Philadelphia CeaseFire

Findings from the Impact Evaluation

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Key Findings

The impact evaluation focused on two key questions: (1) were there significant reductions in shootings associated with the implementation of the Cure Violence model in Philadelphia? And (2) was the target area's reduction in shootings distinct relative to shooting trends in matched comparison neighborhoods?

- **Results show that CeaseFire was associated with a statistically significant reduction in shootings in Police Service Areas (PSAs) 221, 222 and 393. The reduction was equivalent to 2.4 shootings per month per 10,000 residents.**
  - *Comparing the 24 months before the implementation of CeaseFire to the 24 months after implementation shows that CeaseFire was likely associated with a 30 percent reduction in the rate of shootings in the three PSAs.*
- **The results also show that, in the five hotspot areas, CeaseFire was associated with a statistically significant reduction in both total shootings (victims of all ages) and shootings of individuals between the ages of 10 and 35.**
  - *The reductions were equivalent to roughly one shooting per month, per10,000 people and 0.8 shootings of young victims per month per 10,000 residents over 24 months.*
- **Although in some models comparison groups also showed reductions in shootings, these reductions were either not statistically significant or not as large as those in the CeaseFire target areas.**

What is Philadelphia CeaseFire?

Housed in Temple University's Center for Bioethics, Urban Health, and Policy at the Lewis Katz School of Medicine, Philadelphia CeaseFire is a gun violence prevention program that utilizes the Cure Violence Health Model. With its origins in epidemiology, the Cure Violence Health Model (http://cureviolence.org) treats gun violence as a disease; the model is designed to reduce the spread of gun violence through the process of interrupting the transmission of violence, targeting the highest risk, and changing community norms that have supported gun violence.

The first component of the model is to detect potential violent conflicts and interrupt them before they can become a shooting incident. To do this, staff members of CeaseFire, called Violence Interrupters (VIs), are trained in conflict mediations. In Philadelphia, program Outreach Workers (OWs) are also trained in mediation techniques. When a staff member hears about a budding fight, an active argument, or a potential retaliation, they meet with the feuding parties and use techniques designed to deescalate the fight. The second step is to identify and treat the highest risk community members. OWs serve as case managers for high-risk youth and young adults who have agreed to be part of the program. Participants recruited must meet at least four of seven criteria: (a) gang-involvement, (b) major player in a street-based drug organization, (c) violent criminal history, (d) recent incarceration, (e) reputation of carrying a gun, (f) recent victim of a shooting, and (g) must be between 16 and 25 years of age. They also must live in the target area. Each OW has a caseload of no more than fifteen participants; OWs mentor and support their participants in numerous ways, making more-than-weekly contacts, including home visits. With the emphasis on conflict mediation, street outreach and modeling pro-social behavior, the intermediate or short-term goal of the model is behavior change for high-risk youth and young adults. The last component in the implementation of CeaseFire involves mobilizing the community in order to change norms. Staff work to facilitate norm change by organizing the community to respond to violence through public education efforts, shooting responses, and events designed to convey the message to the community that violence is harmful to everyone, that it is unacceptable behavior, and that it can be stopped. These components, when taken together and implemented properly, should reduce aggregate levels of gun violence within the target area.

The background and rigorous training of the staff are essential ingredients to realize the model's intermediate goal of behavior change. Both the VIs and the OWs need to be seen as credible by young people, and thus, are carefully recruited. Many VIs are former high-level or well-known gang members who have changed their lives, often after time in prison. They should have long-established relationships in the target community and understand the daily routines of people who are involved in criminal lifestyles. Ideally, they should come from the same communities in which they are working.

The desired background for an OW is often similar to that of the VIs, though it is not as important to have an extensive criminal history. Whereas the main objective of the VI position is to intervene directly through conflict mediations, the daily tasks of OWs involve actively recruiting new participants, working closely with current participants through regular case management, and referring participants to services and resources, as needed. Program staff record their contacts and referrals in a continually-updated web-based database.

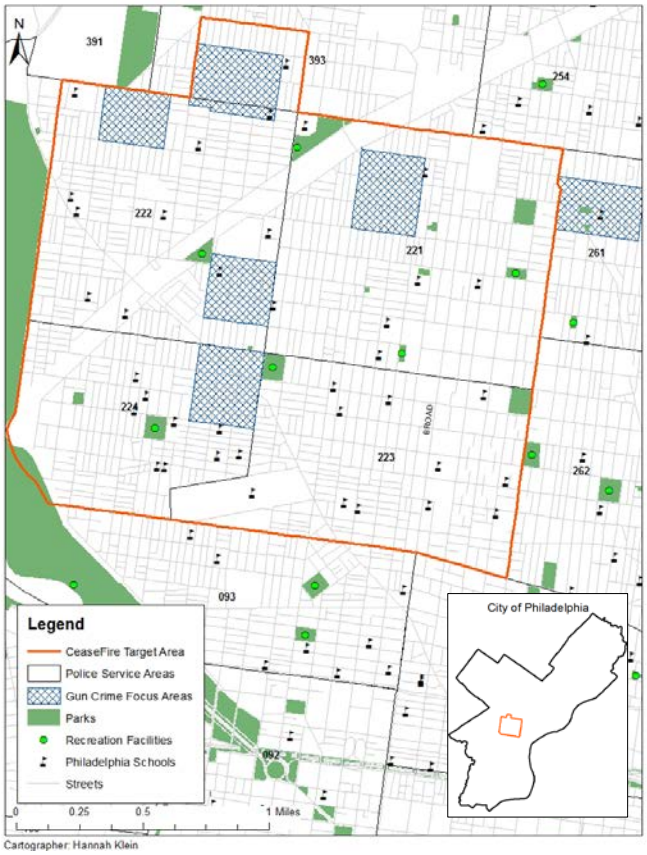
The Philadelphia CeaseFire team received initial training from the national Cure Violence office in February 2013 and the team received updated trainings on various topics (e.g., case management, data entry and management, conflict mediation, trauma-informed care) regularly throughout the program period. In addition, there were monthly calls between the Philadelphia leadership team and the National Office's site representative to discuss progress and troubleshoot any issues.

