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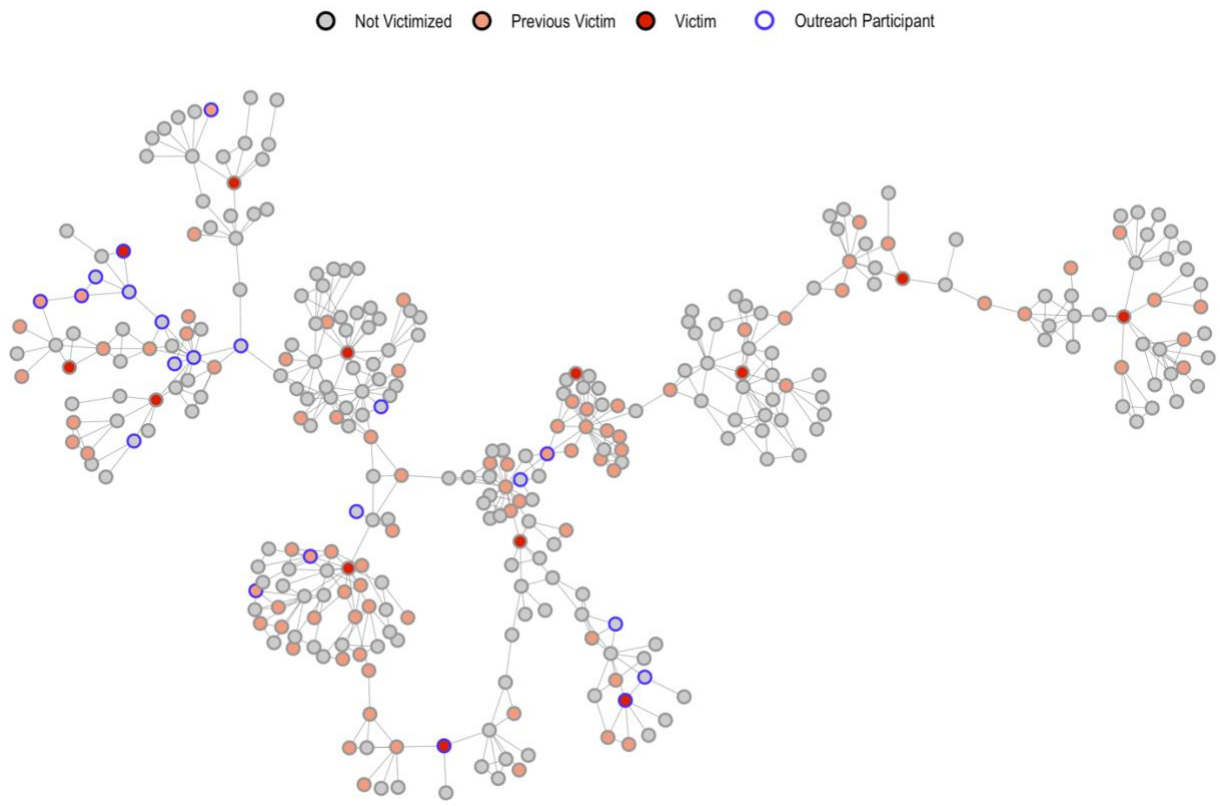

A Network Analysis of Three Weekends of Shootings in Chicago, June 18–July 5

Northwestern Neighborhood & Network Initiative, Institute for Policy Research, Northwestern University

SUGGESTED CITATION: Northwestern Neighborhood & Network Initiative (N3). 2020 (January 8). *A network analysis of three weekends of shootings in Chicago, June 18–July 5.* Institute for Policy Research Rapid Research Report. https://www.ipr.northwestern.edu/documents/reports/ipr-n3-rapid-research-reports-network-analysis-shootings-jan-8-2021.pdf

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"A Network Analysis of Three Weekends of Shootings in Chicago, June 18–July 5"

