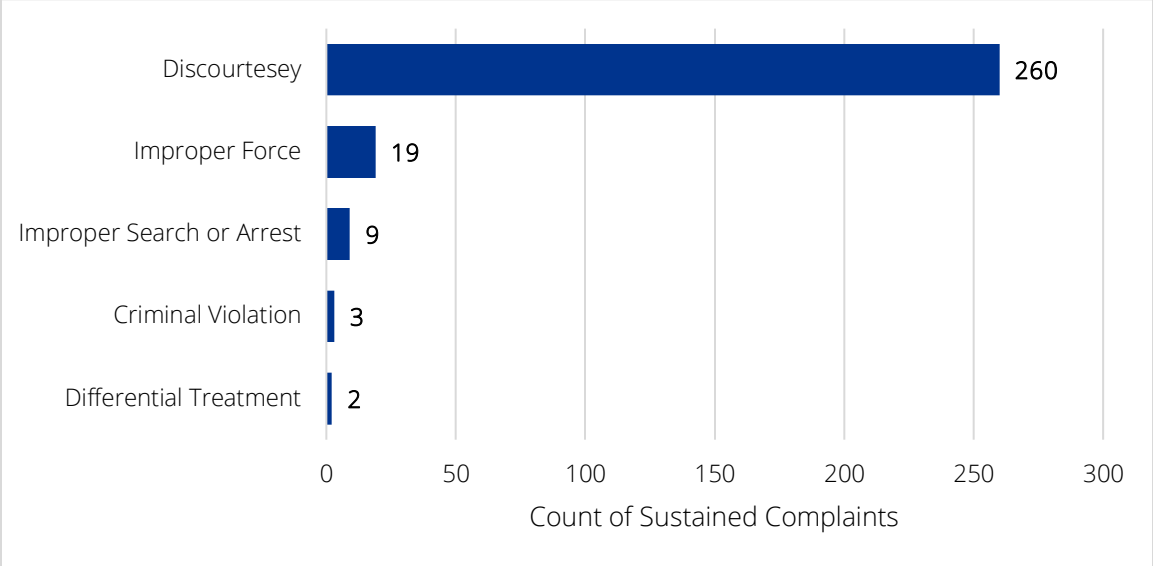
The analysis of complaint outcomes reveals that of the 26,575 total civilian complaints filed between 2021 and 2023, 2,028 complaints were sustained according to internal disposition processes, representing an 8% sustainment rate. This relatively low rate indicates that most civilian complaints (92%) were either determined to be unfounded, exonerated, or resulted in other dispositions through IA investigations.

When examining civilian-initiated complaints that were sustained within the five revised complaint categories, "Discourtesy" overwhelmingly dominates with 260 sustained cases, representing nearly 90% of all sustained civilian complaints. This dramatic concentration indicates that civilian complaints about officer demeanor and interpersonal conduct are both the most frequently filed and most likely to be sustained through IA processes.

"Improper Force" complaints resulted in 19 sustained findings (7% of sustained civilian complaints), while "Improper Search or Arrest" yielded nine sustained cases (3%). “Criminal Violation” resulted in three sustained complaints (1%), and "Differential Treatment" complaints resulted in only two sustained findings (1%). The stark disparity between discourtesy and other complaint types in sustained findings suggests significant

differences in either the evidentiary standards, investigation processes, or the nature of the allegations across these complaint categories.

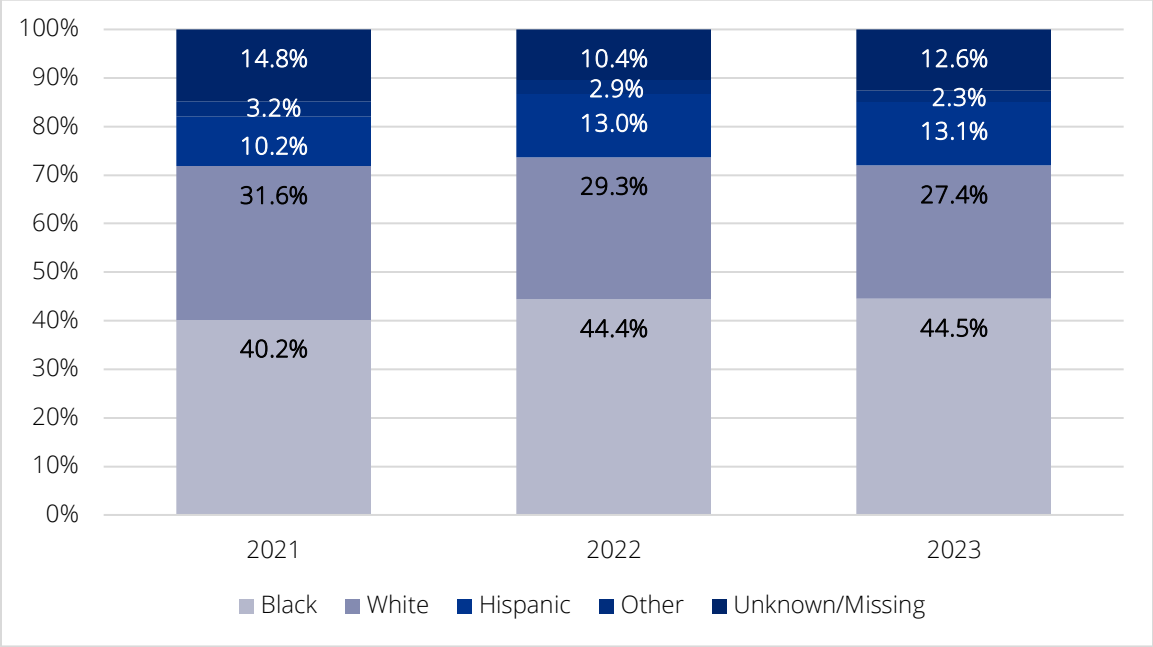
Figure17. Distribution of Sustained Allegations from Civilian Complaints (N=293)



CIVILIAN COMPLAINTS BY RACE/ETHNICITY

The demographic analysis of civilian complaints reveals patterns in complaint filing across racial and ethnic groups. Black individuals filed 43.1% of all civilian complaints, White individuals filed 29.4%, Hispanic individuals filed 12.1%, “other” individuals filed 2.8%, and 12.5% of the complaints were unknown for all civilian complaints from 2021 to 2023. **Figure 18** breaks down these demographics across years to assess any major variances over time. Each group appears to make up a fairly consistent percentage of all civilian complaints, with little deviation in the racial composition of complainants across years. There is less than a 5% change for any group over the three years.

Figure 18. Civilian Complaints by Race/Ethnicity and Year (2021-2023)



Civilian Complaints by County and Race/Ethnicity

The county-level analysis of civilian complaints reveals substantial geographic variation in both complaint volumes and demographic composition—these findings are shown in **Table 34.** State and Other Agencies recorded the highest number of complaints with 5,841 cases, followed by Essex County (3,749 complaints) and Camden County (3,568 complaints). These three jurisdictions combined account for approximately 48% of all civilian complaints statewide from 2021 to 2023

The demographic composition of complaints varies dramatically across counties. In Essex County, Black individuals filed 2,186 complaints (30% of the county total), while White individuals filed 659 complaints (9%). The "Unknown/Missing" category represents 3,559 complaints (50% of the Essex County total), indicating substantial gaps in demographic data collection. Camden County shows a similar pattern with Black individuals filing 2,306 complaints (38% of the county total) and White individuals filing 937 complaints (15%).

Several counties demonstrate different demographic patterns. Ocean County shows White individuals filing 628 complaints (61% of the county total) compared to Black individuals, with 92 complaints (9%). Cape May County exhibits similar patterns with White complainants representing 327 cases (61%) and Black complainants accounting for

40 cases (7%). Bergen County shows White individuals filing 941 complaints (35%) and Black individuals filing 471 complaints (18%).

Counties with substantial Hispanic populations show notable complaint patterns. Hudson County demonstrates relatively balanced distributions across demographic groups: White individuals filed 436 complaints (14%), Black individuals filed 492 complaints (16%), and Hispanic individuals filed 524 complaints (17%). Passaic County shows White individuals filing 393 complaints (20%), Black individuals filing 345 complaints (18%), and Hispanic individuals filing 279 complaints (14%). The "Unknown/Missing" category represents substantial proportions across multiple counties, ranging from 16% in Mercer County to 50% in Essex County.

Table 34. Civilian Complaints by County and Race/Ethnicity, 2021-2023

County/ Agency	Complaints N	White N (%)	Black N (%)	Hispanic N (%)	Other N (%)	Unknown / Missing N (%)
Atlantic	582	408 (42%)	272 (28%)	63 (6%)	21 (2%)	215 (22%)
Bergen	1,362	941 (35%)	471 (18%)	240 (9%)	98 (4%)	923 (35%)
Burlington	555	404 (40%)	239 (24%)	23 (2%)	55 (5%)	288 (29%)
Camden	3,568	937 (15%)	2306 (38%)	526 (9%)	169 (3%)	2,129 (35%)
Cape May	258	327 (61%)	40 (7%)	31 (6%)	37 (7%)	105 (19%)
Cumberland	373	238 (31%)	152 (20%)	114 (15%)	14 (2%)	240 (32%)
Essex	3,749	659 (9%)	2186 (30%)	443 (6%)	337 (5%)	3559 (50%)
Gloucester	472	380 (50%)	160 (21%)	27 (4%)	25 (3%)	166 (22%)
Hudson	1,651	436 (14%)	492 (16%)	524 (17%)	491 (16%)	1,083 (36%)
Hunterdon	186	188 (64%)	18 (6%)	18 (6%)	12 (4%)	60 (20%)
Mercer	830	482 (33%)	459 (32%)	119 (8%)	163 (11%)	232 (16%)
Middlesex	1,139	523 (29%)	407 (22%)	193 (11%)	77 (4%)	626 (34%)
Monmouth	972	630 (36%)	348 (20%)	71 (4%)	87 (5%)	594 (34%)
Morris	855	648 (44%)	190 (13%)	86 (6%)	170 (11%)	391 (26%)
Ocean	566	628 (61%)	92 (9%)	29 (3%)	39 (4%)	238 (23%)
Passaic	1,301	393 (20%)	345 (18%)	279 (14%)	98 (5%)	817 (42%)
Salem	79	60 (46%)	42 (32%)	1 (1%)	5 (4%)	23 (18%)
Somerset	562	227 (27%)	200 (24%)	48 (6%)	115 (14%)	252 (30%)
Sussex	171	165 (55%)	33 (11%)	32 (11%)	3 (1%)	67 (22%)
Union	1,391	563 (23%)	647 (27%)	200 (8%)	74 (3%)	914 (38%)
Warren	112	78 (49%)	24 (15%)	8 (5%)	1 (1%)	48 (30%)
Statewide Agencies	5,841	2,578 (30%)	3,553 (41%)	525 (6%)	327 (4%)	1,675 (19%)

Civilian Complaints by County, Race/Ethnicity, and Year

The temporal analysis of complaints by county and civilian demographics reveals notable year-over-year variations, as shown in **Table 35.** Camden County shows increasing proportions of complaints from Black individuals, rising from 54.5% in 2021 to 60.1% in 2023, while White complainant proportions remained relatively stable (20.5% to 19.4%). Essex County demonstrated similar patterns, with Black complainant proportions fluctuating from 56.7% in 2021 to 60.2% in 2022 before declining to 50.7% in 2023.

Several counties experienced notable shifts in demographic composition of civilians initiating complaints over time. Monmouth County showed substantial variation in White complainant proportions, declining from 61.1% in 2021 to 40.8% in 2022 before stabilizing at 41.7% in 2023. Correspondingly, Black complainant proportions increased from 24.2% in 2021 to 40.5% in 2022. Hudson County demonstrated gradually increasing Hispanic complaint proportions, rising from 23.8% in 2021 to 33.8% in 2023.

Counties with smaller complaint volumes showed more variable year-to-year patterns. For example, Cape May County experienced substantial fluctuations, with White complainant proportions ranging from 58.6% in 2021 to 78.8% in 2022 before declining to 64.2% in 2023. Salem County showed dramatic shifts, with Black complainant proportions increasing from 33.3% in 2021 to 62.5% in 2022 and 60.0% in 2023.

State and Other Agencies demonstrated notable temporal patterns, with Black complainant proportions increasing from 41.8% in 2021 to 57.2% in 2023, while White complainant proportions declined from 34.9% to 22.3% over the same period.

The temporal analysis reveals that while some counties maintained relatively stable demographic patterns over the years, others experienced substantial shifts that could reflect changing community dynamics, policing practices, or complaint-filing behaviors among different demographic groups during the observation period. This again highlights the variation in context and experiences across New Jersey. It remains unclear if any changes in complaint filing are due to the effects of the Initiative on officers' interactions with community members.

Table 35. County Civilian Complaints by Race/Ethnicity and Year

	White			Black			Hispanic		
County	2021	2022	2023	2021	2022	2023	2021	2022	2023
Atlantic	40.3%	29.3%	43.8%	35.5%	47.3%	32.9%	6.5%	8.0%	11.0%
Bergen	39.3%	41.7%	36.6%	35.1%	31.4%	28.8%	13.3%	14.0%	19.3%
Burlington	44.7%	45.2%	49.7%	41.5%	44.1%	39.8%	4.3%	2.2%	5.0%
Camden	20.5%	21.6%	19.4%	54.5%	55.5%	60.1%	12.4%	14.7%	13.2%
Cape May	58.6%	78.8%	64.2%	19.5%	10.6%	14.9%	11.5%	8.7%	14.9%
Cumberland	33.7%	26.0%	24.6%	36.7%	40.3%	43.8%	24.7%	31.2%	24.6%
Essex	12.4%	14.2%	13.2%	56.7%	60.2%	50.7%	8.5%	11.5%	13.2%
Gloucester	55.8%	57.1%	50.9%	32.6%	27.1%	38.3%	1.7%	9.8%	4.8%
Hudson	27.1%	24.2%	22.6%	31.2%	30.5%	27.4%	23.8%	30.5%	33.8%
Hunterdon	75.9%	67.9%	56.9%	10.1%	7.1%	11.8%	2.5%	14.3%	7.8%
Mercer	23.7%	31.8%	32.0%	56.7%	42.7%	48.4%	4.7%	14.5%	10.5%
Middlesex	33.9%	37.4%	31.0%	31.2%	37.4%	36.1%	14.3%	13.1%	23.6%
Monmouth	61.1%	40.8%	41.7%	24.2%	40.5%	36.8%	2.4%	10.4%	7.9%
Morris	58.2%	55.1%	57.9%	26.5%	19.4%	16.9%	7.0%	10.2%	9.8%
Ocean	67.9%	63.3%	69.2%	16.1%	10.1%	16.2%	4.1%	6.9%	4.3%
Passaic	20.3%	14.7%	25.5%	21.0%	32.5%	23.1%	14.4%	24.3%	23.4%
Salem	60.0%	37.5%	36.0%	33.3%	62.5%	60.0%	3.3%	--	--
Somerset	25.5%	46.3%	29.8%	31.5%	33.2%	42.9%	7.9%	7.9%	8.9%
Sussex	51.0%	41.5%	70.0%	14.3%	23.2%	17.5%	26.5%	19.5%	5.0%
Union	22.7%	25.8%	23.0%	36.9%	46.0%	36.8%	8.5%	16.1%	14.6%
Warren	66.7%	58.0%	65.6%	26.7%	8.0%	34.4%	--	16.0%	--
Statewide Agencies	34.9%	26.0%	22.3%	41.8%	51.9%	57.2%	7.4%	7.6%	6.8%

SUMMARY OF TRENDS IN CIVILIAN COMPLAINTS

This section reviewed trends in complaints against law enforcement officers that resulted in an agency investigation, with a particular focus on civilian-initiated complaints, to assess the impact of the NJOAG Use of Force Reduction Initiative on this outcome. Due to the limited data available (data only available from 2021 to 2023), the detection of significant changes is difficult, especially when narrowing our focus on complaint categories of practical interest and attempting to isolate complaints that were determined to be sustained.

First, roughly 60% of complaints were initiated by civilians (which were typically focused on rule violations, demeanor, criminal violations, differential treatment, excessive force, etc.), compared to the remaining 40% of complaints made by the agency (which typically focused on attendance issues, body-worn camera policy violations, failed drug test, DUI

arrest, loss of property, or failing to follow direct orders). This suggests that agency oversight mechanisms are occurring substantially through both external and internal avenues.