Which Neighborhoods are the Focus?

CeaseFire was implemented in North Philadelphia, focusing on the 22nd Police District (PD) and a very small part of the 39th PD—within Police Service Area (PSA) 393—which lies directly north of the northwestern border of the 22nd PD (see Figure 1). In partnership with the Philadelphia Police Department, this "target area" was selected as the focus for the program due to the high levels of gun violence in the PD that persisted over time (2009-2011). In 2011 and 2012, the 22nd PD had the highest rate of shootings and homicides of all 22 PDs in the city. Within the target area, there are 5 hotspots of gun violence that have a very high density of shootings and have remained hot over the years preceding the implementation of CeaseFire. As shown in Figure 1, four of five of these hotspots are situated within the northern part of the general target area, with the fifth hotspot contiguous with the southern border of PSA 222. The street outreach team reported that these hotspots coincided with the street locations of active street groups in this area. Although staff intervene in conflicts where needed throughout the larger target area, they were trained to dedicate most of their time in these hotspots, and to recruit program participants from these areas. For the majority of the first year of program implementation, CeaseFire staff spent their time in the northernmost hotspot areas. An examination of the locations of CeaseFire conflict mediations confirms this.

Although the 22nd PD covers less than 2.5 square miles and has approximately 4.7% of the city's population, in 2011, the 22nd PD represented 13% of all shooting victims. In addition to high rates of violence, the 22nd PD has one of the highest rates of concentrated poverty, a rate of child abuse and neglect that is 2.5 times higher than the city average, more than 40% of all residents in the district living below poverty, and less than 44% of the working-age population participating in the labor force.[1]

Figure 1. CeaseFire Target Area and Hotspot Focus Areas



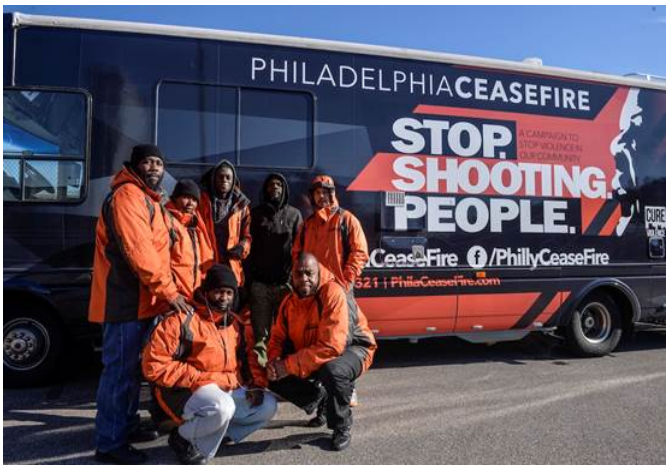
When Did CeaseFire Start?

In July 2011, Philadelphia CeaseFire received funding from the Pennsylvania Commission on Crime and Delinquency (PCCD) for an initial pilot program focusing on a small neighborhood within PSA 222. The pilot had three OWs but no VIs. In early 2012, Philadelphia CeaseFire approached the City of Philadelphia to ask for a partnership that would provide the basis to apply for a Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP) Community-Based Violence Prevention grant. In October 2012, the partnership was awarded a $1.5 million grant from

[1] City of Philadelphia, Philadelphia's Strategic Plan to Prevent Youth Violence, September 2013.

OJJDP to expand CeaseFire in the 22nd PD, essentially providing the funding for full implementation of the Cure Violence model. At full implementation, the staff grew to eleven total staff members: seven OWs, one part-time VI, a supervisor, a program manager, and a program director.

CeaseFire Staff with Winnebago



What Was the Evaluation Measuring?