by the **Northwestern Neighborhood & Network Initiative (N3)**

at the Institute for Policy Research, Northwestern University

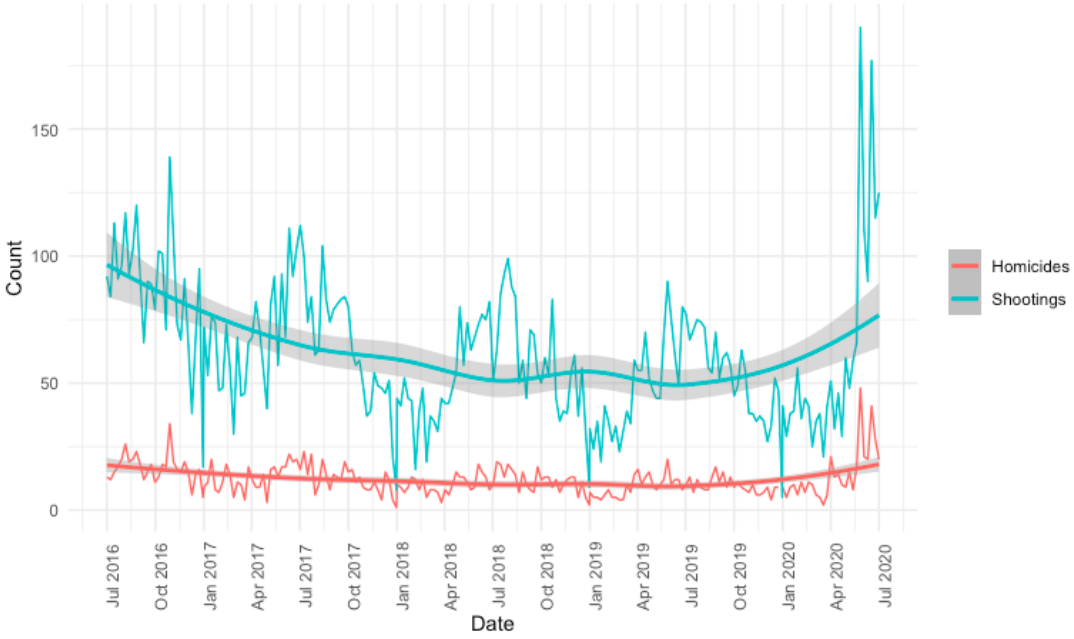
Executive Summary

- Homicides in Chicago have decreased steadily since a large spike in 2016. Homicides have increased in 2020, with the main increase in homicides occurring since June.
- The period between Father's Day and the Fourth of July was especially violent, with around 416 fatal and non-fatal shootings occurring from June 18–July 5.
- **Approximately 51% of the shooting victims during this period (214 victims) occurred within 108 small social networks.**
- Victims from the observation period had extremely high levels of exposure to prior shootings and victimization. **Most of the victims from this two-week period were connected to other shooting victims and 29% had at least one victim from the last five years in their immediate social network**. Rates in some networks during this time period were even higher.
- Some of the shootings during this period occurred within short time frames of each other. In one network, six shootings occurred within 62 days of each other; in another network, four connected shootings occurred within only 10 days of each other.
- **About 70% (149 of the 212) of the victims we identified had some police-identified affiliation with a gang faction.**
- Only a small percentage of gang factions were involved in gun violence during this time period, and 58 unique gang factions were associated with these shootings—just **6%** of all known factions.
- Street outreach had a notable presence in some of the networks during the observation period, but a significant number of victims were disconnected from outreach and possibly other services.

Introduction

At the same time that Chicago was battling a global health epidemic in 2020, it also experienced a surge in gun violence. After a spike in homicides in 2016, homicides and shootings steadily declined from 2017–19 once again dropping to pre-2016 levels (see Figure 1). As of July 29, however, homicides and non-fatal shootings in Chicago had risen 45% from the same time in 2019. While the levels of gun violence are escalating, gun violence continues to be concentrated in the same communities each year. Prior research also suggests that the victims—and likely the perpetrators—of gun violence concentrate in small identifiable social networks (Green, Horel, and Papachristos, 2017; Papachristos, Wildeman, and Roberto, 2015b). This report examines the shootings and homicides that occurred during one of the most severe upticks in 2020—the two-week period between Father's Day and the Fourth of July Weekend, between June 18 and July 5, 2020. By delving more deeply into this short-term period, this report aims to illustrate how understanding the networks in which gun violence occurred during an especially deadly outbreak of violence might inform policy and practice.

