Buffalo Micro Hot Spots: Research Brief

Practioner
Buffalo Police Department

Academic Partner
Buffalo State University

Project Completed
September 2023

Brief Issued
May 2024

Summary
The Buffalo Police Department partnered with researchers from Buffalo State University (SUNY Buffalo State) to conduct an evaluation of the micro hot spot strategy within the city of Buffalo.

This brief provides a high-level overview of an assessment conducted by Buffalo State University. Please email the Research Consortium for more information about this project or to learn more about the Consortium.

Background

Empirical studies show that gun-related violence tends to cluster in specific areas within a city, commonly referred to as hot spots. These concentrated locations, often across city blocks or street segments, account for a significant proportion of crimes committed within larger geographic areas, such as beats, precincts, communities, and neighborhoods. Police can address hot spots through a related policing strategy that focuses their resources on areas with a high concentration of criminal activity. Within this framework, the Buffalo Police Department evaluated their shooting data from January 2017 through October 2020, and found an increase in city-wide non-fatal shootings and gang-related shootings in 2020, and an increase in shooting activity specifically within existing hot spots. To address this issue, the Buffalo Police Department implemented a policing strategy targeting micro hot spots. The Micro Hot Spots Program focuses on smaller geographic areas identified by the Erie Crime Analysis Center.

Buffalo PD Response to Gun Violence

In 2021, the Buffalo Police Department engaged in a coordinated approach with the Erie Crime Analysis Center to divide hot spots into micro hot spots to reduce gun violence in Buffalo. The Erie Crime Analysis Center identified specific areas within the city where violent gun crimes occurred most frequently, based on shooting data, and calls for service. Analysts produced timed heat maps focusing on a four-hour time frame when most shootings or gun crimes occurred. They divided the city into 500- by 500-foot micro-grids, which resulted in 4,798 grids and approximately 4,700 useable locations, which excludes areas such as industrial structures, waterfronts or large parks. The department assigned officers through directed patrol to certain micro hot spots to deter crime through visible police presence and community interaction. Using a computer-aided dispatch system, officers logged activities and recorded time spent in assigned areas. The Buffalo Police Department deployed officers to specific micro hot spots (12 to 15 minutes during non-specific times, within an eight-hour shift), and instructed them to activate their patrol vehicle lights and use a community policing approach to engage citizens who might be in the area.

Evaluation Overview:

Researchers from SUNY Buffalo State analyzed the effectiveness of micro hot spot policing within Buffalo. The goal of the study was to examine citywide changes in gun violence and calls for service following the implementation of the program. Researchers used two measures of impact:

1. **Interrupted Time Series Analysis:** Researchers examined the levels of violent crime during the pre-intervention and the post-intervention periods. This analysis used data from January 2018 to May 2023 and examined the extent to which the micro hot spot program was associated with declines in gun violence and calls for service.

Key Findings

The time series analysis measured a 52 percent decrease in gun homicides and a 23 percent decrease in the levels of non-

gang-related shootings immediately after micro hot spot implementation. From mid-2022 through May 2023, Buffalo experienced an increase in calls for service involving gun possession, while overall shootings and related calls for service (i.e., shootings with injuries and shootings without injuries) declined.

2. Patrol Fidelity: While police officers were working within micro hot spots, they documented their times and locations in the CAD system to ensure they maintained "fidelity" to their assignments. Researchers assessed whether patrol officers spent 12 to 15 minutes within the micro hot spots, as directed, based on their reported "call out" times in those locations.

Key Findings

The data indicated that the shortest patrol within a hot spot was 14 minutes and the longest was more than 300 minutes. Erie Crime Analysis Center employees and police supervisors suggested some officers may have forgotten to sign out when they left their directed patrol assignments within hot spots. Still, many patrols lasted more than 25 minutes.

Due to the range in time spent at each micro hot spot, there is not enough information to suggest that these directed patrols did not meet their time limit of 12 to 15 minutes.

Overall, the analysis found a strong association between the Micro Hot Spot Program in Buffalo and a decrease in gun violence.

Recommendations

1. Start with a simple approach to identifying hot spots.
2. Use directed patrols in micro hot spot locations and reevaluate the program annually.
3. Impress upon directed patrol officers the 12-to-15-minute limit spent in the hot spots.
4. Identify the behavior of the directed patrol officers while "called out."
5. Clearly document the timeframe that directed patrol officers are "called out" in hot spots.
6. Monitor locations for new hot spots and maintain program.

Recommendations

Based on the findings of this evaluation, researchers offered the following recommendations:

1. Start with a simple approach to identifying hot spots.

Law enforcement agencies with plans to institute a micro hot spot program should start with a simple approach to identifying hot spot locations and then assign officers to these locations for short periods of time (i.e., 12 to 15 minutes). While departments develop more formal programs, police officers and citizens in the hot spot locations will become familiar with the plan.

2. Use directed patrols in micro hot spot locations and reevaluate the program annually.

This routine analysis is necessary to determine if the decline in gun violence continues well after the implementation of micro hot spot programs.

3. Impress upon directed patrol officers the 12-to-15-minute limit spent in the hot spots.

Supervisors should emphasize the importance of officers keeping track of time within hot spots. If there are extenuating circumstances that necessitate staying longer (e.g., engaged in a lengthy conversation with citizens), there should be a mechanism for documenting these events.

4. Identify the behavior of the directed patrol officers while "called out."

Police should engage with citizens using a community policing approach and document their interactions and the types of activities with citizens in hot spots.

5. Clearly document the timeframe that directed patrol officers are "called out" in hot spots.

Tracking the time of day and amount of time officers are called out is necessary for accurate record keeping and follow-up analysis.

6. Monitor locations for new hot spots and maintain program.

It is very likely that any decline in gun violence will level off in locations where the program is implemented. Departments should maintain the micro hot spot programs and identify locations where new hot spots emerge. Directed patrols also should be returned to warm locations that become hot again.

About the Research Consortium

An initiative of the state Division of Criminal Justice Services, the Research Consortium promotes criminal justice research and the use of data and evidence by facilitating partnerships between local practitioners and college and university-based researchers. The research design and conclusions detailed here are the sole work product of the academic partner that conducted the research. Neither DCJS nor the State of New York endorse the program, methodology or results.