The CeaseFire evaluation is designed to examine the impact of the program on aggregate-level shootings (fatal and nonfatal) in the target area. An impact evaluation is different from an outcome evaluation in that an impact evaluation tells you if the outcome of interest is attributable to the programmatic intervention itself. An outcome evaluation simply tells you what was achieved by measuring the change that has occurred. Impact measurement is a tricky business, and often involves establishing rigorous comparison or control groups, measuring potentially confounding variables that can be included in statistical models, and obtaining data over extended periods of time both pre- and post-intervention. This assessment of impact used a statistical design known as an interrupted time series. In this type of study, a monthly time series of shootings is established to model the underlying trend, which is then "interrupted" by an intervention (CeaseFire) at a known point in time. Without the intervention, one would expect that the trend continues unchanged. The expected trend, in absence of the intervention, is known as the counterfactual—and this counterfactual scenario allows one to compare the change occurring with the intervention in the post intervention period against the expected trend.

The current evaluation also compares the change due to the intervention against a set of carefully matched "comparison" areas. Because the CeaseFire staff focused their efforts almost entirely in the northern two PSAs (221 and 222) and part of PSA 393, centered around the groups/gangs and individuals involved in violence in the hotspots, the evaluation examines: (1) shootings in PSAs 221, 222, and a portion of 393 compared to matched PSAs, and (2) shootings in the smaller subset of neighborhoods that represent the targeted hotspots compared to matched neighborhoods. The impact models use the month of April 2013 as the beginning of intervention period. This month represents the month that CeaseFire was fully implemented—all components were in place—all staff had been formally trained by the national Cure Violence Program office in Chicago, mediations had begun, and there were 29 program participants across OWs at the end of April, compared to less than 10 participants in the preceding month.

Shootings include fatal and nonfatal criminal shootings (which exclude officer shootings and self-inflicted shootings). Shootings are counted at the "victim" level (i.e., one perpetrator shooting three people equals 3 shootings). Address-level data for all criminal shootings were received from the Philadelphia Police Department for the period 2003 through March 2015. Rates were created using the number of residents per Census Block Group. The evaluation assessed the effects of CeaseFire on total shootings (all ages of victims) and shootings of individuals between the ages of 10 and 35. The unit of analysis for the evaluation is monthly shooting rates per 10,000 residents. The time series models utilize 123 months in the pre-implementation period and 24 months in the post-implementation period.

Comparison areas were carefully selected using a statistical matching method known as propensity score matching (PSM). The target area was broken down into smaller units comprised of U.S. Census Block Groups (which contain, on average, between 600 and 3,000 people, and are much smaller than PSAs) and then comparison Block Groups were selected based on 9 relevant neighborhood measures that included the 2012 rate of shootings, policing activity, the

number of street gangs, density of probationers/parolees, presence of public housing, and U.S. Census measures of population characteristics. For the models examining the impact of the program on PSAs 221, 222 and 393, the PSAs that comprised at least 5 statistically matched Block Groups were selected to be the neighborhood comparison areas. For the models examining the impact on the hotspot areas, the matched Block Groups themselves were selected. (The shooting rate across these Block Groups was averaged to create a comparison interrupted time series model.)

What are the Evaluation Results?

Were there significant reductions in shootings associated with the implementation of the Cure Violence model (Philadelphia CeaseFire) in Philadelphia?

IN THE NORTHERN PSAs (PSAs 221, 222 and part of 393), the analyses suggest that the implementation of CeaseFire was associated with a statistically significant reduction in shootings. The reduction was equivalent to 2.4 shootings per month per 10,000 residents. Comparing two years before CeaseFire to the two years post-implementation of CeaseFire shows there was a 30% reduction in shootings. The reduction found post implementation in the rate of shootings of individuals between the ages of 10 and 35 was not statistically significant.

IN THE FIVE HOTSPOT AREAS, the analyses suggest that the implementation of CeaseFire was associated with a statistically significant reduction in both total shootings (victims of all ages) and shootings of individuals between the ages of 10 and 35. The reduction was equivalent to roughly one shooting per month, per 10,000 people and 0.8 shootings of young victims, per month, per 10,000. For the hotspot areas, comparing two years of pre-implementation shooting rates to post-implementation shooting rates, shows a 34% reduction in the rate of shootings (all ages of victims), and a 35% reduction in the rate of shootings of individuals between the ages of 10 and 35.

Was the target area's reduction in the shooting rate distinct relative to shooting trends in matched comparison neighborhoods?

In the Northern PSAs, examining the results of the models for the comparison PSAs shows that there was a significant reduction in the rate of shootings in the comparison area, but it was not as large as the reduction seen in the CeaseFire areas (-1.24 in the comparison area versus -2.40 in the treated areas). To further support the impact of CeaseFire, when comparing the targeted *hotspot* areas to the comparison neighborhoods, the comparison areas did not see a statistically significant decrease in the shooting rate for all victims or for victims ages 10-35.

Taken together, the results of the interrupted time series models suggest that CeaseFire was responsible for statistically significant reductions in gun violence.

A noted limitation that affects this study (and most other studies using quasi-experimental designs) is that the design cannot control for other policies or programs or events that could have affected the outcome variable. These are commonly referred to as competing interventions. To pose a threat to the study's validity, competing interventions must occur contemporaneously with CeaseFire. The research team members (who were not part of the implementation) were careful to catalog and collect information on other law enforcement activities and events that might have posed a threat (such as offender focus areas and U.S. Attorney's Office offender notification meetings) and concluded that these were not contemporaneous threats.

Acknowledgments

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