Figure 1: Number of Shootings and Homicides by Week Since July 2016



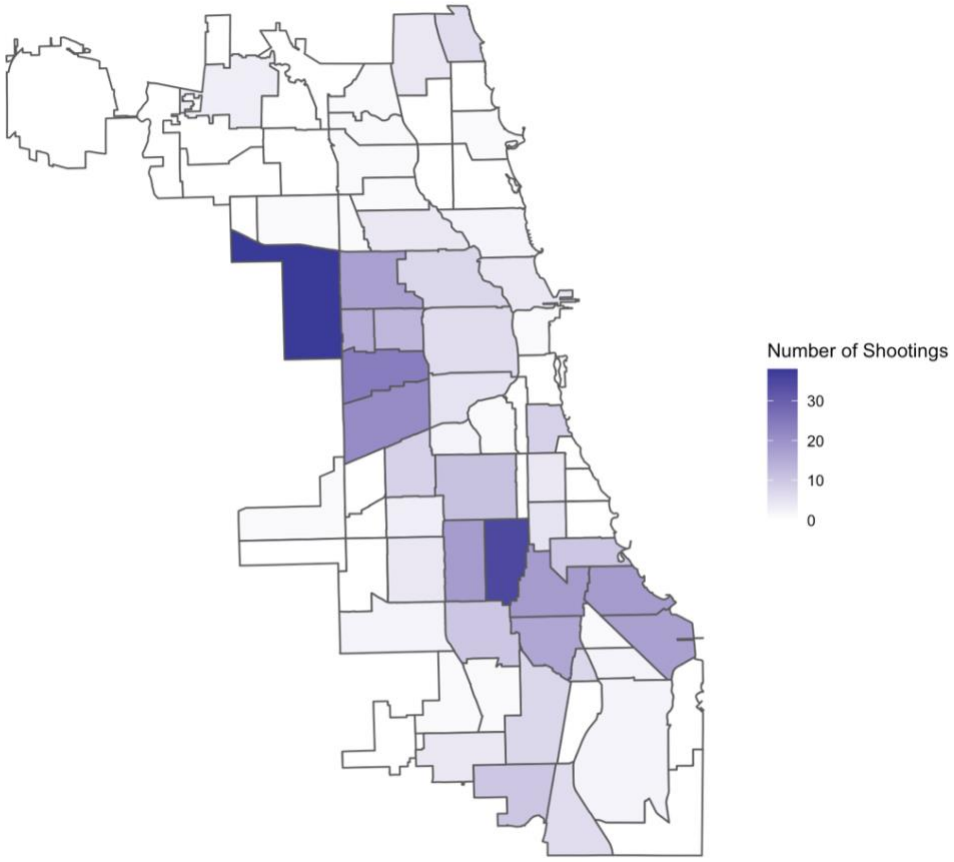
Part 1. The Shootings

Over the 18-day period from June 18–July 5, Chicago saw **416 shootings**, **74 of which were fatal**—a ratio of approximately 5.6 non-fatal shootings for each homicide. The average age of the victims during this time period was **approximately 28**, 46 (11%) of whom were younger than 18 and 10 (2.4%) younger than 12 (see Appendix, Figure A1). Most of the victims (88%) were male.

Where and When These Shootings Happened

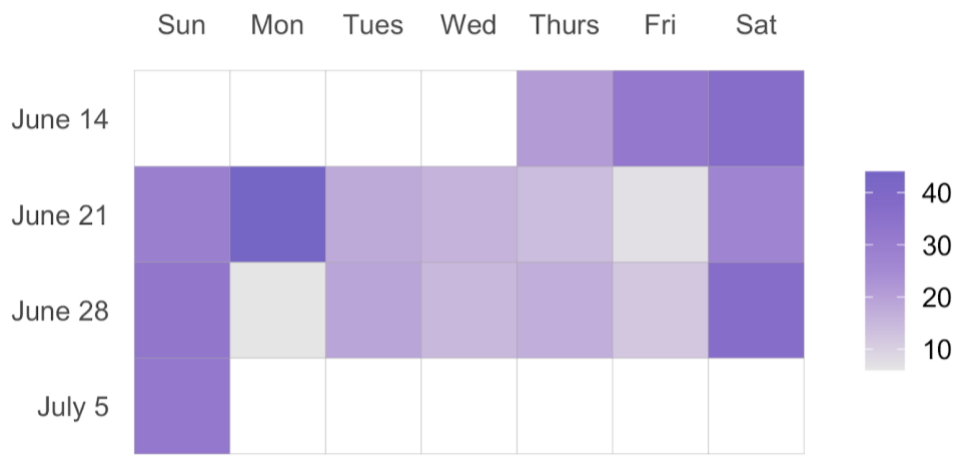
The shootings during this time period were concentrated in the same communities that continue to be deeply impacted by gun violence (see Figure 2), and 52 of the 77 Community Areas experienced at least one shooting, but the majority of shootings happened on the city's South and West sides (see the Appendix, Table A1). The most impacted communities during this two-week period were Austin and Englewood, with 38 and 35 shootings respectively.

Figure 2: Number of Shootings by Community Area, June 18–July 5



Consistent with prior patterns, the majority of these shootings occurred on weekends (between Friday and Sunday). However, Monday, June 22—the day after Father's Day—had the highest number of shooting incidents in a single day with 44. The following Monday, June 29, had the lowest number of shootings during the observation period, with six. Figure 3 shows a calendar with the number of shootings for each day.

Figure 3: Number of Shootings per Day, June 18–July 5, 2020



How many mass shootings?

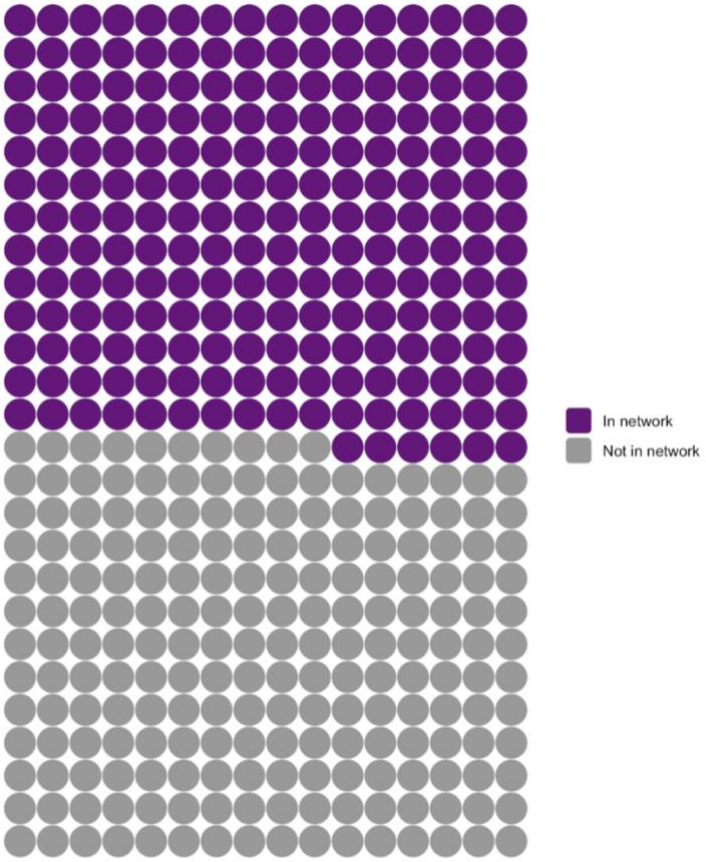
The 416 shootings during this time period occurred in **292 different events**. The majority of events, approximately 73%, involved only a single victim. However, **79 events (17.8%) involved two victims** and **27 events (9.3%) involved three or more victims.** Put another way, nearly one-third (**27%) of the shootings** during the period involved multiple victims, as seen in Table 1.