Considering the overall trends in complaints generated by civilians, complaints declined to 8,648 in 2023, representing a 9.4% decrease from the 2022 level, though still remaining 3.2% above the 2021 baseline. Civilian complaint types comprised 33 different categories, with some of the largest categories falling within relatively broad buckets that have little definitional or practical utility (e.g., “Other Rule Violation”, “Other Departmental Rule Violation”). To further refine our analyses, we examined the breakdown of complaints that are more practically relevant to assessing officer behavior related to professional policing and use of force, including discourtesy, improper force, improper search or arrest, differential treatment, and criminal violation. After excluding all other complaint types and focusing on these five categories, it is evident that complaints about discourtesy are the dominant concern, representing 36% to 48% of all complaints across these five categories. Complaints for improper force stayed relatively stable, representing 17% of all these categorized complaints in 2022, 15% in 2022, and 19% in 2023. Considering the specific counts of complaints for improper force, there was a noticeable decline in 2023 data, where complaints dropped to 789 from higher records in 2021 (n=848) and 2022 (n=867), representing a 9% decline during the period for which the Initiative was fully implemented.

Importantly, we found there was an extremely low rate of sustained outcomes for civilian complaints (8%). Most civilian complaints from 2021 to 2023 were either determined to be unfounded, exonerated, or resulted in other dispositions through IA investigations. When examining only civilian-initiated complaints that resulted in sustained findings, "Discourtesy" overwhelmingly dominated with 260 sustained cases, representing 90% of all sustained civilian complaints. This dramatic concentration indicates that civilian complaints about officer demeanor and interpersonal conduct are both the most frequently filed and most likely to be sustained through IA processes.

Specific to improper force, only 19 of the 2,504 complaints for the three-year period were sustained, representing less than 1% of the total complaints for improper force. The rare occurrence of sustained improper force complaints creates challenges for identifying effective methods to reduce complaints of this nature.

The demographic analysis of civilian complaints reveals substantial variation in complaint-filing patterns across racial and ethnic groups. Black individuals filed 40% to 45% of all civilian complaints against officers, White individuals filed between 27% and 32%, and Hispanic individuals filed 10% to 13% of complaints. There were no major shifts

across these complainant groups over the three years examined. Furthermore, the temporal analysis reveals that while some counties maintained relatively stable demographic patterns across years, others experienced substantial shifts that may reflect changing community dynamics, policing practices, or complaint-filing behaviors across different demographic groups during the observation period. Again, this highlights the variation of context and experiences across the state of New Jersey, and it is unclear if any shifts in the race of the complainant are due to the Initiative.

Beyond the descriptive patterns described previously, it is critical to emphasize the lack of practical information included in the data set available through the NJOAG's online dashboard for New Jersey Law Enforcement Internal Affairs Investigations. The volume of missing and/or unspecified information on the key variables of interest was more common than not. For example, when examining complaint type, over half of the measure was populated as follows: "not provided," "other rule violation," or "unknown/unidentified." Similarly, for criminal violations, "not reported," "not provided," and "other criminal violations" were the most common responses (over 63%), excluding "not applicable" (which was also more than 29% of the distribution of complaints). Finally, for rule violations, most categories were "other rule violations," "not reported," or "not provided" (> 66%). The voluminous usage of "other" and "not provided" categories indicates a need to reform this metric to be more comprehensive to support conclusions from the statewide trends in this important measure of professional policing.

IX. CASE STUDY SITES

In this section, we provide a more detailed and nuanced understanding of the impacts of the NJOAG's Use of Force Reduction Initiative by analyzing the outcomes presented earlier across four law enforcement agencies in New Jersey. These agencies were selected because they had reliable data reporting, were large enough to detect effects through time series analysis, and offered diversity in terms of geographic location and urban/suburban settings. The four highlighted agencies are the Camden County Police Department, Perth Amboy Police Department, Toms River Police Department, and Long Branch Police Department. These departments are mapped in **Figure 19**.

The *Camden County Police Department*, formed in 2013 after the original Camden Police Department was disbanded and reformed, has jurisdiction over Camden County but mainly serves the urban city of Camden. Located in southern New Jersey, Camden County PD has 352 officers patrolling a population of 71,791 residents, equating to 4.9 officers per 1,000 residents. The *Toms River Police Department*, founded in 1933, oversees the suburban area of Toms River Township in Ocean County. Situated on the New Jersey Shore, Toms River PD employs 157 officers to patrol a population of 95,438 residents, or 1.6 officers per 1,000 residents. The *Perth Amboy Police Department*, formed in 1928, has jurisdiction over the urban city of Perth Amboy in Middlesex County. Located in Central New Jersey, Perth Amboy PD has 131 officers protecting a population of 55,436 residents, which is 2.4 officers per 1,000 residents. Lastly, the *Long Branch Police Department*, organized in 1868, covers the suburban beachside city of Long Branch in Monmouth County. Situated on the Jersey Shore, Long Branch PD employs 89 officers to patrol 31,667 residents, or 2.8 officers per 1,000 residents.

Figure 19. New Jersey Case Study Site Locations

COMPARING USE OF FORCE ACROSS CASE STUDY SITES

We provide quarterly comparisons of case study sites' use of force counts, shown in **Figure 20**, which reveals variation in patterns across the four agencies. Camden County PD demonstrates the highest and most variable use of force activity, which is unsurprising, given that they are the largest police department of the four shown. Camden County PD consistently reported the highest quarterly report counts throughout most of the observation period, with levels ranging from approximately 20 reports in the first quarter of 2021 to peaks exceeding 220 reports in the third quarter of 2024. The agency shows dramatic quarterly variation and a clear recovery pattern following the 2020–2021 decline. Though the counts from 2023 to 2024 show declines from their peak in 2022.

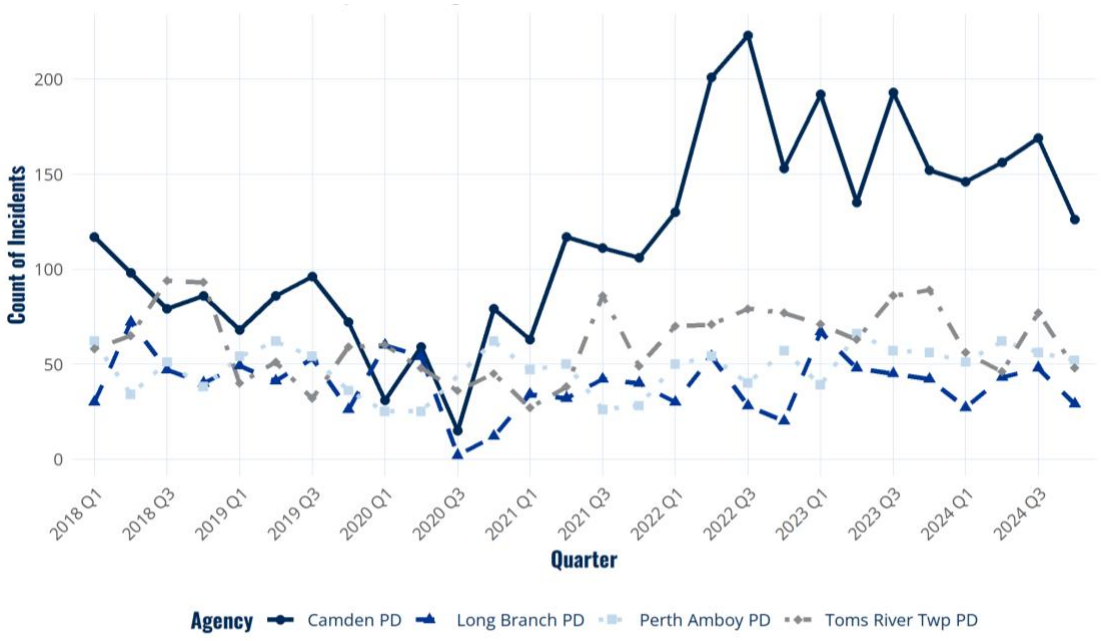
Toms River Township PD shows the second-highest use of force activity, with quarterly reports typically ranging from 30 to 100. The agency remains more stable than Camden County PD, with fewer sharp fluctuations throughout the period. The pattern indicates moderate pandemic-related declines followed by a gradual return to pre-pandemic levels.

Perth Amboy PD and Long Branch PD show significantly lower and more comparable use of force levels. Perth Amboy PD's quarterly count typically ranges from 10 to 70 reports,

while Long Branch PD's range from 10 to 50 reports per quarter. Both agencies display relatively stable patterns with modest variation over time compared to the larger agencies.

This comparison suggests that agency size and environment may affect use of force patterns, with Camden PD's urban setting and larger operational scope leading to significantly higher report volumes and more temporal variability compared to suburban and smaller municipal agencies.

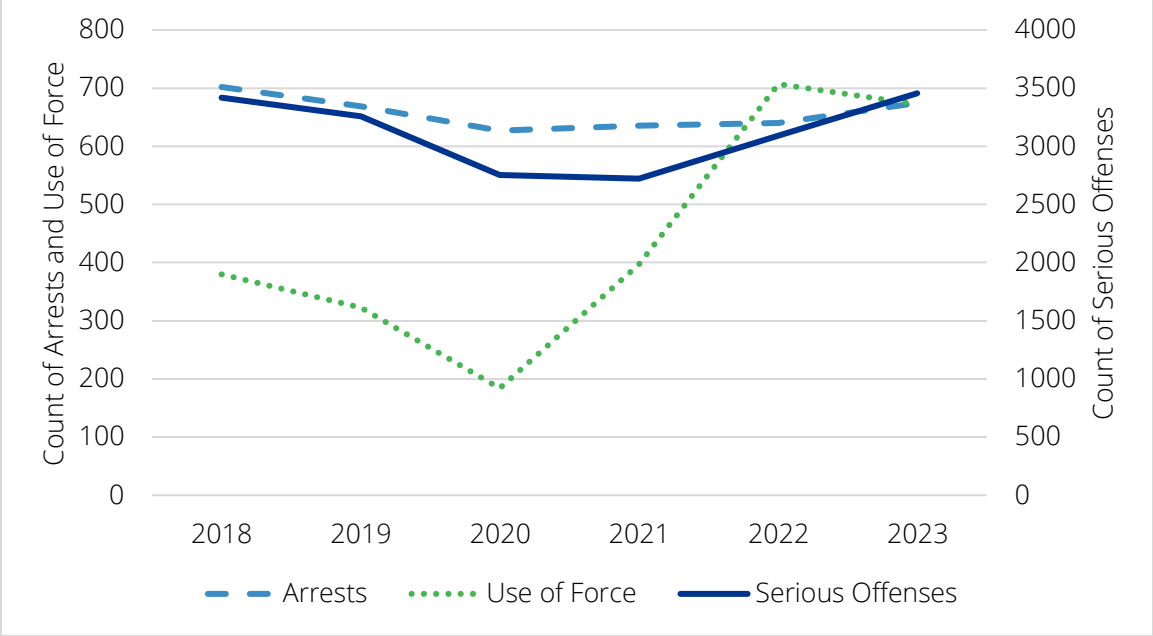
Figure 20. Quarterly Use of Force Reports by Case Study Site (2018-2024)



CAMDEN COUNTY POLICE DEPARTMENT

We begin our deep dive into Camden County PD, the largest police department of the four, by first examining trends in police activity, as measured through serious offenses, arrests, and use of force. Shown in **Figure 22,** these data appear to show that arrests and serious offenses remained relatively stable during the five-year period, with some declines in 2020 and 2021. Use of force shows a divergent trend, with reductions in 2020 but increases in 2022 and 2023 that far exceed the 2018 and 2019 counts. Arrests and serious offenses do not appear to show this same sharp increase.

Figure 22. Camden County Police Department Arrests, Serious Offenses, and Use of Force (2018-2023)



Use of Force by Year

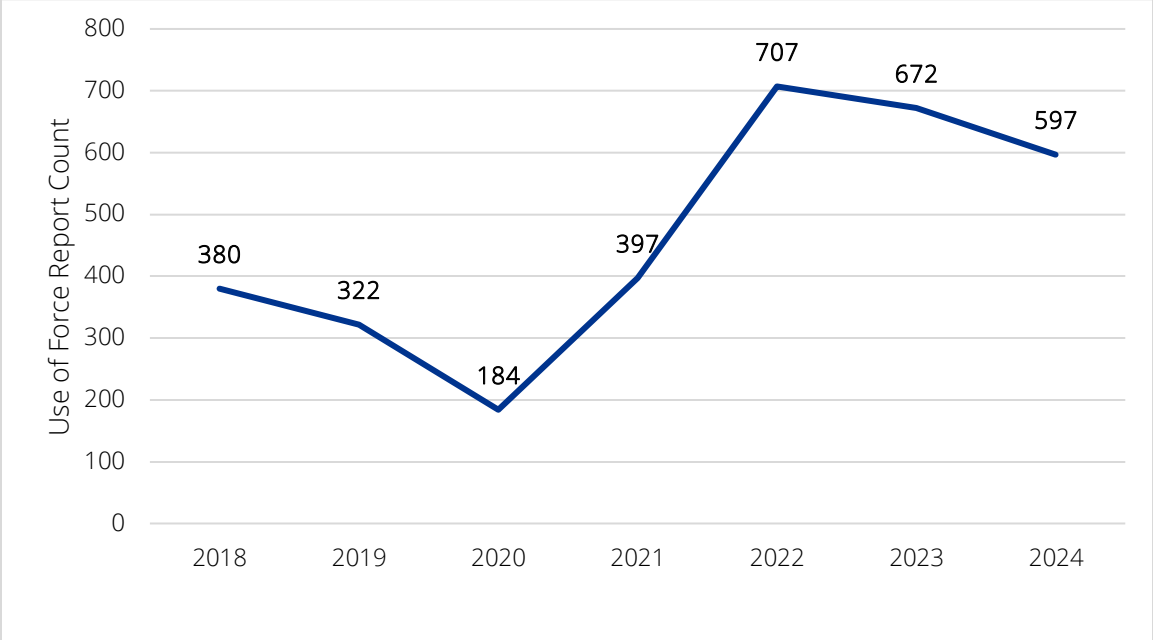
The Camden County Police Department recorded 3,259 use of force reports from 2018 to 2024. The data presented in **Figure 22** reveals a dramatic decline in 2020, followed by a substantial recovery that greatly exceeds pre-pandemic levels. In 2018, Camden County PD documented 380 use of force reports, which decreased to 322 reports in 2019, representing a 15.3% decline from the previous year.

The most significant reduction occurred in 2020, when use of force reports dropped precipitously to 184 cases—a 42.9% decrease from 2019 levels and 51.6% below the 2018 baseline. This substantial decline mirrors statewide patterns during the same period. The recovery began in 2021 with 397 reports, representing a 115.8% increase from 2020 but remaining below pre-pandemic levels.

The recovery trajectory accelerated dramatically in 2022, when Camden County PD recorded 707 use of force reports—the highest count in the entire observation period and 86.1% above 2018 levels. This peak was followed by a gradual decline to 672 reports in 2023 (5.0% decrease from 2022) and 597 reports in 2024 (11.2% decrease from 2023). Despite these recent declines, 2024 levels remained 57.1% above the 2018 baseline. The increases in reported force and overall higher levels compared to the pre-NJOAG

uniform data collection period indicate that new reporting requirements have potentially influenced documentation of the Camden PD's use of force activity.

Figure 22. Camden County Police Department Use of Force Counts by Year (2018-2024)



Use of Force by Race/Ethnicity

The quarterly analysis of use of force reports by race/ethnicity in **Figure 23** reveals stark demographic differences and notable temporal patterns. Black individuals consistently experienced the highest rates of police use of force throughout the observation period, with quarterly counts ranging from approximately 40 to 180 reports. The pattern shows dramatic variation across quarters, with particularly low levels during 2020 (approximately 40–50 reports per quarter), followed by a substantial increase beginning in 2021.