Table 1: Distribution of Shooting Events by Number of Victims

Number of Victims	Percent of Shooting Events
1 victim	72.95%
2 victims	17.81%
3+ victims	9.25%

Part 2. Connected: The Networks of Shooting Victims

Figure 4: Total Shootings by Network Status



Consistent with prior research (Papachristos, Braga, and Hureau, 2012; Papachristos, et al., 2015a, Papachristos, Wildeman, and Roberto, 2015b), a significant proportion of the shooting victims from June 18–July 5 could be located in a co-offending network (see Figure 4).[1] Based on our current estimates, **51% of shooting victims** from this two-week period could be located in a co-offending network (214 out of 416), with 129 victims having at least one co-arrest tie to another individual (e.g., individuals arrested together for an alleged offense). We use co-arrest only as a proxy for social connections and in no way to indicate any measure of culpability.

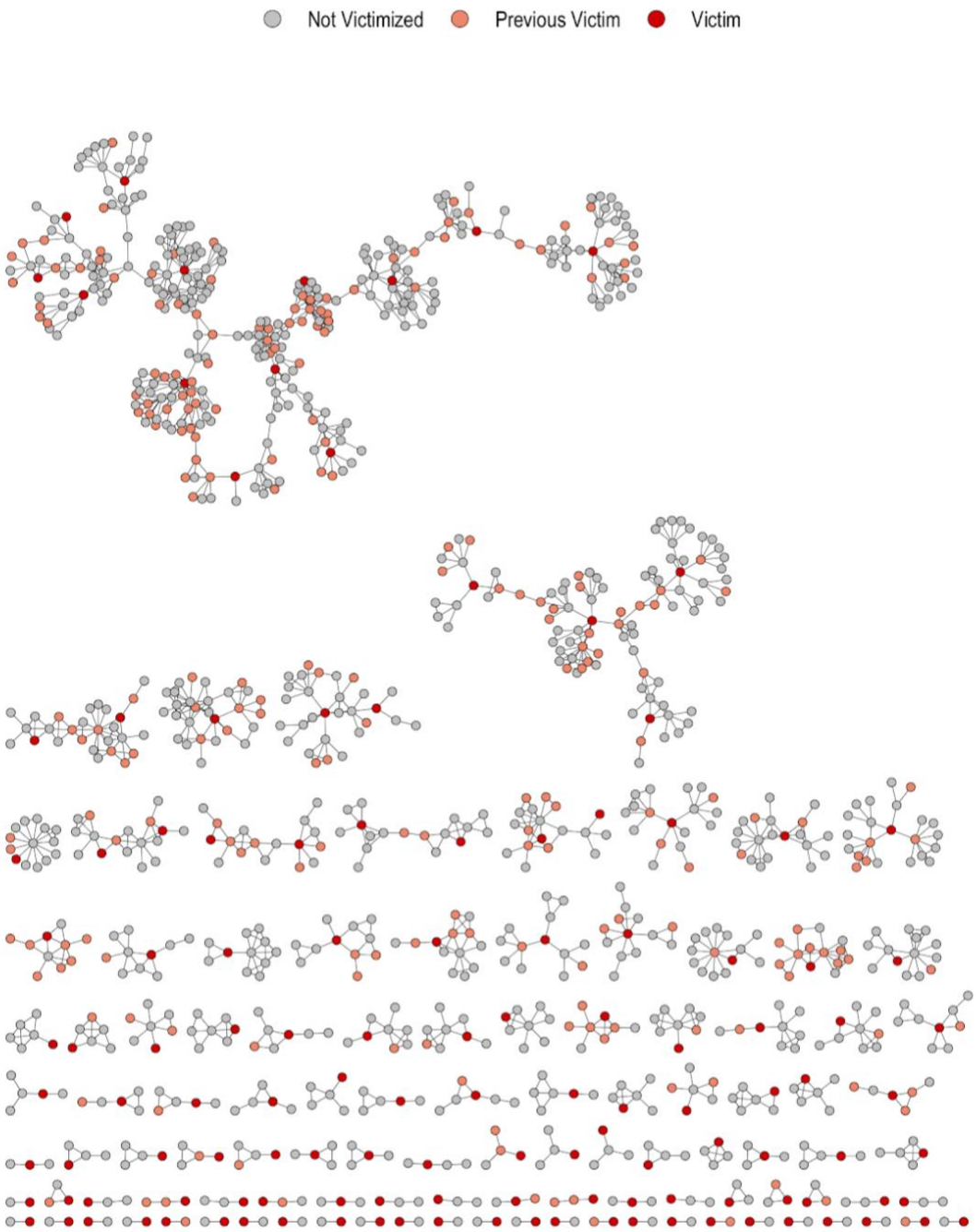
To visualize the shooting networks (Figure 5), we extracted the "**2-degree ego-networks**" around those 214 shooting victims. This means, for *each* victim identified, we extracted all of their "associates" (1-degree or "handshake") and "associates'" associates (2-degrees or "2-handshakes"). So for example, a person whom the victim knows is 1-degree or "handshake" in their network, and associates of associates (such as friends of friends) are 2-degrees/handshakes away from the victim, and so on. This creates a social network that represents those immediately surrounding the victim who might be at elevated risk themselves for gunshot injuries,[2] experiencing trauma, or otherwise being involved in the same disputes or networks involved in ongoing conflicts. Figure 5 (below) displays all of the networks of victims from this two-week period. The **red nodes** represent victims from June 18–July 5, while the **orange nodes** are victims from previous periods. The **grey nodes** are associates who have not been victimized. Ties represent at least one instance of co-arrest between individuals.

In total, the networks created from the 214 victims over this two-week period include roughly 971 other associates spread across 108 unique subnetworks that range from a size of two to a large subnetwork with 318 individuals. **Eight of these networks**—approximately 7.4%—contain more than one victim from the period in

[1] These figures were derived from CPD data on homicides and non-fatal shooting incidents in Chicago. Some of these data included duplicate and/or overlapping records. We have removed duplicates to the best of our ability, and as a result, exact counts may vary slightly, especially given ongoing investigations.

question. **Nearly half of them (47.2%) have at least one victim from the past five years**. At the same time, as can be seen in Figure 5, there are several larger network components with a great many gunshot victims.

Figure 5: All Components of a Co-Arrest Network (Excluding Isolates)



Part 3. Exposure to Prior Victims

One of the most important things we observe from the networks is the **high level of exposure to other** shooting victims prior to the event. Based on past research, high levels of exposure to gunshot injuries in one's network increases the risk of one's own victimization (Papachristos, Wildeman, and Roberto, 2015b), and these sorts of shootings might "cascade" through these networks over time (Green, Horel, and Papachristos, 2017). Similar patterns seem to be emerging from our preliminary analysis of the data for June 18–July 5.

On average, among those in the entire network, **1 in 10 (10.3%) of an individual's first-degree associates** were victims of gun violence. When looking at both first- and second-degree associates, i.e., peers *and* peers-of-peers, this metric doubles to **2 in 10 (20%)**. These levels of exposure are **two times higher** than previous research of citywide networks in Chicago shows.[2]

To illustrate this concentration of gunshot victimization in networks, Figures 6A through 6D below depict four networks from Figure 5. Once again, the concentration of victimization in these small networks is significantly higher than found in previous research. In Figure 6A, for example, there were **four** individuals who were victimized from June 18–July 5, and another 24 individuals prior to this period. The four victims during the observation period had high levels of exposure to a previous victim—approximately **28.6% of each victim's first- and second-degree associates were victims of prior shootings**.

A similar pattern is seen in Figure 6B where a single victim from the current period is connected to victims in **eight previous shootings**; in other words, **32% of the current victims' associates were victims**. Figure 6C shows 2 individuals victimized within the observation period and 8 previous victims. Finally, in Figure 6D, there were two individuals victimized within the observation period and six previous victims (see also the Appendix, Table A2).

[2] A 2017 study (Green, Horel, and Papachristos) finds that, on average, approximately 6% of victims' first-degree associates are gunshot victims and 6.3% of their second-degree associates are gunshot victims.