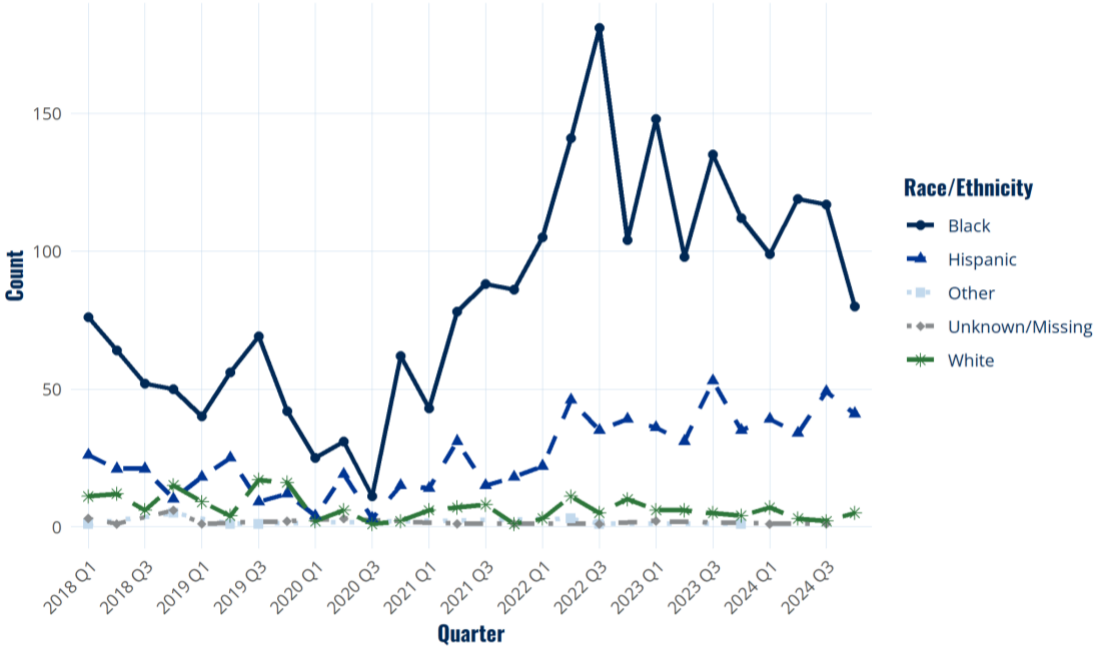
The peak period for use of force reports involving Black individuals occurred in the second quarter of 2022, reaching approximately 180 reports. Following this peak, quarterly counts remained elevated but gradually declined through 2024, stabilizing at approximately 80 to 100 reports per quarter. The overall trajectory demonstrates a recovery to levels that approach or exceed pre-pandemic baselines.

Hispanic individuals experienced substantially lower but still notable use of force rates, with quarterly counts typically ranging from 10 to 60 reports. The pattern shows considerable quarterly variation, with peaks occurring in the third quarter of 2022

(approximately 60 reports) and several quarters in 2023 reaching approximately 50 reports. The trajectory for Hispanic individuals shows less dramatic pandemic-related decline compared to Black individuals, with relatively stable patterns throughout most of the observation period that appear to have increased since 2020.

White individuals, along with "Other" and "Unknown/Missing" categories, consistently experienced the lowest use of force rates, typically fewer than 20 reports per quarter. These categories showed minimal temporal variation and maintained relatively stable low levels throughout the observation period.

Figure 23. Camden County Police Department Quarterly Use of Force Counts by Subject Race and Year (2018-2024)



Injuries During Use of Force

The comprehensive injury analysis in **Table 36** reveals substantial changes in both injury counts and rates between the pre-period (Jan 2018–Sep 2020) and post-period (Oct 2020–Dec 2024). Subject injuries increased from 195 to 425 cases, while monthly rates increased from 5.9 to 8.3 injuries per month (increase of 40.7%). However, subject injury rates declined from 24% to 17%, representing a 28% decrease in the proportion of use of force reports resulting in civilian harm.

Officer injuries increased from 74 to 206 cases, with monthly rates rising from 2.2 to 4.0 injuries per month (increase of 81.8%). Officer injury rates declined modestly from 9% to 8%, representing an 8% decrease in encounters resulting in officer harm. The data indicate that while absolute injury counts and average number of injuries per month increased substantially for both subjects and officers, this reflects an overall increase in use of force experienced by Camden County PD. In considering changes in the rate of injury, the relative safety of individual encounters improved, particularly for civilian subjects.

Table 36. Camden County Police Department Force-Related Injuries Comparisons

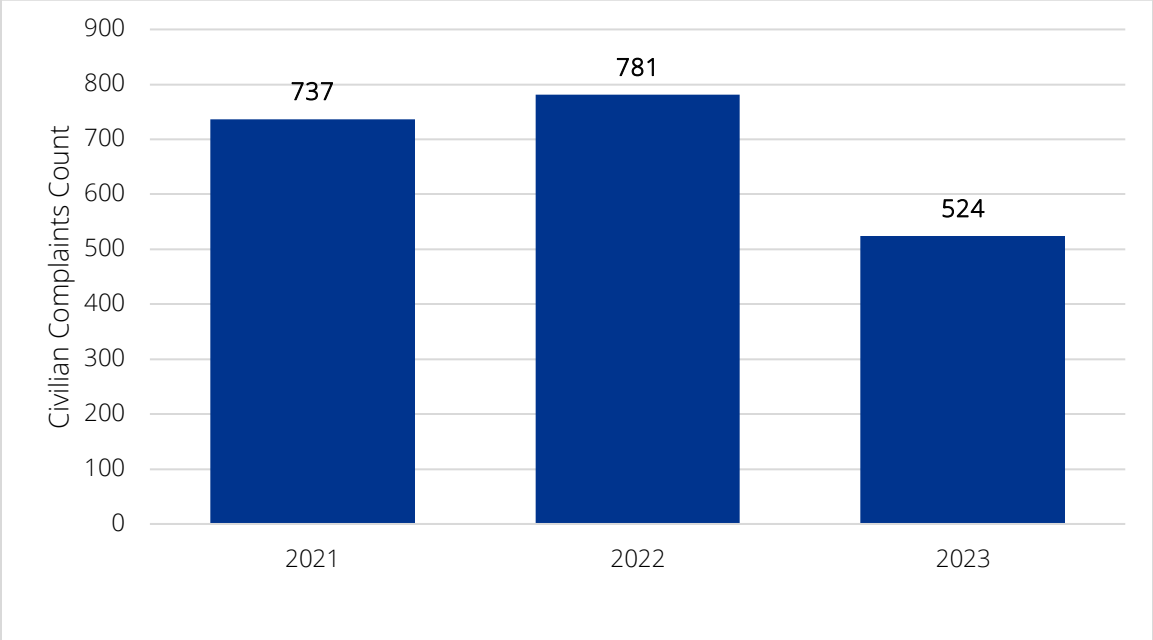
Type	# Injuries (Pre)	# Injuries (Post)	Injury Rate (Pre)	Injury Rate (Post)	Avg. Injuries / Month (Pre)	Avg. Injuries / Month (Post)	Avg. Injuries / Month Δ %*
Subject	195	425	24%	17%	5.9	8.3	40.7%
Officer	74	206	9%	8%	2.2	4.0	81.8%

Pre-period = Jan 2018–Sept 2020; Post-period = Oct 2020-Dec 2024. Rates = injuries ÷ force reports. Injuries per month normalize for unequal period lengths.
*Note that the percent change reflects the comparison of small numbers.

Civilian Complaints

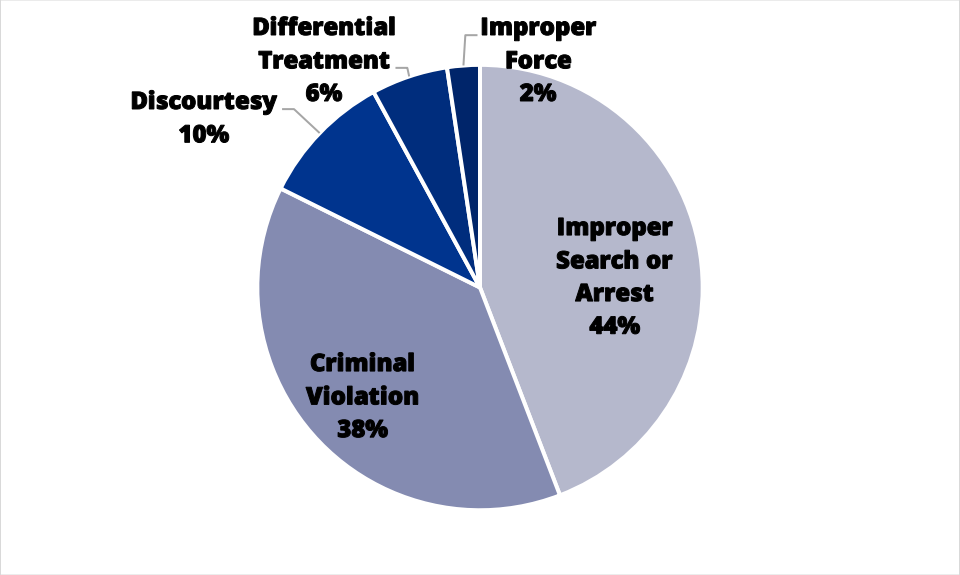
The Camden County Police Department received 3,462 total complaints from 2021 through 2023. Of those, 1,420 (41%) were agency-filed and 2,042 (59%) were civilian-filed. Out of those 2,042 civilian complaints, only 223 (11%) were sustained according to internal disposition. The temporal patterns in **Figure 24** reveal initial stability followed by a notable decline in community complaints. In 2021, civilians filed 737 complaints against Camden County PD officers. This figure increased to 781 complaints in 2022, representing a 6.0% increase and the highest annual total during the observation period. Civilian complaints declined substantially in 2023 to 524 cases, representing a 32.9% decrease from 2022 and 28.9% below 2021 baseline levels. The 2023 total represents the lowest annual civilian complaint count during observation.

Figure 24. Camden County Police Department Civilian Complaints by Year (2021-2023)



The analysis of civilian complaint types in **Figure 25** reveals that procedural and criminal misconduct concerns dominate civilian complaint activity in Camden. "Improper Search or Arrest" represents the single largest category with 540 complaints, accounting for 44% of all civilian complaints. "Criminal Violation" complaints comprise the second-largest category with 467 cases (38% of defined complaints), representing allegations of criminal conduct by officers. These two categories combined account for 1,007 complaints, representing 82% of all complaints in defined categories, indicating that serious procedural and criminal misconduct allegations dominate civilian complaint activity in Camden. "Discourtesy" complaints total 119 cases (10% of defined complaints), while "Differential Treatment" complaints account for 68 cases (6%), and "Improper Force" complaints total 29 cases (2%). In terms of sustained civilian complaints, only 19 of these 1,223 complaints (1.6%) shown in **Figure 25** were found to be sustained after investigation, all for the complaint of discourtesy.

Figure 25. Camden County Police Department Categorized Civilian Complaints, Excluding "Other" Complaint Categories, 2021-2023 (N=1,223)



Interrupted Time Series Findings

We display the total use of force counts from **Section IV. Trends in Use of Force Encounters**, and, using the same interrupted time series methodological framework, included a series of overall and race-specific analyses for Camden County PD (as well as Perth Amboy, Toms River, and Long Branch Police Departments) to demonstrate the variability in changes in use of force counts by site, over time. The purpose of the partitioned analyses was to assess whether there was congruence in changes across each race/ethnic-specific group with total use of force changes.

As noted previously, use of force counts increased with the statewide long-term crossover models in the post-mandated training (ICAT and ABLE), post-policy change, and post-full Initiative period (2023 onward) relative to the pre-intervention averages (with the earlier-onset post-ABLE estimate not reaching a statistically significant increase). Thus, there is variability at different points in time for significant changes in total use of force in Camden County.

Results from Interrupted Time Series (ITS) models for Camden County PD are shown in **Table 37.** Total use of force increased in the periods following ICAT training, the statewide policy implementation, and the full Initiative implementation. When we separate results by race and ethnicity, we see that use of force incidents involving Black subjects did not experience a statistically significant change in any of the models. Conversely, uses of force involving Hispanic subjects increased by roughly +129% (Exp(.829) – 1) after the 2022 policy implementation, although this impact is not

sustained in the latter combination of policy and training. Interestingly, uses of force for White subjects experienced significant decreases across each of the post-implementation estimates (post-ABLE, ICAT, policy, and full Initiative). In summary, the changes in use of force were variable across time and across racial and ethnic groups in Camden, with some increases and some decreases, depending on the subject race/ethnicity examined as well as the period included in the post-intervention framework.

Table 37. Case Study ITS Models – Use of Force (Total and by Race) – Camden County Police Department

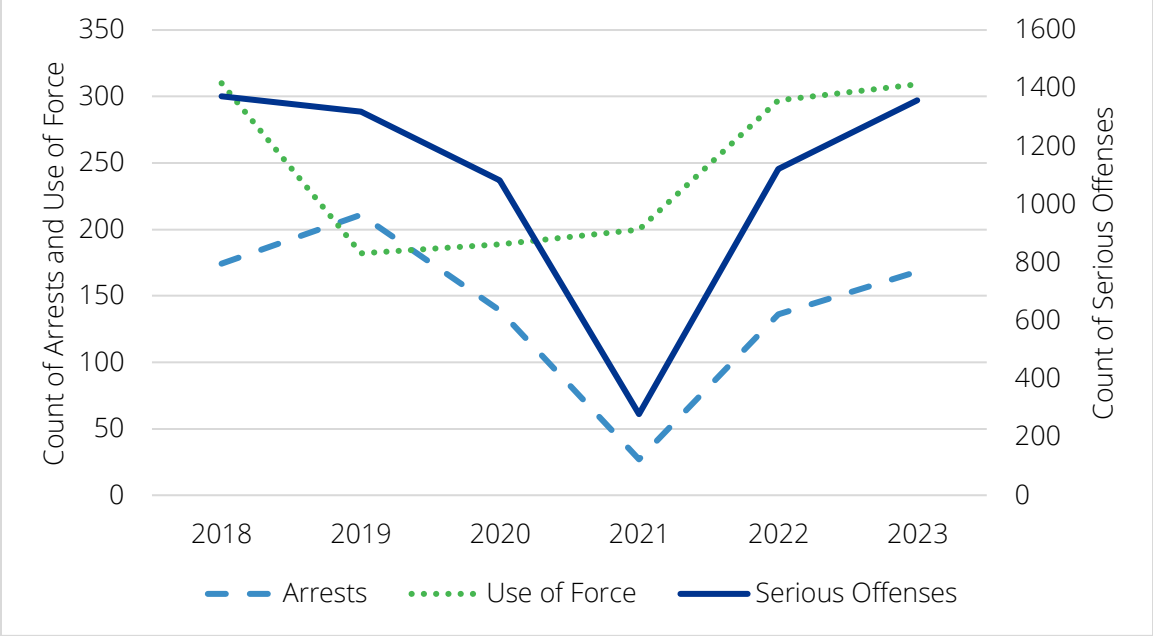
Camden County PD	B	SE	p-value
Total Use of Force			
ABLE Training	-0.103	0.380	0.787
ICAT Training	0.468*	0.086	<0.001
Policy Change	0.719*	0.080	<0.001
Full Initiative	0.719*	0.079	<0.001
Black Use of Force			
ABLE Training	0.012	0.172	0.944
ICAT Training	0.063	0.172	0.716
Policy Change	0.016	0.174	0.925
Full Initiative	-0.016	0.173	0.926
Hispanic Use of Force			
ABLE Training	0.367	0.326	0.261
ICAT Training	0.053	0.327	0.871
Policy Change	0.829*	0.350	0.018
Full Initiative	0.064	0.353	0.857
White Use of Force			
ABLE Training	-0.781*	0.353	0.027
ICAT Training	-0.795*	0.360	0.028
Policy Change	-1.00*	0.333	0.003
Full Initiative	-0.788*	0.377	0.037

*Statistically significant at $p < 0.05$

TOMS RIVER POLICE DEPARTMENT

We delve into the patterns from Toms River Police Department by first examining trends in police activity, as measured through serious offenses, arrests, and use of force. Shown in **Figure 26,** these data appear to show their greatest declines in 2021, with arrest and offense numbers drastically lower than all others for this particular year. In contrast, use of force counts are at their lowest in 2019, with increases in 2020 to 2023. However, the increases in counts for 2021 to 2023 are sharper for offenses and arrests than for use of force.