Figure 6A: Component A

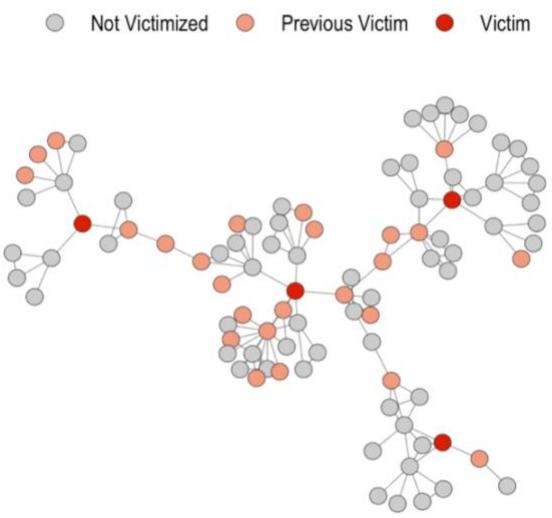


Figure 6B: Component B

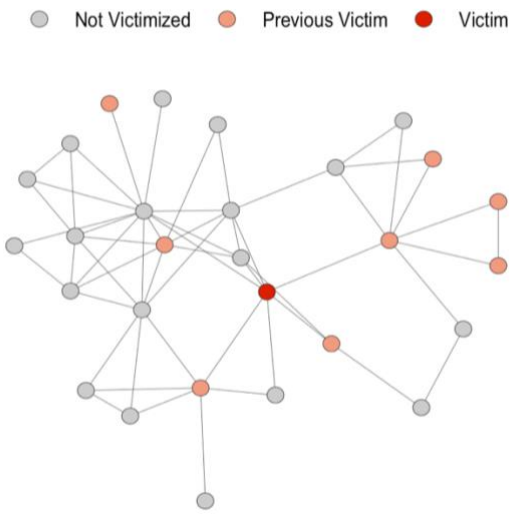


Figure 6C: Component C

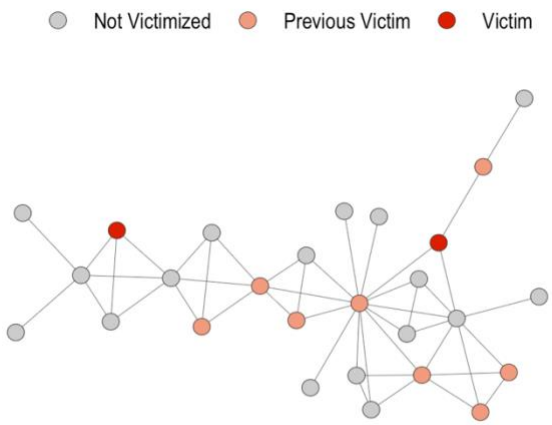


Figure 6D: Component D

Understanding the **time between shootings** within these networks might also provide useful information needed for the timing of interventions. The **time between the shootings** in these networks varies from just a few days to months to even years. A few patterns emerge.

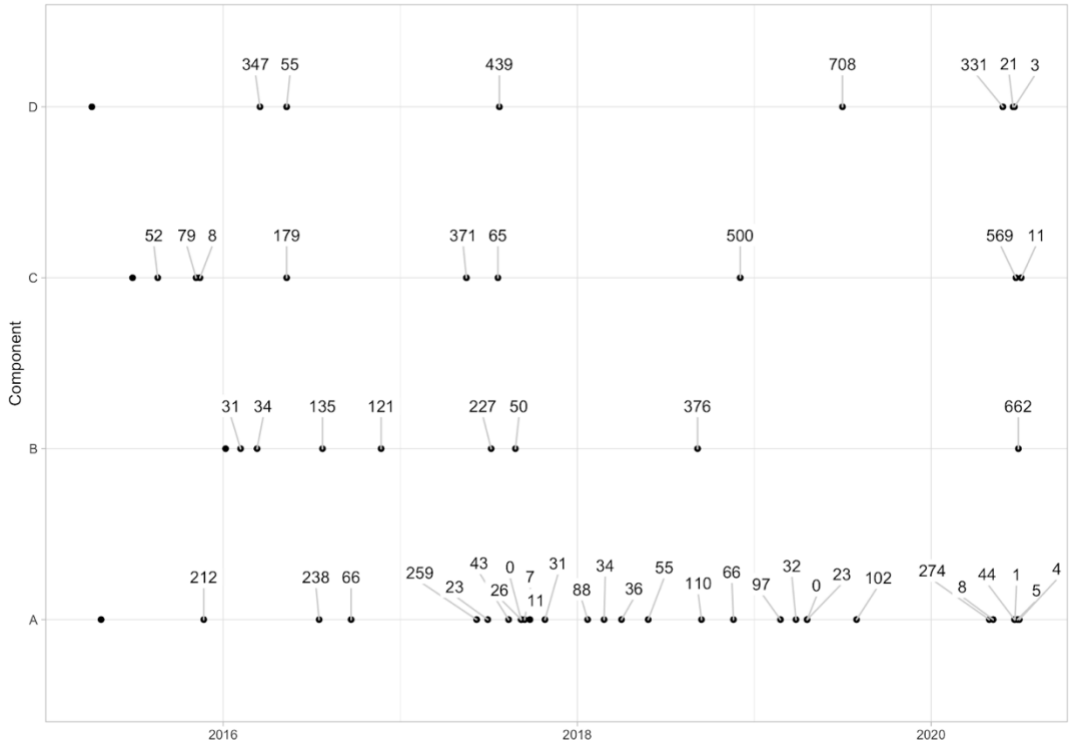
One of the networks from the observation—Figure 6A—displays a steady cluster of shootings at different time points throughout the observation period. From June 2017 to the end of 2019, the people in Figure 6A experienced 19 shootings and homicides, with an average of 43.6 days between shooting events. After a lull

towards the end of 2019, the shootings in Figure 6A have picked up again in 2020, with all **six shootings taking place within 62 days of one another. The four most recent victimizations took place in a span of only 10 days.**

In contrast to the relatively constant exchange of shootings in Figure 6A, Figures 6C and 6D show patterns of clustered shootings in time that are spread out over the study period. The affected in Figure 6D had only 5 victimizations prior to 2018, but experienced a surge in victimizations in 2020 with **three incidents taking place in a span of 24 days.** Likewise, those in Figure 6C experienced multiple clusters of shootings within short periods of time prior to 2018 and spiked again in 2020 with **two shootings within 11 days of each other**.

Figure 6B shows a different pattern with most victimizations occurring years earlier in 2016 and 2017. In early 2016, three individuals were victimized within 65 days of one another. Only two victimizations took place after 2017 with a much longer time–500 days–passing until another shooting in 2018. Thus far, the most recent shooting in 2020 does not seem to be clustered in time with any other event within this network.

Figure 7: Days Between Victimizations for High-Incidence Components



Note: The numbers above the nodes indicate the number of days between shootings.