Figure 26. Toms River Police Department Arrests, Serious Offenses, and Use of Force (2018-2023)

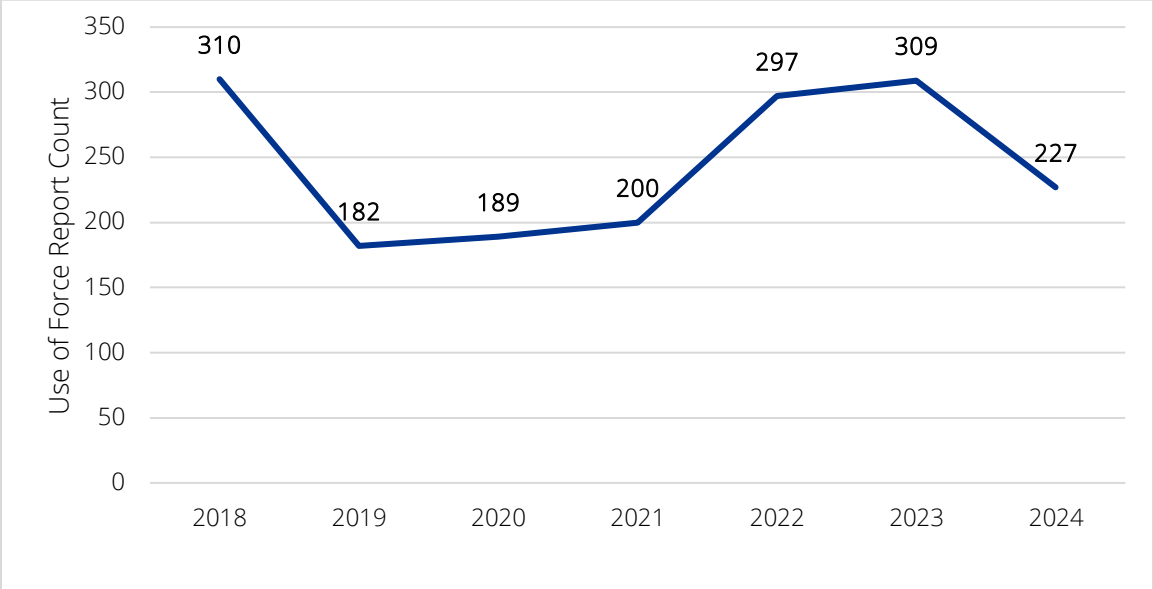


Use of Force Reports by Year

Toms River Police Department recorded 1,714 total use of force reports from 2018 to 2024. **Figure 27** displays the temporal pattern over the time period, which is characterized by a relatively modest pandemic-related decline and strong post-pandemic recovery. In 2018, Toms River PD recorded 310 use of force reports, representing the highest count during the seven years. This figure declined to 182 reports in 2019, representing a substantial 41.3% decrease that preceded the pandemic-related reductions observed in other agencies.

The pandemic impact was relatively modest compared to other agencies, with reports declining to 189 cases in 2020—representing only a 3.8% decrease from 2019 levels but a 39.0% decline from the 2018 baseline. A post-pandemic increase began in 2021 with 200 reports, representing a 5.8% increase from 2020. This gradual recovery trajectory continued through 2022 with 297 reports (48.5% increase from 2021) and peaked in 2023 with 309 reports (4.0% increase from 2022). The agency experienced a notable decline in 2024 to 227 reports, representing a 26.5% decrease from 2023. Despite this recent decline, 2024 levels remained 13.5% below the 2018 baseline, indicating that Toms River PD's use of force activity has not fully returned to historical peak levels.

Figure 27. Toms River Police Department Use of Force Counts by Year (2018-2024)



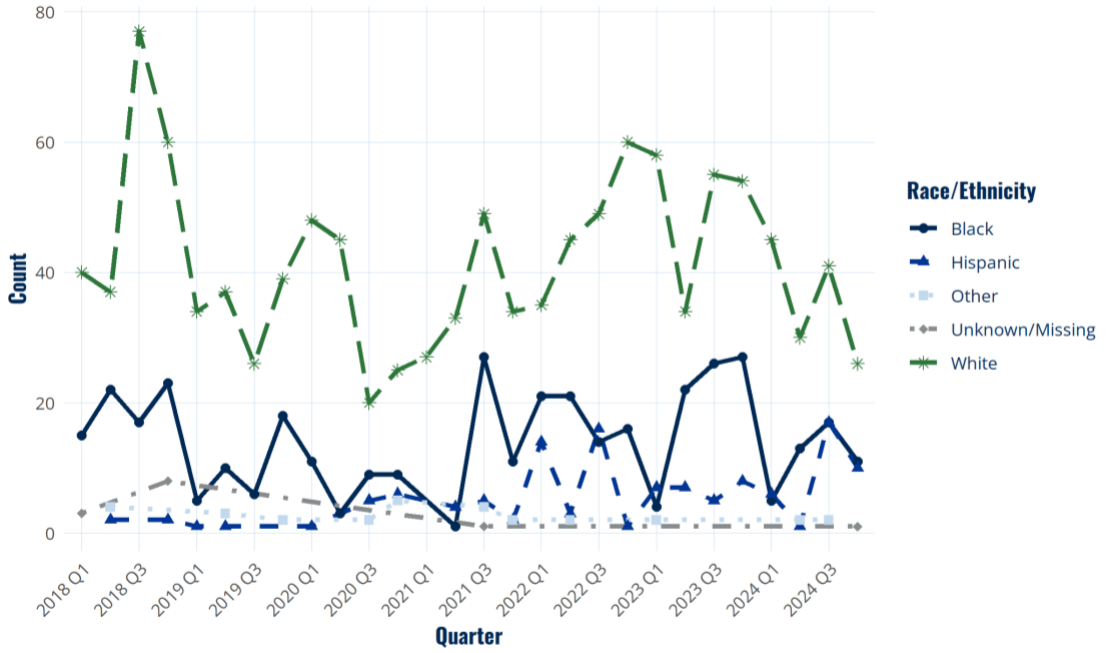
Use of Force by Race/Ethnicity

The quarterly demographic analysis in **Figure 28** shows that White individuals represent the subjects in most use of force encounters throughout the observation period, reflecting the community's demographic composition. White individuals had quarterly report counts ranging from about 20 to 75 cases, with notable peaks in 2018 (about 75 reports in Q3). They sustained higher levels during the post-pandemic recovery period (usually 40 to 60 reports per quarter).

The temporal pattern for White individuals shows considerable quarterly variation, with the highest concentrations occurring during 2018 and the post-pandemic period from 2022–2023. The trajectory demonstrates clear pandemic-related declines during 2019–2020 (typically 20–35 reports per quarter), followed by sustained recovery to levels approaching pre-pandemic baselines.

Black individuals demonstrated more modest and variable quarterly patterns, with counts typically ranging from five to 25 reports per quarter. The pattern shows some increase during the post-pandemic period, with quarterly counts occasionally reaching 25–30 reports, but generally maintaining lower levels than those of White individuals. Hispanic individuals experienced consistently low quarterly counts, typically ranging from zero to 15 quarterly reports throughout the observation period. The "Other" and "Unknown/Missing" categories represented minimal proportions of use of force encounters, consistently fewer than 10 reports per quarter.

Figure 27. Toms River Police Department Quarterly Use of Force Counts by Subject Race and Year (2018-2024)



Injuries During Use of Force

The injury analysis in **Table 38** highlights notable increases in injury volumes and rates between the pre-period (Jan 2018–Sep 2020) and post-period (Oct 2020–Dec 2024). Subject injuries more than doubled from 100 to 211 cases, representing a 111% increase, while monthly subject injury rates increased from 3.0 to 4.1 injuries per month, indicating sustained increases in subject injury. Critically, subject injury rates increased from 16% in the pre-period to 20% in the post-period, representing a 24% increase in the proportion of use of force reports resulting in civilian harm. This pattern contrasts sharply with Camden PD and Perth Amboy PD, where injury rates either declined or remained stable.

Officer injuries also increased substantially, rising from 21 to 50 cases, representing a 138% increase. Monthly officer injury rates increased from 0.6 to 1.0 injuries per month. Officer injury rates increased from 3% in the pre-period to 5% in the post-period, representing a 40% increase in encounters resulting in officer harm. The data indicate that Toms River PD experienced deteriorating safety outcomes for both subjects and officers between periods, with encounters becoming significantly more likely to result in injury for both parties. This pattern is unique among the four agencies analyzed and may

warrant further investigation into factors contributing to increased injury rates despite overall stable use of force volumes.

Table 38. Toms River Police Department Force-Related Injuries Comparisons

Type	# Injuries (Pre)	# Injuries (Post)	Injury Rate (Pre)	Injury Rate (Post)	Avg. Injuries / Month (Pre)	Avg. Injuries / Month (Post)	Avg. Injuries / Month Δ %*
Subject	100	211	16%	20%	3.0	4.1	36.7%
Officer	21	50	3%	5%	0.6	1.0	66.7%

Pre-period = Jan 2018–Sept 2020; Post-period = Oct 2020-Dec 2024. Rates = injuries ÷ force reports. Injuries per month normalize for unequal period lengths.
*Note that the percent change reflects the comparison of small numbers.

Civilian Complaints

Toms River Police Department received minimal civilian complaint activity from 2021 to 2023, with only 42 internal affairs investigations reported. Of those, 31 (74%) were agency-initiated and only 11 (26%) were civilian-initiated. No civilian complaints were found to be sustained after investigation. This represents the lowest civilian complaint volume among the four agencies analyzed. The temporal pattern shows a declining trend across the three years, and because these counts are so low, no graph is shown. In 2021, civilians filed seven complaints against Toms River PD officers, representing the peak year for civilian complaints. Civilian complaints declined substantially to three cases in 2022, and only one case was reported in 2023.

Based on our complaint categories of interest used in other analyses, Toms River PD data contained three complaints for "Improper Search or Arrest, two for "Discourtesy," and one for "Differential Treatment." The extremely low complaint volumes may suggest exceptionally positive community-police relations, limited community awareness of complaint processes, or potential barriers to complaint filing. No civilian complaints in these categories were found to be sustained after investigation.

Interrupted Time Series Findings

In the deep dive of the Toms River Police Department, the changes in use of force counts were slightly more consistent in some respects, though certainly not in all. Results from Interrupted Time Series (ITS) models are shown in **Table 39.** First, use of force counts increased unilaterally across each outcome modeled (total use of force and race-specific use of force), though many changes were non-significant. The timing of the increases (and the general magnitude) varied considerably. There was a general marginally

significant increase in total use of force post-ABLE and post-ICAT ($p < 0.10$), with the estimated change reaching statistical significance in the post-policy (post-2022) period by +26.0% (Exp(0.232) – 1). Hispanic uses of force increased with each post-period examined (post-ABLE, -ICAT, -policy, and -full Initiative), suggesting a persistent growth in Hispanic uses of force over time. Black and White uses of force only reached this threshold in the post-2022 policy-change period, not for any other examination period. Thus, the observed increase in total uses of force seemingly corresponded with the increase in Hispanic uses of force in Toms River PD and some increases in use of force for White subjects, as was observed in the post-2022 policy change period for White uses of force.

Table 39. Case Study ITS Models – Use of Force (Total and by Race) – Toms River Police Department

Tom's River PD	B	SE	p-value
Total Use of Force			
ABLE Training	0.156	0.084	0.063
ICAT Training	0.151	0.085	0.078
Policy Change	0.232*	0.086	0.008
Full Initiative	0.128	0.091	0.157
Black Use of Force			
ABLE Training	0.142	0.179	0.428
ICAT Training	0.145	0.183	0.428
Policy Change	0.339*	0.172	0.049
Full Initiative	0.187	0.193	0.330
Hispanic Use of Force			
ABLE Training	0.816*	0.365	0.025
ICAT Training	0.841*	0.367	0.022
Policy Change	1.47*	0.343	<0.001
Full Initiative	0.888*	0.349	0.011
White Use of Force			
ABLE Training	0.118	0.093	0.204
ICAT Training	0.106	0.093	0.256
Policy Change	0.232*	0.119	0.049
Full Initiative	0.128	0.128	0.315

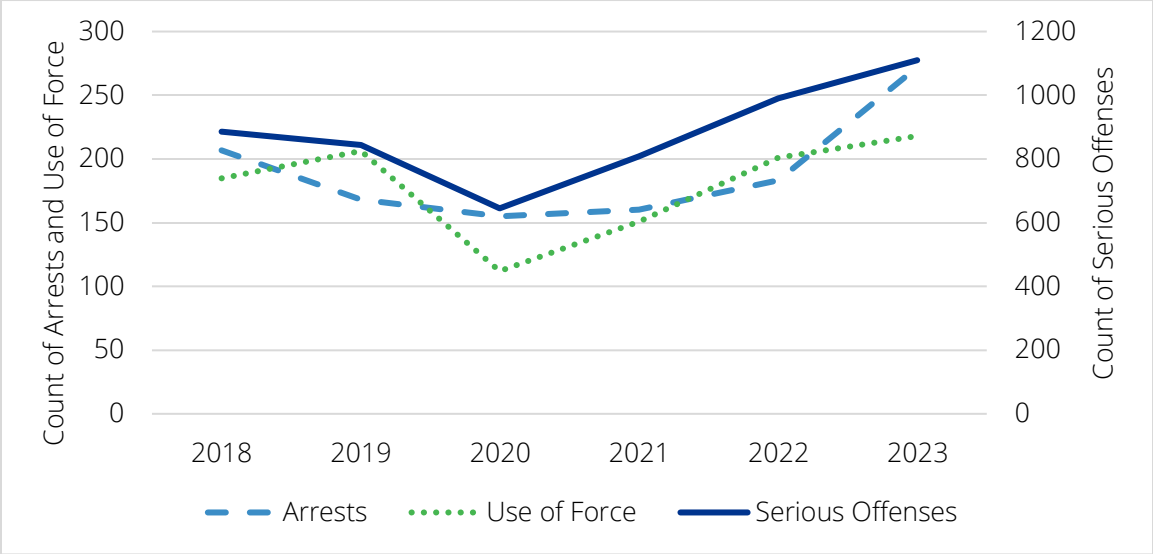
*Statistically significant at $p < 0.05$

PERTH AMBOY POLICE DEPARTMENT

To evaluate changes in the Perth Amboy Police Department, we also examine police activity over time, using serious offenses, arrests, and use of force as indicators. **Figure 29** shows that these three measures generally follow similar patterns over the five years, with declines in 2020 and gradual increases across all three from 2021 to 2023. While the

use of force rose substantially during this period, arrests and offense counts also seemed to increase at an even higher rate.

Figure 29. Perth Amboy Police Department Arrests, Serious Offenses, and Use of Force (2018-2023)



Use of Force by Year

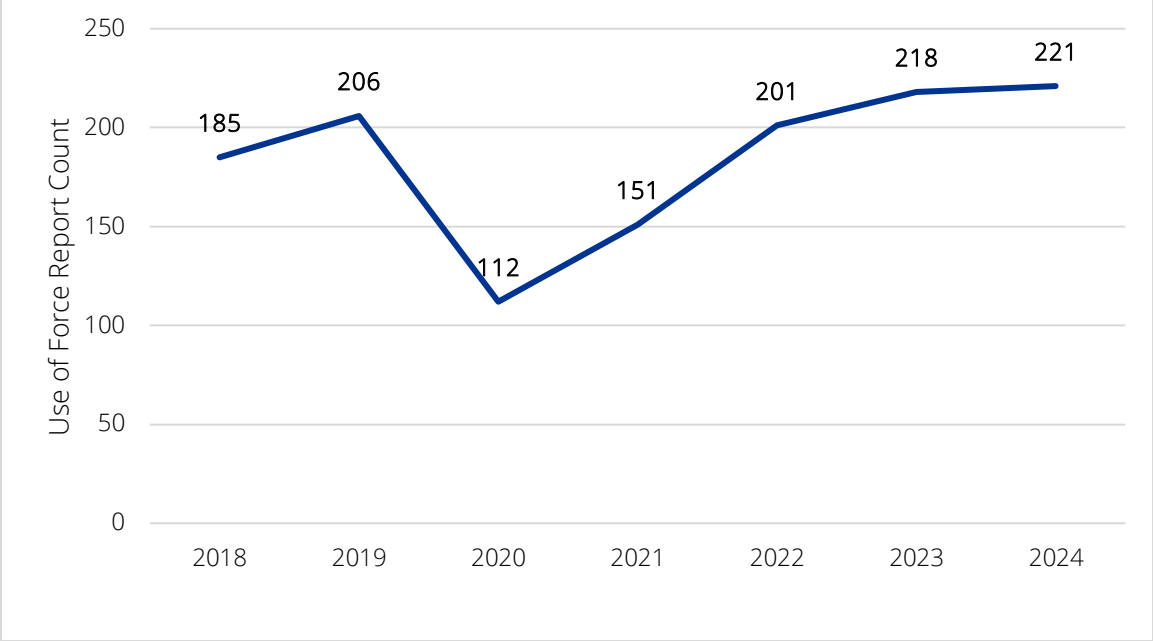
Perth Amboy Police Department recorded 1,294 use of force reports between 2018 and 2024. **Figure 30** highlights a pattern of pandemic-related declines followed by an increase to levels exceeding pre-pandemic baselines. In 2018, Perth Amboy PD recorded 185 use of force reports, which increased to 206 reports in 2019, representing an 11.4% increase and the highest count during the pre-pandemic period.

The pandemic impact became evident in 2020, when use of force reports declined to 112 cases—a 45.6% decrease from 2019 levels and 39.5% below the 2018 baseline. This substantial reduction aligns with patterns observed across New Jersey agencies during the same period. The recovery began in 2021 with 151 reports, representing a 34.8% increase from 2020 but still remaining 26.7% below 2019 levels.

The post-pandemic period demonstrated sustained recovery with counts reaching 201 in 2022, representing a 33.1% increase from 2021 and approaching pre-pandemic levels. This upward trajectory continued through 2023 with 218 reports (8.5% increase from 2022) and 2024 with 221 reports (1.4% increase from 2023). The 2024 total represents a 19.4% increase above 2018 levels and 7.3% above the 2019 peak, indicating that Perth Amboy PD's use of force has increased to levels modestly above historical norms. This

pattern is consistent with other agencies, and causal mechanisms are difficult to unpack, to determine whether these are changes in officer or suspect behavior versus an artifact of changes to reporting requirements.

Figure 30. Perth Amboy Police Department Use of Force Counts by Year (2018-2024)



Use of Force by Race/Ethnicity

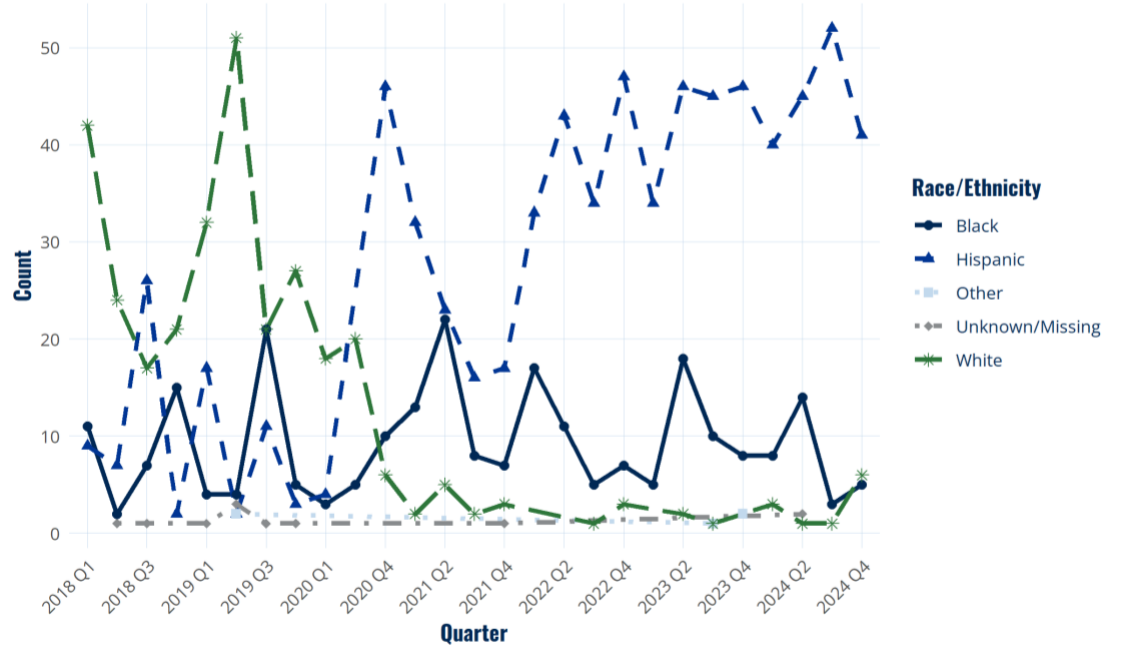
The quarterly demographic analysis shown in Figure 31 reveals distinct patterns across racial and ethnic groups, with Hispanic individuals comprising the largest proportion of use of force encounters throughout most of the observation period. Hispanic individuals experienced quarterly report counts ranging from approximately 10 to 50 cases, with notable peaks during 2019 (reaching approximately 50 reports in Q1) and sustained elevated levels from 2021–2024 (typically 40-45 reports per quarter).

The demographic composition shows considerable temporal variation. During the pre-pandemic period (2018–2019), White individuals experienced quarterly counts ranging from approximately 20 to 50 reports, with particularly high levels in Q1 2019 (approximately 50 reports). However, White individuals' involvement declined substantially during and after the pandemic, with quarterly counts typically remaining below 10 reports from 2021 onward.

Black individuals demonstrated more variable quarterly patterns, with counts ranging from approximately 5 to 25 reports across the observation period. The trajectory shows

relatively stable low levels during 2018 to 2019, followed by some increase during the recovery period, with quarterly counts typically ranging from 10 to 20 reports in recent years. The overall demographic distribution indicates that Perth Amboy PD's use of force encounters predominantly involve Hispanic individuals, reflecting the community's demographic composition, with notable shifts in the relative proportions of White and Black individuals over time.

Figure 31. Perth Amboy Police Department Quarterly Use of Force Counts by Subject Race and Year (2018-2024)



Injuries During Use of Force

The injury analysis in **Table 40** reveals moderate changes between the pre-period (Jan 2018–Sep 2020) and post-period (Oct 2020–Dec 2024). Subject injuries increased from 67 to 129 cases, representing a 94% increase in absolute terms. Monthly subject injury rates increased modestly from 2.0 to 2.5 injuries per month. Notably, subject injury rates remained stable at 15% in both periods, indicating no change in the proportion of use of force reports resulting in subject injury.

Officer injuries showed a more modest increase from 31 to 43 cases, with monthly rates declining slightly from 0.9 to 0.8 injuries per month. Officer injury rates decreased from 7% in the pre-period to 5% in the post-period, representing a 28% reduction in the proportion of encounters resulting in officer harm. This improvement in officer safety

contrasts with the stable civilian injury rates. The data indicate that while Perth Amboy PD experienced increases in absolute injury counts for subjects, the relative safety profile for civilians remained unchanged, while officer safety improved measurably.

Table 40. Perth Amboy Police Department Force-Related Injuries Comparisons

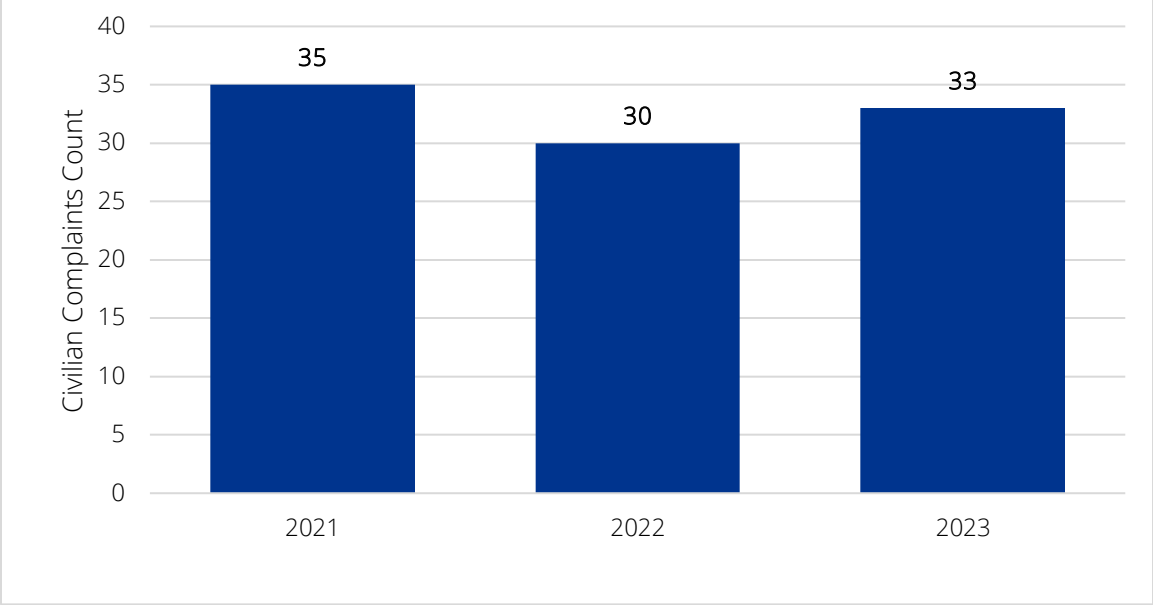
Type	# Injuries (Pre)	# Injuries (Post)	Injury Rate (Pre)	Injury Rate (Post)	Avg. Injuries / Month (Pre)	Avg. Injuries / Month (Post)	Avg. Injuries / Month Δ %*
Subject	67	129	15%	15%	2.0	2.5	25%
Officer	31	43	7%	5%	0.9	0.8	-11.1%

Pre-period = Jan 2018–Sept 2020; Post-period = Oct 2020–Dec 2024.; Rates = injuries ÷ force reports; Injuries per month normalize for unequal period lengths.
*Note that the percent change reflects the comparison of small numbers.

Civilian Complaints

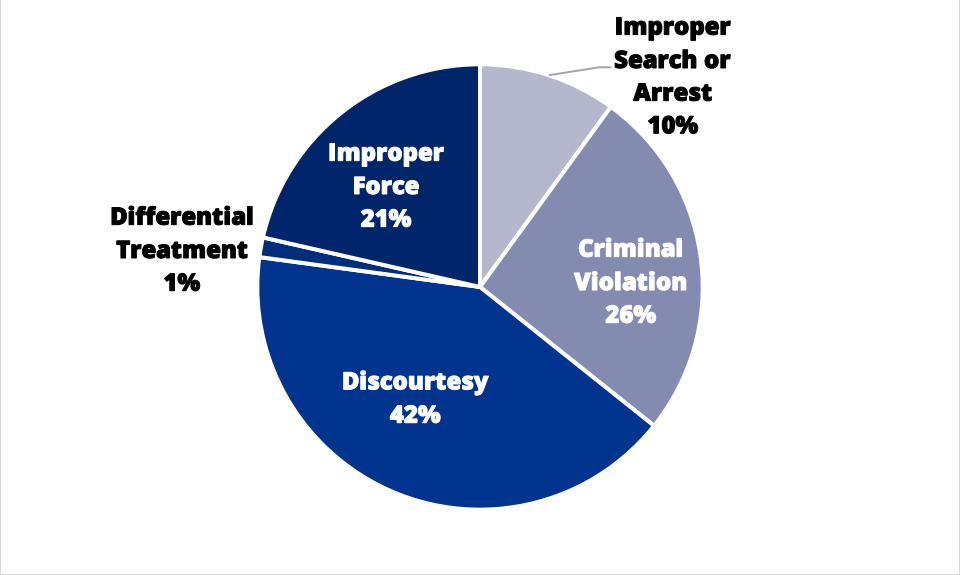
Perth Amboy Police Department received relatively low levels of civilian complaint activity from 2021 to 2023, with 129 total complaints, of which 31 (24%) were agency-filed and 98 (76%) were civilian-filed. Out of those 98 civilian complaints, only 3 (~3%) were sustained according to internal disposition. The temporal pattern displayed in **Figure 32** shows stability across the three-year period. In 2021, civilians filed 35 complaints against Perth Amboy PD officers. This figure declined to 30 complaints in 2022, before rising to 33 cases in 2023.

Figure 32. Perth Amboy Police Department Civilian Complaints by Year (2021-2023)



The analysis of civilian complaint types in **Figure 33** reveals a more balanced distribution than Camden PD, with interpersonal conduct concerns representing the dominant category. "Discourtesy" comprises the largest category with 29 complaints, accounting for 41% of all civilian complaints in defined categories. This proportion aligns more closely with typical statewide patterns where discourtesy represents one of the primary civilian complaint categories. "Criminal Violation" complaints account for 18 cases (26% of defined complaints), representing a substantial but smaller proportion compared to Camden PD. "Improper Force" complaints total 15 cases (21%), and "Improper Search or Arrest" complaints comprise 7 cases (10%), while "Differential Treatment" accounts for only one complaint (1%). The distribution suggests that Perth Amboy PD civilian complaints follow more typical patterns observed statewide, with interpersonal conduct (discourtesy) representing the primary concern, followed by more serious allegations of criminal violations and improper force. Of the 70 complaints shown in **Figure 33,** only one was determined to be sustained after investigation, for the complaint of criminal violation.

Figure 33. Perth Amboy Police Department Categorized Civilian Complaints, Excluding "Other" Complaint Categories, 2021-2023 (N=70)



Interrupted Time Series Findings

The Perth Amboy PD Interrupted Time Series (ITS) analyses on uses of force were complex, particularly in relation to the other case study settings. These results are shown in **Table 41**. Regardless of the post-period (i.e., post-ICAT, -ABLE, -policy, or -full Initiative periods), total use of force counts experienced significant increases, suggesting a

consistent linear increase in total force usage counts. However, there were no significant changes in the number of use of force incidents involving Black subjects across the models. Hispanic uses of force significantly increased in each of the post-policy periods. Comparatively, White uses of force significantly decreased in each of the post-policy periods. The fact that there were consistent total use of force increases but shifts in Hispanic (increase) and White (decrease) uses of force demonstrates that the overall rise in uses of force was associated with rises (Hispanic uses of force), stability (Black uses of force), and declines (White uses of force). While beyond the scope of the current investigation, this contradictory finding raises the question of whether race/ethnicity coding possibly changed as reporting changed during this period of inquiry. The pattern is variant and at times appears to be zero sum (for White and Hispanic subjects in particular).

Table 41. Case Study ITS Models – Use of Force (Total and by Race) – Perth Amboy Police Department

Perth Amboy PD	B	SE	p-value
Total Use of Force			
ABLE Training	0.221*	0.102	0.031
ICAT Training	0.261*	0.102	0.011
Policy Change	0.266*	0.102	0.009
Full Initiative	0.249*	0.096	0.009
Black Use of Force			
ABLE Training	0.064	0.197	0.746
ICAT Training	0.088	0.196	0.651
Policy Change	0.077	0.198	0.697
Full Initiative	0.002	0.201	0.989
Hispanic Use of Force			
ABLE Training	1.08*	0.179	<0.001
ICAT Training	1.11*	0.175	<0.001
Policy Change	1.14*	0.168	<0.001
Full Initiative	0.852*	0.136	<0.001
White Use of Force			<0.001
ABLE Training	-2.49*	0.369	<0.001
ICAT Training	-2.13*	0.430	<0.001
Policy Change	-2.49*	0.369	<0.001
Full Initiative	-2.13*	0.430	<0.001

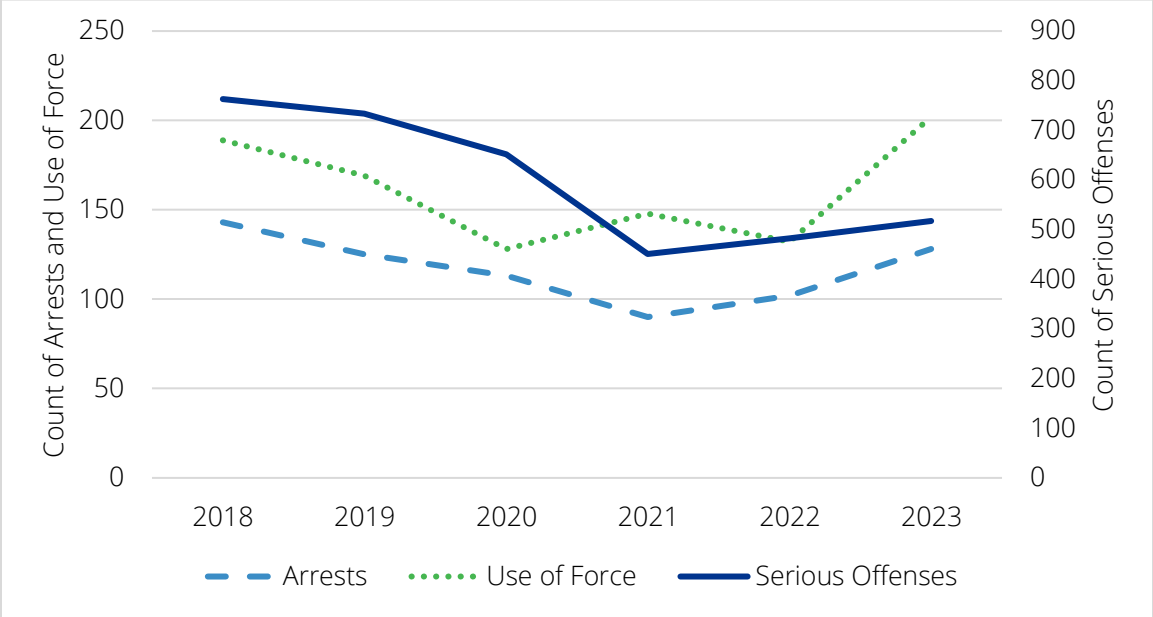
*Statistically significant at $p < 0.05$

LONG BRANCH POLICE DEPARTMENT

As with the previous departments, we begin our deep dive into Long Beach Police Department by examining trends in arrests, serious offenses, and use of force from 2018

to 2023. Use of force trends appear to diverge somewhat from arrests and serious offense trends, with a sharper increase from 2022 to 2023 than arrests and offenses. While arrest and offense trends appear to be lower in recent years compared to the 2018 baseline, use of force in 2024 exceeds the 2018 baseline count.