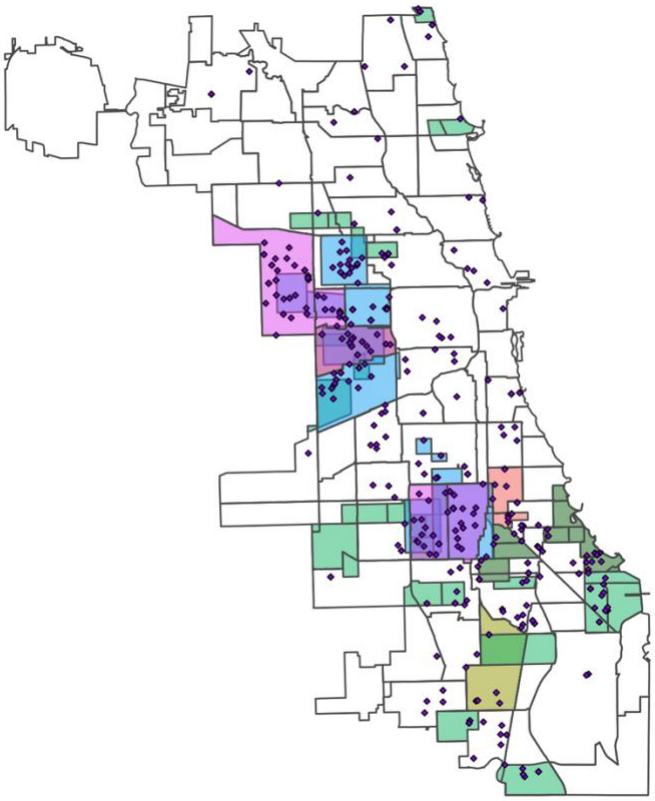
Part 4. Group/Gang Involvement

Chicago has a long and tumultuous history of gangs and gang violence. Over the last decade or so, Chicago's major street gangs have splintered into smaller neighborhood-based entities, with some estimates suggesting there are more than 900 gang factions scattered across Chicago.[5] Among the 212 victims located in the co-arrest

network, **148 had broad gang affiliations while 58 were connected to specific factions**. In other words, it was a small number of street gangs—about **6% of all gang factions**—that were involved in gun violence during the observation period. The majority of factions during this time period had a single victim from June 18–July 5. A single Black gang federation had the highest number of victims within the period with 49 victims, accounting for nearly **one-third of all victims with gang affiliations;** these victims were distributed across 20 different factions. A single gang faction located on Chicago's South Side had **three victims** during the observation period. Five other factions had two shootings during the two-week period.

Part 5. Street Outreach

Figure 8: Location of Shootings by Outreach and Community Area

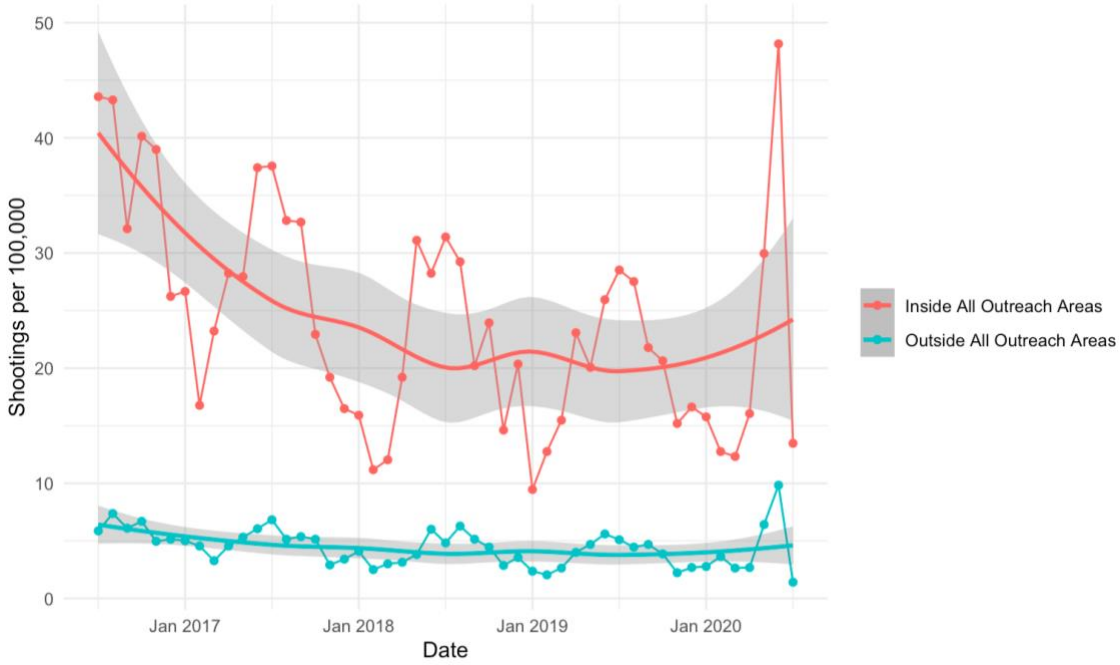


Of the 409 shootings from June 19–July 5 for which we had accurate location information, 273 shootings (approximately 66%) occurred within areas currently being serviced by street outreach while 136 occurred outside of outreach areas. Importantly, not all shooting incidents that occurred involved events that typically involve outreach services which tend to focus on group/gang involved young people involved in ongoing conflicts. In addition, there is currently greater demand for outreach services than operating outreach organizations or workers: Though there are over 900 unique gang factions in Chicago (with dozens of members each), less than 200 outreach workers are spread across outreach areas.