Figure 34. Long Branch Police Department Arrests, Serious Offenses, and Use of Force (2018-2023)



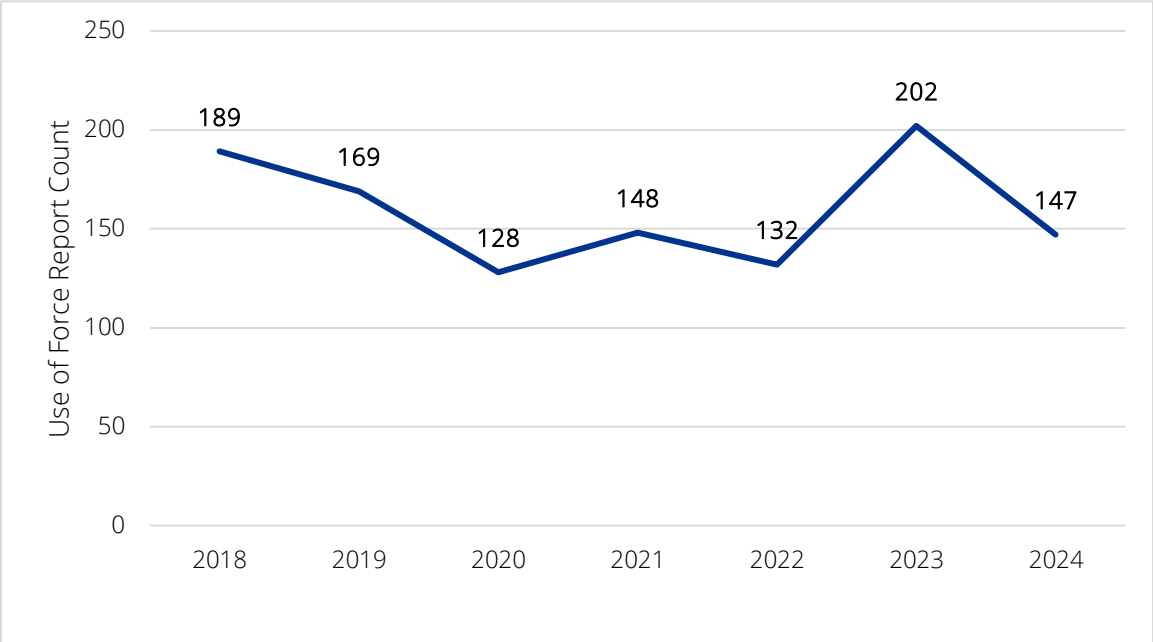
Use of Force Reports by Year

Long Branch Police Department recorded 1,115 use of force reports from 2018 to 2024. **Figure 35** shows a unique temporal pattern characterized by pandemic-related decline followed by increases that significantly exceeded historical levels. In 2018, Long Branch PD reported 189 use of force reports, which declined to 169 in 2019, representing a 10.6% decrease from the previous year. The pandemic impact became evident in 2020, when use of force declined further to 128 cases—a 24.3% decrease from 2019 levels and 32.3% below the 2018 baseline. This represented a more moderate pandemic decline compared to other agencies.

The post-pandemic period demonstrated variable increases, which began in 2021 with 148 reports, representing a 15.6% increase from 2020 but remaining 12.4% below 2019. However, reports declined to 132 in 2022, representing a 10.8% decrease from 2021 and the lowest count since 2020. In the following year (2023), the agency experienced a dramatic surge with 202 reports, representing a 53.0% increase from 2022 and exceeding all previous annual totals by 6.9% above the 2018 baseline. This peak was

followed by a decline to 147 reports in 2024, representing a 27.2% decrease from 2023 but remaining 15.0% below the 2018 baseline.

Figure 35. Long Branch Police Department Use of Force Counts by Year (2018-2024)



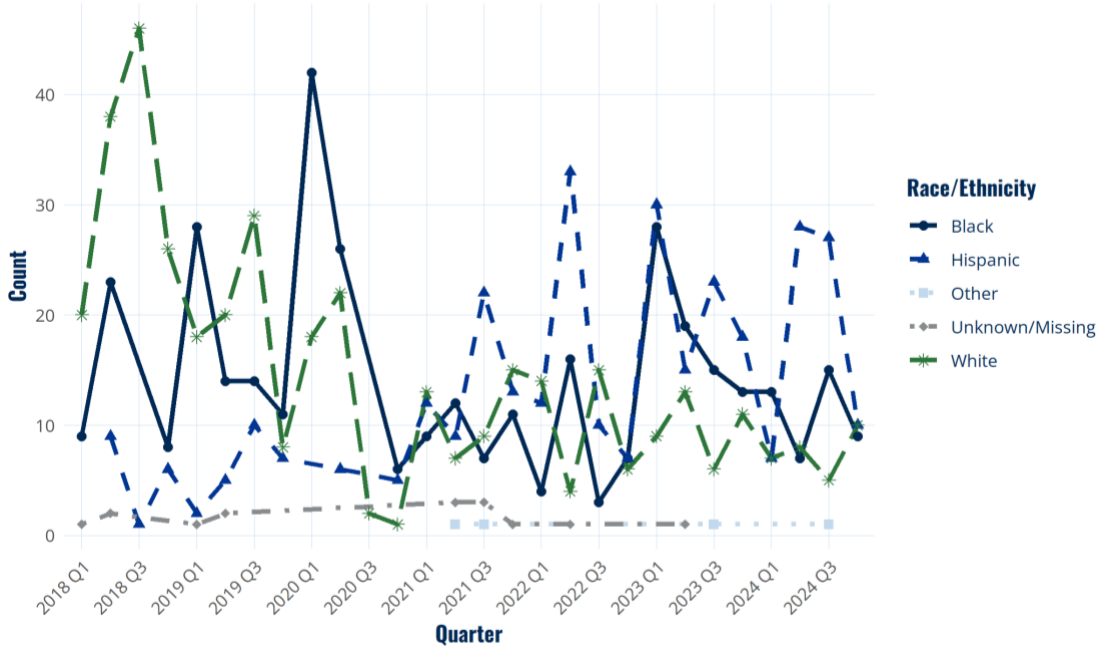
Use of Force by Race/Ethnicity

The quarterly demographic analysis in **Figure 36** reveals a complex and highly variable pattern across racial and ethnic groups, with no single group consistently experiencing use of force. Black individuals experienced quarterly report counts ranging from approximately 5 to 45 cases, with notable peaks during 2019 (approximately 42 reports in Q1 2020) and variable patterns throughout the post-pandemic period.

Hispanic individuals showed significant variation each quarter, with reports ranging from about 5 to 35. The pattern indicates high volatility during the recovery phase, with notable peaks in 2022–2023 (reaching around 32–35 reports in several quarters) and then decreasing to more moderate levels in 2024. White individuals experienced more fluctuating patterns each quarter compared to others, with report counts ranging roughly from 0 to 45.

The demographic composition shows considerable temporal shifts, with different groups predominating during different periods. White individuals often represented the largest group during the pre-pandemic period, while the post-pandemic period shows more balanced distributions across Black, Hispanic, and White individuals.

Figure 36. Long Branch Police Department Quarterly Use of Force Counts by Subject Race and Year (2018-2024)



Injuries During Use of Force

The injury analysis in **Table 42** reveals the most dramatic changes among all four agencies, with substantial improvements in safety outcomes between the pre-period (Jan 2018–Sep 2020) and post-period (Oct 2020–Dec 2024). Subject injuries decreased dramatically from 418 to 123 cases, representing a 70% reduction in absolute terms. Monthly subject injury rates declined substantially from 12.7 to 2.4 injuries per month (88.1% reduction), indicating sustained improvements in civilian safety. Most remarkably, subject injury rates plummeted from 88% in the pre-period to 20% in the post-period, representing a 78% reduction in the proportion of use of force reports resulting in civilian harm. This represents the most substantial improvement in civilian safety among all agencies analyzed.

Officer injuries remained relatively stable, with counts declining modestly from 57 to 56 cases. Monthly officer injury rates decreased from 1.7 to 1.1 injuries per month (a 35.3% reduction). Officer injury rates declined from 12% in the pre-period to 9% post-period, representing a 27% reduction in the number of encounters resulting in officer harm. The data indicates that Long Branch PD experienced transformative improvements in civilian safety while maintaining stable officer safety outcomes. The dramatic reduction in subject injury rates from 88% to 20% represents the most significant safety improvement

observed across all agencies. It stands in stark contrast to increases in injury outcomes across other departments.

Table 42. Long Branch Police Department Force-Related Injuries Comparisons

Type	# Injuries (Pre)	# Injuries (Post)	Injury Rate (Pre)	Injury Rate (Post)	Avg. Injuries / Month (Pre)	Avg. Injuries / Month (Post)	Avg. Injuries / Month Δ %*
Subject	418	123	88%	20%	12.7	2.4	-88.1%
Officer	57	56	12%	9%	1.7	1.1	-35.3%

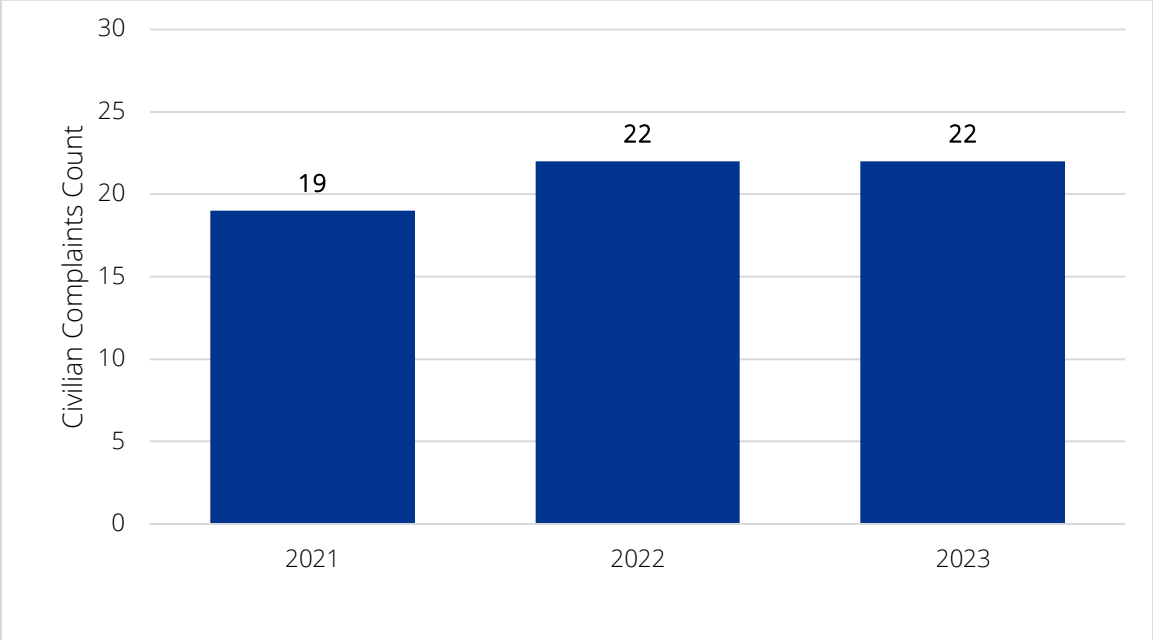
Pre-period = Jan 2018–Sept 2020; Post-period = Oct 2020–Dec 2024.; Rates = injuries ÷ force reports; Injuries per month normalize for unequal period lengths.
*Note that the percent change reflects the comparison of small numbers.

Civilian Complaints

Long Branch Police Department received moderate levels of civilian complaint activity during the observation period. Of the 91 total complaints, 28 (31%) were agency-filed and 63 (69%) were civilian-filed. Of those 63 civilian complaints, only 4 (6%) were sustained according to internal disposition. The sustained rate of 6% (4 out of 63 civilian complaints) falls between Perth Amboy's 3% and Camden's 11%, indicating moderate substantiation rates for civilian allegations.

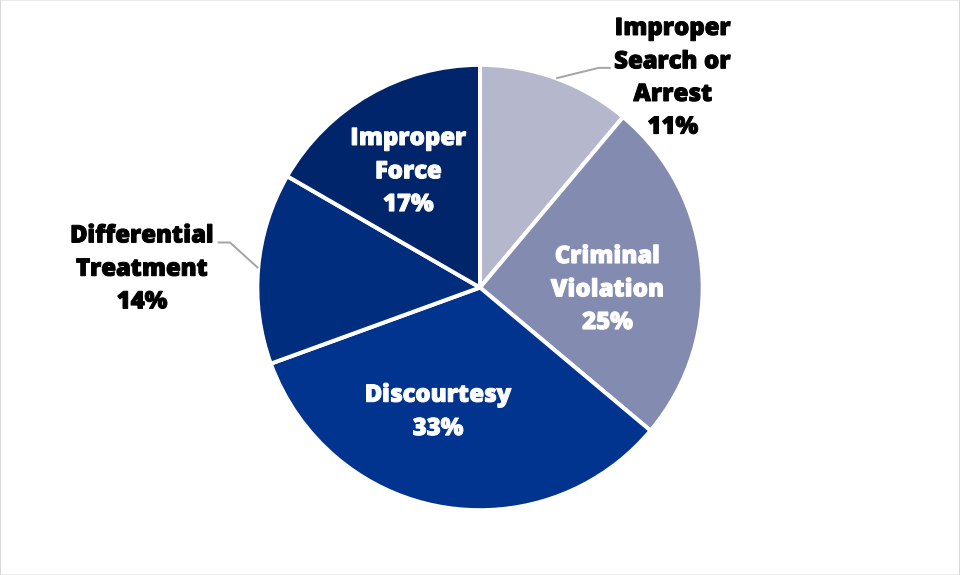
The temporal pattern of civilian complaints in **Figure 37** reveals relative stability. In 2021, civilians filed 19 complaints against Long Branch PD officers. This figure increased to 22 complaints in 2022 and 2023, representing a 15.8% increase from 2021 to 2022 and stability thereafter.

Figure 37. Long Branch Police Department Civilian Complaints by Year (2021-2023)



The analysis of civilian complaint types shown in **Figure 38** reveals a more balanced distribution across categories compared to other agencies. "Discourtesy" comprises the largest category with 12 complaints, accounting for 33% of all civilian complaints in defined categories, and includes three of the four total agency sustained complaints. "Criminal Violation" complaints account for nine cases (25% of defined complaints), representing a substantial proportion of serious misconduct allegations. "Improper Force" complaints total six cases (17%), indicating notable community concerns about force application. "Differential Treatment" complaints comprise five cases (14%), while "Improper Search or Arrest" accounts for four complaints (11%). Of these 36 complaints, only three were determined to be sustained after investigation, all for discourtesy.

Figure 38. Long Branch Police Department Categorized Civilian Complaints, Excluding "Other" Complaint Categories, 2021-2023 (N=36)



Interrupted Time Series Findings

The pattern in use of force in Long Branch PD seemingly mirrors the findings in Perth Amboy PD at first glance (i.e., no change in Black uses of force, increase in Hispanic uses of force, and decline in White uses of force) at each post-period examined. These results are shown in **Table 43.** However, in Long Branch PD, the models estimating change in total use of force never reach statistical significance, suggesting that use of force was stable across all time periods. This contrasts with the race- and ethnicity-specific ITS models that show variations (consistently) for White (decrease) and Hispanic (increase) subject use of force counts at each post-period in the models. Thus, even where there is consistent stability in Long Branch (e.g., for total use of force counts), we can see deviations over time across White and Hispanic racial and ethnic groups (with Black subject counts remaining stable).

Table 43. Case Study Interrupted Time Series Models – Use of Force (Total and by Race) – Long Branch Police Department

Long Branch PD	B	SE	p-value
Total Use of Force			
ABLE Training	0.045	0.108	0.678
ICAT Training	0.048	0.110	0.660
Policy Change	0.011	0.110	0.917
Full Initiative	0.130	0.109	0.236
Black Use of Force			
ABLE Training	-0.015	0.198	0.958
ICAT Training	0.042	0.196	0.827
Policy Change	-0.102	0.106	0.336
Full Initiative	0.173	0.111	0.118
Hispanic Use of Force			
ABLE Training	1.05*	0.220	<0.001
ICAT Training	0.986*	0.216	<0.001
Policy Change	1.08*	0.223	<0.001
Full Initiative	0.848*	0.215	<0.001
White Use of Force			<0.001
ABLE Training	-0.772*	0.180	<0.001
ICAT Training	-0.777*	0.185	<0.001
Policy Change	-0.706*	0.177	<0.001
Full Initiative	-0.651*	0.200	<0.001

*Statistically significant at $p < 0.05$

SUMMARY OF CASE STUDY SITE FINDINGS

In examining the four police departments presented above—Camden County Police Department, Toms River Police Department, Perth Amboy Police Department, and Long Branch Police Department—we illustrate some of the nuances across the outcomes of interest that can be masked when assessing statewide trends. Camden County PD, the largest of the four departments, reported the greatest volume of use of force incidents and civilian complaints. The smallest department, Long Branch PD, demonstrated the lowest volume of uses of force but the second lowest volume of civilian complaints (second to Toms River PD). A summary of the changes across outcomes of interest in these four case study sites is provided in **Table 44.** Where outcomes show an increase, the box is shaded in light green, and where outcomes show a decrease, the box is shaded in light red. Changes in outcomes that are mixed or null are shaded in light gray.

Table 44. Summary of Changes in Outcomes for Case Study Sites

	Police Activities	Use of Force Trends	Subject Injuries	Officer Injuries	Civilian Complaints	Interrupted Time Series	Interrupted Time Series
	2018 to 2023	2018 to 2024	Avg. / Month	Avg. / Month	2021 to 2023	Total UOF	Race/Ethnicity – Specific
Camden County Police Department	Greater increase in UOF than in arrest and crime	Increase	Increase	Increase	Decrease	Increase in 3 of 4 models	Varied by subject and intervention point
Toms River Police Department	Greater increase in arrests and crimes than in UOF	Decrease	Increase	Increase	Decrease	Increase in 1 of 4 models	Varied by subject and intervention point
Perth Amboy Police Department	Similar increase across all 3	Increase	Increase	Decrease	Increase	Increase in all 4 models	Varied by subject and intervention point
Long Branch Police Department	Greater increase in UOF than in arrest and crime	Decrease	Decrease	Decrease	No change	No change	Varied by subject and intervention point

When looking at overall indicators of police activities (arrests, serious crimes, and use of force), both Camden County and Long Branch show increases in use of force from 2018 to 2023 that appear more drastic than arrests and crimes. In contrast, Toms River reports that arrests and crimes increased more sharply than use of force, and Perth Amboy experienced similar increases across all three indicators. Comparing 2024 use of force counts to each agency's 2018 baseline, two departments (Camden County and Perth Amboy) show increases, while the other two departments (Toms River and Long Branch) show decreases.

Trends in the average number of injuries per month also reveal differences in changes across the four departments. The average number of officer injuries per month in the post-period increased in two departments compared to the baseline period (Camden County and Toms River) but decreased in the other two departments (Perth Amboy and Long Branch). The average number of subject injuries per month in the post-period increased in three departments compared to the baseline period (Camden County, Toms River, and Perth Amboy) but decreased in Long Branch.

Similarly, changes in civilian complaints continue to demonstrate variation across sites. Perth Amboy increased in its volume of civilian complaints from 2021 to 2023, whereas Camden County and Toms River decreased, and Long Branch showed no change. Notably, Camden County shows a marked decline in 2023 counts, also aligned with the

timing of the full Initiative. While not shown in the table, it is essential to reinforce how uncommon it was for civilian complaints to be found as sustained after agencies' investigations. The largest percentage of sustained civilian complaints was found in Camden County, with only 11% resulting in this disposition. This percentage was lower in Perth Amboy (3%), Long Branch (6%), and Toms River (0%).

Interrupted Time Series (ITS) models showed similar variation within and across the four police departments, often contingent on the intervention point used in the model. Perth Amboy demonstrated significant increases in total use of force counts across all four intervention models (timing of ICAT training, ABLE training, statewide policy change, and full Initiative implementation). Camden County demonstrated significant increases in total use of force counts across three of the four models (ABLE training was not associated with a significant change). Toms River's total use of force counts significantly increased only after the statewide policy implementation, but not after ICAT and ABLE training or the period following the full Initiative. Long Branch did not demonstrate any significant changes in total use of force across any of the four models.

ITS models specific to the subject's race or ethnicity (Black, Hispanic, or White) also demonstrated inconsistency in the significance and direction of changes based on different subject and intervention points. Generally, agencies showed the same variation in race-specific models, with most showing significant increases for Hispanic individuals, decreases for White individuals, and no significant change for Black individuals. Importantly, these results confirm that the changes in these race- and ethnicity-specific use of force models, as well as all other outcomes shown in **Table 44** were not uniform across agencies**.**

X. DISCUSSION

Over the past decade, there has been substantial attention and movement towards reforming police practices in the United States, often with a focus on improving safety during interactions and building community trust. Various initiatives across agencies and regions have aimed to change organizational factors that may influence officers' use of force, including new or revised policies, training, supervision, and oversight. Unfortunately, most recommended practices for police use of force reform are not founded upon strong empirical support, as many promising ideas are rarely evaluated or replicated (Engel et al. 2020a; McLean et al., 2022). The challenge of finding solutions to reduce force and enhance safety is underscored by the difficulties in measuring and comparing force-related decisions and context across law enforcement agencies. These empirical limitations highlight the importance of documenting the implementation and impact of police reform efforts, such as those carried out in New Jersey.

The NJOAG's Use of Force Reduction Initiative ("Initiative") included a comprehensive set of changes designed to limit the use of force by New Jersey law enforcement while promoting increased accountability, professionalism, and transparency to strengthen communities' trust in law enforcement. Importantly, this Initiative also sought to improve consistency in how police handle potentially volatile interactions with the public across more than 500 law enforcement agencies and 31,000 sworn officers statewide. Because the strategy focused on minimizing police use of force (to the extent possible) and enhancing safety, this evaluation mainly examined trends related to police use of force, including injuries to officers and community members, though it also considered the impact on civilian complaints.

The evaluation of New Jersey's statewide Use of Force Reduction Initiative offers important lessons about the complexities of implementing uniform reforms across diverse policing contexts. While the Initiative represented a comprehensive, evidence-informed approach combining mandatory training, standardized policies, and enhanced accountability measures, our findings reveal a nuanced picture of reform effectiveness that varies significantly by agency context and implementation quality. A critical complication emerged from the transition to standardized data collection during the study period, which improved data quality but created measurement discontinuities that affected most agencies, making it difficult to distinguish actual behavioral changes from reporting artifacts. Additionally, training implementation varied by agency context, with benefits appearing primarily in agencies with a lower risk of use of force incidents, while

those facing structural challenges showed minimal improvement from the uniform interventions.

The discussion that follows examines these patterns in detail, explores how data quality issues affected our ability to detect Initiative impacts, acknowledges methodological constraints, and provides evidence-informed recommendations for more targeted, context-sensitive approaches to both police reform and its evaluation.

FINDINGS RELATED TO USE OF FORCE

Our series of quantitative analyses on use of force and injury during force events, drawing upon crossover regressions, quantile regressions, group-based trajectory modeling, and logistic regressions, demonstrates a few consistent thematic patterns. The results suggest that use of force trends, including injuries for subjects and officers, have not uniformly declined over time with the Initiative's implementation. There is no clear evidence that the mandated use of force training (ABLE peer intervention or ICAT de-escalation training) had any direct impact on officer use of force behaviors when agencies crossed over from untrained to trained. This is true for overall use of force counts and for officer injury counts. However, considering subject injuries, we found a modest but significant increase in subject injuries long-term after the use of force training across New Jersey police agencies.

Statewide models assessing the full implementation of the Initiative (training and policy) suggested there were significant increases in total use of force (+9.5%), officer injuries (+15.4%), and subject injuries (+21.5%). The differences in increases across these three outcomes were not statistically significant. Additionally, across *all* long-term crossover models, we found results suggesting that use of force events involving Hispanic individuals significantly increased. Use of force events involving White individuals and Black individuals did not meaningfully change. However, these models used pooled data to assess statewide trends, which masked individual-level variation across counties and departments and could not account for event-level situational characteristics that influence use of force decisions (see Limitations and Future section below for more detail).

Longer-term interrupted time series analyses, where they were possible to conduct, further illustrated that there were no broad, widespread, and diffuse changes in use of force patterns. Based on an agency-level analysis, these results suggest that agencies' use of force counts shifted in different directions, with most changes being non-significant. Of the few agencies that demonstrated significant changes, there were more

often increases than decreases. Variation in the average number of injuries per month before and after the NJOAG initiative across counties also reveals inconsistent changes across the state, even when overall statewide trends in injury counts appear to be continually increasing in recent years.

We also examined four "case study" law enforcement agencies to provide a more nuanced understanding of the Initiative's impacts on individual departments. The four departments—Camden Police Department, Toms River Police Department, Perth Amboy Police Department, and Long Branch Police Department—further illustrate variation in the Initiative's impacts. Camden Police Department showed mixed results, with significant increases in some use of force categories, significant decreases in others, and no changes in others, depending on the subject's race/ethnicity and the time period examined. Long Branch Police Department experienced no significant shifts in total use of force but showed the same racial/ethnic reclassification pattern observed statewide: significant decreases in White subject incidents and significant increases in Hispanic subject incidents. Perth Amboy Police Department and Toms River Police Department similarly demonstrated inconsistent patterns across different outcomes and time periods, reinforcing the absence of uniform Initiative effects across agencies.

New Jersey's more than 520 law enforcement agencies operate in highly diverse environments and demonstrate substantial variability in use of force patterns, including incident rates, frequency, and associated injury risk. The heterogeneous nature of these agencies and their use of force patterns highlight the challenge of producing uniform outcomes from a statewide use of force reduction initiative that fails to account for this diversity. Moreover, the consistent association between high fidelity ABLE peer intervention training (the shorter and more condensed training program compared to the more complex ICAT program)[44] and lower levels of subject injuries reveal a telling pattern about organizational receptivity to use of force reform. The GBTA results demonstrate that agencies that were low in subject injuries in force events *after* peer intervention training were also *lower* before peer intervention training (given the stability of the trajectory groups from 2021–2024). This suggests that agencies with lower baseline use of force risk may be better positioned to implement training with high fidelity and maintain supportive organizational cultures, particularly when they are not managing frequent use of force incidents that strain resources and attention. Though we cannot be certain that this finding is simply due to the differences in the difficulty of

[44] ABLE training is intended to be delivered as a single-day, 8-hour training program with role-play skill practice that only involves classroom participants. In contrast, ICAT is intended to be delivered as a two-day, 12-hour training program with robust scenario-based skill practice that includes bringing in role-players from outside of the classroom. It was likely more cumbersome for agencies to maintain fidelity to the ICAT training model during the lengthy training period required to train all officers across the state.

implementing each program with fidelity during a training period that lasted more than 12 months and covered over 30,000 officers.

Conversely, training fidelity was unrelated to use of force patterns in higher-risk agencies experiencing frequent incidents and injuries. These agencies likely need tailored interventions addressing their specific contextual challenges rather than uniform statewide approaches. A recurring theme in *Report 3: Lessons Learned from Implementation* is that law enforcement executives perceived the lack of customization to local contexts as a primary limitation of the NJOAG's Use of Force Reduction Initiative. It is likely that those in higher-risk jurisdictions require more customization in reform efforts to effectively reduce use of force events. Furthermore, executives noted that several factors influencing officers' use of force remain unaddressed by the NJOAG's standardized interventions. These include supporting responses to specific call types (e.g., mental health-related calls for services) that may escalate to force more frequently, ongoing officer confusion about reporting requirements under the new policy, and broader shifts in police-community interaction dynamics.

We are **not** suggesting that the de-escalation training, peer intervention training, and use of force policy requirements implemented by the NJOAG did not work as intended, especially given the heterogeneity in use of force outcomes by county and how the training was delivered across the state. Instead, we can confirm that it did not cause any sizable and uniform shifts in the use of force in New Jersey. There may be many reasons for these findings. When examining national trends, New Jersey is not the only region experiencing recent increases in force-related outcomes. Four of the five largest U.S. cities (New York City, Chicago, Houston, and Phoenix) have reported sizable increases in 2024 use of force counts compared to 2023.[45] We also demonstrated that there have been similar increases in police arrests and offenses reported in New Jersey during the study period, suggesting that an overall increase in police interactions with the public could be affecting the prevalence of officers' use of force.

In interviews conducted as part of this study, law enforcement executives suggested that changes in officers' reporting may have contributed to the increase in use of force events over time (see *Report 3: Lessons Learned from Implementation)*. Specifically, executives observed that officers have experienced confusion with reporting requirements outlined within the statewide use of force policy and may be over-reporting low levels of force application as a precautionary measure—electing to over-report rather than risk non-

[45] Chicago PD (+23.4% change): 2,544 UOF incidents (2023) to 3,138 incidents (2024); Phoenix PD (+7.9% change): 1,485 UOF incidents (2023) to 1,602 UOF incidents (2024); Houston PD (+99.5% change): 4,566 UOF incidents (2023) to 9,110 UOF incidents (2024); New York City PD (+20.1% change): 9,777 UOF incidents (2023) to 11,746 UOF incidents (2024).

compliance with policy requirements. Although we were unable to examine changes across types of force, it is plausible that increases in the lower levels of force (e.g., take down, using arms/hands) have contributed to the overall increase in use of force reports. Research suggests that certain low levels of force, such as OC spray, strikes, or restraints, can increase the likelihood of civilian and officer injury, which may contribute to the increases in injury found here (MacDonald et al., 2009; Stroshine & Brandl, 2020).

Specific to the findings related to increases in use of force incidents involving Hispanic subjects, there are a few plausible explanations. First, this increase might reflect an overall growth in the Hispanic population across New Jersey. The most recent 5-year Census estimates from 2023 suggest that the population of Hispanics in New Jersey has increased in recent years to approximately 2.03 million (or about 21.9% of the state's total population) from the 2.00 million (or about 21.6% of the state's total population) noted in the 2020 census (U.S. Census Bureau, n.d.a; U.S. Census Bureau, n.d.b). However, the magnitude of the observed increase in Hispanic subject use of force incidents far exceeds what this modest demographic change (0.3 percentage points) could explain.

Quarterly patterns in use of force trends suggest the increase in reported use of force incidents involving Hispanic subjects may be a measurement artifact. For example, while total use of force counts remained relatively stable after 2020, reported incidents appear to have shifted from the White subject category (which decreased from their pre-2020 levels) to the Hispanic subject category (which increased dramatically). The NJOAG's requirement for ethnicity documentation in use of force reports represented a fundamental change in data collection. Law enforcement officers traditionally filled out subject races based on UCR reporting standards, which typically reflected race categories such as White, Black, or Other, with ethnicity usually not required (McCormack et al., 2023). Our review of original PDF reports from individual departments confirmed that many agencies did not capture ethnicity data prior to October 2020—they only collected race. Under these previous systems, Hispanic individuals were likely classified simply as 'White' or ‘Other’. The new uniform use of force reports submitted to the NJOAG use of force data collection platform require officers to fill out the subject's ethnicity. This data quality improvement, while beneficial for future monitoring and more accurate demographic tracking, creates the appearance of increased Hispanic incidents when the underlying police behavior likely remained stable.

Finally, and most critically important to the discussion on statewide impacts on police use of force, is that most agencies in New Jersey experience very few use of force events. It speaks volumes that almost three out of every four agencies in New Jersey had so few uses of force that detecting a meaningful change would be virtually statistically

impossible—illustrating the rarity of use of force encounters across the state (at least at the agency-level). Therefore, in these jurisdictions where force is already an incredibly rare event, it is possible that these new policy restrictions and training programs do little to change those rare occurrences that result in force, nor would we be able to detect meaningful changes in our evaluation.

FINDINGS RELATED TO CIVILIAN COMPLAINTS

We reviewed trends in civilian-initiated complaints against law enforcement officers that resulted in an agency investigation. Reductions in complaints were expected following the Initiative, given its emphasis on treating individuals with dignity and respect, holding officers to a higher professional standard, and strengthening the public's trust. Due to the limited data available, we were unable to isolate any direct impacts of the Initiative. This became especially challenging when narrowing our focus on complaint categories of practical interest and attempting to isolate complaints that were sustained.

Overall, civilian complaints did not change drastically from 2021 to 2023, with 2023 counts showing a 9% decrease from the previous year but a 3% increase from the 2021 baseline. Complaints for improper force stayed relatively stable, representing 17% of all categorized complaints in 2022, 15% in 2022, and 19% in 2023. Considering the specific counts of complaints for improper force, there was a noticeable decline in 2023 data, where complaints dropped to 789 from higher records in 2021 (n=848) and 2022 (n=867), representing a 9% decline during the time period for which the Initiative was fully implemented. Only 19 of the 2,504 complaints related to improper force for the three-year period were sustained—less than 1% of the total.

Importantly, we found there was an extremely low rate of sustained civilian complaints (8%). Among the sustained civilian complaints, "Discourtesy" overwhelmingly dominated with 260 sustained cases, representing 90% of all sustained civilian complaints. This concentration indicates that civilian complaints about officer demeanor and interpersonal conduct are both the most frequently filed and most likely to be sustained through internal affairs processes.

However, an essential limitation emerged from the lack of actionable information included in this data set. The extensive use of 'Other' and 'Not Provided' categories severely limits the utility of this data for meaningful analysis and indicates a need to improve this metric to be more comprehensive to derive conclusions related to measuring professional policing. Given this study's consistent suggestions of the need to identify "risk and need" for more customized, tailored use of force training and policies,

and subsequent follow-up (through policy and practice), the use of complaint data as a risk factor tool and proxy indicator in this manner would be particularly worthwhile. However, as the data stands now, and in the way they are populated currently, there is little that can be gleaned from "other, not available, not reported, and unknown" information. Improving internal affairs and complaint reporting structures—similar to the successful enhancement of statewide use of force data collection overall—would increase the value of this outcome measure for both individual agency improvement and statewide policy development.

LIMITATIONS AND RECOMMENDATIONS FOR THE FUTURE

Our reliance on aggregate-level data for the analyses introduces several limitations that affect the implications of the findings. Specifically, aggregate-level data compresses and obscures contextual details that are essential for understanding the dynamics of use of force incidents (National Academies of Sciences, 2018; Terrill & Reisig, 2003). Despite employing the most rigorous analytical approaches available—including interrupted time series, quantile regressions, and trajectory modeling—our models were constrained by missing contextual variables due to data limitations. Critical contextual factors—including legal justifications, event sequences, civilian resistance levels, authority maintenance concerns, and bystander presence—were unavailable in the data, limiting our understanding of factors that influence officer decision-making during use of force incidents (for more detail, see Piza et al., 2023). As such, caution must be taken when interpreting results due to the incomplete nature of the analyses. Further, without being able to link use of force data to arrest data, we are unable to assess the correlates that might predict the type of encounters that result in use of force and whether those shifted before and after the reform initiative.

Training and policy covariates were aggregated to the county-level (for ABLE and ICAT training) and state-level (for post-2022 policy change and the post-2023 full Initiative period, including policy and training completion). While agencies transitioned from untreated to treated conditions at similar time intervals (within 6 months) over the multi-year period, and we employed a balanced methodological framework with equivalent pre/post periods, our findings were still derived from a nonrandomized design. Future studies employing a randomized crossover of aggregated agencies would isolate the potential effects of training and policy with far more precision (see Hu & Hoover, 2016).

The inability to conduct long-term count analyses (via interrupted time series models) on the vast majority of agency databases due to the shift from agency-specific use of force reporting structures to the statewide electronic system limits our ability to estimate long-term impact (beyond measurement changes) for most agencies. On the one hand, the crossover regressions that relied on short (six-month), medium (nine-month) and long-term (12-month) pre/post balanced periods provided a comprehensive footprint as to the changes in use of force counts for the pre-intervention (beginning mostly in 2021) period, it is concerning how many agencies had substantial changes in their reporting as a consequence of the post-2020 electronic statewide reporting system versus their agency-specific (and often paper-based) reporting system(s). For events as rare and as important as use of force events, it highlights many of the limitations even with official reports of force-related encounters.

Based on the findings, implications, and limitations discussed above, we have developed a series of recommendations for policymakers, law enforcement, and researchers in New Jersey and beyond.

1. **Interventions Should Focus on High-Risk Places:** Drawing upon the literature focused on applying the 80/20 rule (aka the Pareto Principle), a theory stating that 20% of any group accounts for 80% of the outcomes involving that group, we suggest that future statewide interventions should focus on the riskiest locations for use of force (see Kock, 1999; Eck et al., 2007). The most at-risk locations/agencies for force and injuries from force events can be identified through statewide data. By concentrating on the high-risk jurisdictions for force events (e.g., the "20%"), statewide efforts can be streamlined and more efficiently focus resources to reduce and prevent the use of force and increase safety.

   The statewide data collection protocol was a clear improvement in use of force record keeping because the count frequencies of force usage and injuries changed substantially in most agencies. We are confident that the NJOAG repository will make agency-specific risk identification and problem analysis for use of force attainable and useful to those agencies committed to using such data as a beneficial source of information.

2. **Tailor Interventions to Local Contexts:** Future statewide interventions should be tailored to individual contexts using problem analysis. As demonstrated in this study, agencies are not at uniform risk for use of force, and different local issues are likely to influence patterns of force and injury risk across various jurisdictions, especially when comparing large urban departments to small rural ones. Additionally, local agency culture, supervision, and leadership practices can

either strengthen or weaken statewide efforts. Conducting problem analysis is essential for creating solutions that address the unique problems within each jurisdiction (see Boba, 2003). We recommend that interventions begin by identifying specific issues and then customizing efforts to those contexts.

3. **Interpret Force Counts Alongside Police Activities:** Review trends in use of force and force-related injuries alongside calls for service, arrests, and criminal offenses in public-facing dashboards and reports and during command reviews. It is critical to provide additional context for overall police activities, including officer exposure to situations that might result in force, which will help to unpack patterns seen in use of force.

4. **Enhance Internal Affairs Reporting Structures:** The implementation of systematic data collection for use of force should also be mirrored in efforts to measure and report agency internal affairs (IA) information. This data contains critical information relevant to dissatisfaction from community members and is particularly relevant to assessing the appropriate use of force by police. However, many of the variables within the current IA data structure do not include useful or actionable information, with many details being comprised of "other," "not reported," or "unknown" responses.

5. **Measure Changes in Severity of Force:** An initial goal of this study was to assess the impacts of the Initiative on the severity of force, which we were unable to do. Future research should extract force types from the statewide use of force data, determine a severity index of use of force that corresponds to the statewide policy, and assess changes across each severity level. It is very possible that the increases in use of force reports demonstrated in some models may be due to increases in lower levels of force, where officers are attempting to avoid higher, more injurious types of use of force that could result in severe injury or death.

6. **Measure Changes through Body-Worn Camera (BWC) Footage:** Future studies would benefit from using a sample of video-coded police-citizen encounters to account for the influence of changes in situational features over time that corresponded with changes in the use of force. These could include measures directly correlated to de-escalation and peer intervention techniques, and other indicators specific to changes in the statewide use of force policy. Use of BWC footage could also better measure the transactional nature of interactions that result in police use of force and assess changes over time.

7. **Measure Public Perceptions in New Jersey:** While officers' use of force did not uniformly decline, we cannot determine the impact of this Initiative on public trust or perceptions of the police. We recommend that others evaluate how the public views NJOAG's efforts to limit police use of force and promote greater accountability and professionalism. If there is any measurable rise in public trust or a reduction in concerns about police behavior, these could indicate success.

CONCLUSION

The NJOAG's 2020 Use of Force Reduction Initiative represents a landmark effort to improve the safety and effectiveness of police-community interactions in New Jersey. Although the Initiative experienced challenges with consistent implementation across law enforcement agencies (see *Report 3: Lessons Learned from Implementation*), it produced several benefits: It was well-received by law enforcement across the state, led to measurable improvements in officer attitudes and perceptions to facilitate safe, effective interactions with community members (*Report 1: Impacts on Officer Attitudes and Self-Reported Behavior*), instituted a critically important uniform use of force data collection system, and helped to standardize the expectations for professional police interactions with the community. However, as the findings presented within this report suggest, the Initiative *did not* lead to uniform reductions in the use of force by law enforcement officers or reduce injuries to officers and community members. Instead, our evaluation shows inconsistent changes across key outcomes that varied across time periods and among individual law enforcement agencies.

The complex narrative offered by the present report aligns with the inherent complexities of implementing organizational change and reform in policing. In the wake of recent highly publicized deaths of Black Americans by police, scholars have highlighted reform challenges that are driven by the realities of government and the organizational, capacity, and resource constraints of police agencies (see, e.g., Lum, 2021). Indeed, the interdependent systems (e.g., leadership, supervision, training, technology, accountability) comprising police organizations require multi-faceted strategies and substantial oversight to support change (White et al., 2021). While state-level actors—like the NJOAG—serve an important role in transforming police practice, our findings suggest the value of tailoring reform efforts to individual agencies to ensure investment at the local level to accomplish the necessary system-wide changes. This evaluation also highlights the value of police-research partnerships in determining whether new or existing practices have their intended outcomes or produce collateral consequences.

We commend the NJOAG for inviting our research team to examine their ambitious Use of Force Reduction Initiative and all New Jersey law enforcement agencies who participated in the research process. Through evaluation, we can provide objective information to guide policy development and institutionalize the growing knowledge base to inform fair and effective policing practices. Law enforcement agencies' collaboration is essential for accumulating knowledge that is practical in the field.

In sum, this research aimed to build knowledge on the implementation and impact of large-scale use of force reform efforts in policing. This study is the first of its kind to examine a statewide initiative focused on reforming police use of force training, policy, and practice. It represents the most extensive evaluation of police reform, highlighting the experiences of over 500 police departments and 31,000 sworn officers in New Jersey. The findings offered by this research, outlined across three reports, provide essential insights on how to support the implementation and sustainability of future reform efforts, as well as methods to evaluate their implementation and impact.

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APPENDIX 1. COUNTY TRAINING DATES

Table 45. ICAT and ABLE Training Dates by New Jersey County / State Agency

	Training	Start Date	80% Trained Date	100% Trained Date	Total Officers Trained
Atlantic County	ABLE	9/21/2021	5/24/2022	9/21/2022	994
	ICAT	9/23/2021	6/9/2022	8/25/2022	991
Bergen County	ABLE	9/13/2021	6/13/2022	8/22/2022	2,502
	ICAT	9/13/2021	6/13/2022	8/22/2022	2,501
Burlington County	ABLE	8/3/2021	11/22/2021	3/25/2022	968
	ICAT	8/2/2021	11/17/2021	3/22/2022	963
Camden County	ABLE	7/13/2021	10/5/2022	2/9/2023	1,461
	ICAT	4/19/2021	11/17/2021	4/26/2022	1,543
Cape May County	ABLE	10/18/2021	2/23/2022	5/23/2022	526
	ICAT	10/19/2021	2/24/2022	5/24/2022	526
Cumberland County	ABLE	9/15/2021	2/9/2022	3/16/2022	384
	ICAT	9/17/2021	2/11/2022	3/18/2022	384
Essex County	ABLE	6/17/2021	5/17/2022	3/6/2023	2,302
	ICAT	6/17/2021	5/17/2022	2/24/2023	2,871
Gloucester County	ABLE	8/2/2021	11/22/2021	3/16/2022	819
	ICAT	8/3/2021	11/23/2021	3/17/2022	815
Hudson County	ABLE	9/14/2021	4/29/2022	11/24/2022	2,317
	ICAT	9/14/2021	4/28/2022	12/10/2022	2,263
Hunterdon County	ABLE	6/21/2021	12/16/2021	2/7/2022	259
	ICAT	7/16/2021	12/17/2021	2/8/2022	259
Mercer County	ABLE	9/21/2021	3/17/2022	11/28/2022	1,046
	ICAT	9/20/2021	3/8/2022	11/21/2022	1,041
Middlesex County	ABLE	8/10/2021	11/16/2021	3/14/2022	1,915
	ICAT	8/9/2021	12/14/2021	3/7/2022	1,916
Monmouth County	ABLE	8/10/2021	3/4/2022	5/31/2022	2,014
	ICAT	8/2/2021	4/4/2022	5/12/2022	1,978
Morris County	ABLE	6/16/2021	2/15/2022	5/11/2022	1,317
	ICAT	1/12/2021	2/9/2022	10/16/2022	1,319
Ocean County	ABLE	9/7/2021	8/9/2022	1/9/2023	1,191
	ICAT	9/9/2021	9/9/2022	1/11/2023	1,198
Passaic County	ABLE	7/8/2021	3/22/2022	12/13/2022	1,801

	ICAT	8/19/2021	3/31/2022	12/15/2022	1,813
Salem County	ABLE	6/14/2021	4/18/2022	4/18/2022	214
	ICAT	9/1/2021	4/11/2022	4/11/2022	204
Somerset County	ABLE	8/2/2021	11/15/2021	3/28/2022	853
	ICAT	8/3/2021	11/16/2021	3/29/2022	853
Sussex County	ABLE	10/14/2021	11/9/2021	4/12/2022	303
	ICAT	1/25/2022	3/24/2022	4/28/2022	303
Union County	ABLE	9/7/2021	3/3/2022	5/4/2022	1,889
	ICAT	9/9/2021	3/3/2022	5/6/2022	1,889
Warren County	ABLE	9/28/2021	4/26/2022	3/29/2022	204
	ICAT	10/5/2021	4/26/2022	3/1/2022	204

**All information collected through training rosters or emails from county training coordinators to the research team.*

APPENDIX 2. CROSSOVER SUPPLEMENTAL ANALYSES BY EXPOSURE RISK

To assess the potential impact of conditional analyses, we culled the total number of use of force events across all reporting agencies for the entire study period. We then partitioned the distribution of agency reports into the following categories: bottom 50% (total UOF events < 75 total); top 50% (75 or greater total numbers of use of force); and the top 10% (520 total uses of force or greater). Regardless of training (ICAT or ABLE) training, and follow-up period (six, nine, or twelve months) the results were virtually identical to the overall findings: no suggestive impact of any short, medium, or long-term impact on use of force events in the pre/post training periods. The tables that follow highlight the midpoint (nine-month pre/post) across these three various contexts (highest use of force locales (top ten percent), and above/below average use of force locales).

Table 46. Poisson Regressions - Crossover Design (9 Month Pre/Post ABLE training) – Top 10% of Use of Force Agencies

	Model 1A Total UOF		Model 2A Black UOF		Model 3A White UOF		Model 4A Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	2.02*	0.149	1.47	0.208	0.636	0.209	0.221	0.229
Post-ABLE	0.002	0.072	-0.018	0.097	-0.133	0.086	0.157	0.087
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.141		0.168		0.061		0.137	
Wald X^2	215.3*		592.1		322.9		197.9	
# Obs	864		864		864		864	
# Agencies	48		48		48		48	

- Included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*p < 0.05, ** p < 0.01

Table 47. Poisson Regressions - Crossover Design (9 Month Pre/Post ICAT training) – Top 10% of Use of Force Agencies

	Model 1B Total UOF		Model 2B Black UOF		Model 3B White UOF		Model 4B Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	2.05*	0.157	1.56*	0.218	0.635	0.218	0.149	0.237
Post-ICAT	-0.007	0.071	-0.041	0.096	-0.133	0.084	0.160	0.085

Months	#	#	#	#
County	#	#	#	#
Pseudo R^2	0.141	0.208	0.167	0.140
Wald X^2	209.7	295.4	285.7	200.4
# Obs	864	864	864	864
# Agencies	48	48	48	48

- Included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*p < 0.05, ** p < 0.01

Table 48. Poisson Regressions - Crossover Design (9 Month Pre/Post ABLE training) – Top 50% of Use of Force Agencies

	Model 1A Total UOF		Model 2A Black UOF		Model 3A White UOF		Model 4A Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	1.35*	0.114	0.532	0.182	0.500	0.122	-0.621	0.188
Post-ABLE	0.031	0.052	0.003	0.079	-0.034	0.048	0.157	0.087
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.119		0.163		0.068		0.137	
Wald X^2	723.1*		665.2		372.9		197.9	
# Obs	4,680		4,680		4,680		4,680	
# Agencies	260		260		260		260	

- Included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*p < 0.05, ** p < 0.01

Table 49. Poisson Regressions - Crossover Design (9 Month Pre/Post ICAT training) – Top 50% of Use of Force Agencies

	Model 1B Total UOF		Model 2B Black UOF		Model 3B White UOF		Model 4B Hispanic UOF	
Parameter	**B**	**SE**	**B**	**SE**	**B**	**SE**	**B**	**SE**
Intercept	1.38	0.118	0.598	0.188	0.504	0.125	-0.665	0.192
Post-ICAT	0.029	0.051	0.003	0.079	-0.039	0.047	0.210*	0.071
Months	#		#		#		#	
County	#		#		#		#	
Pseudo R^2	0.118		0.163		0.069		0.147	
Wald X^2	727.5		664.4		385.7		706.5	
# Obs	4,680		4,680		4,680		4,680	
# Agencies	260		260		260		260	

- Included in Models (Results Available Upon Request; for parsimony estimates not included in table)
*p < 0.05, ** p < 0.01

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