While N3 is currently involved in the evaluation of several of these street outreach efforts, we take a very brief look at whether any of the individuals observed in networks from June 18–July 5 were participants in two key outreach efforts. Such an exercise in no way determines the efficacy of such efforts. However, understanding the level of connection outreach had in the networks during these violent weeks might help better guide outreach efforts in the city.

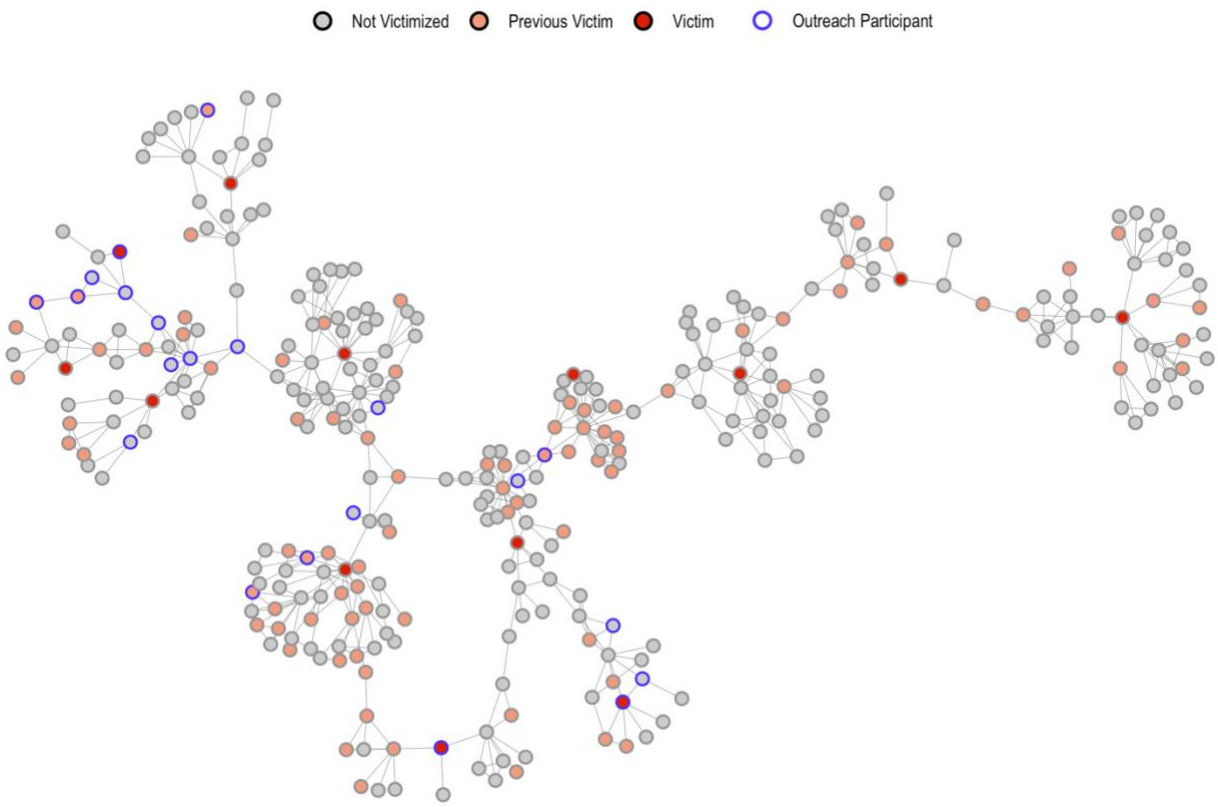
In the aggregate, Figure 9 shows that shootings and homicides in areas with an outreach presence experienced decreases from 2016 into early 2020; however, these areas as well as non-outreach areas experienced a significant uptick in June and July—including during the observation period.

Figure 9: Rate of Shootings in and out of All Outreach Areas by Month



With regards to the presence of outreach in the networks described above, of the 1,185 individuals in the 2-degree ego networks described (as seen in Figure 4), approximately 41 are participants in outreach programs on which we had information. Between June 18 and July 5, **7 of the 41 participants (17.1%) and 205 of the 1,114 individuals not in an outreach program (17.9%) were victimized.** Thus, while outreach participants continue to be at high levels of risk—and outreach itself is clearly present in many of these networks—a significant number of victims are not presently involved in outreach. Figure 10 provides an illustration of the presence of outreach participants within these networks, who were connected either directly or indirectly to individuals in one of the networks over the observation period. For example, on the left-hand side of Figure 10, you see outreach connections to 12 or so individuals, including at least one of the victims from the observation period. In contrast, most of the victims and individuals on the right-hand side of the figure did not have known connections to outreach. Further exploration may help the city and outreach organizations identify how existing resources can be more effectively deployed and/or determine what additional resources may be needed to address gaps.

Figure 10: Outreach Participation in the Largest Connected Component



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The **Northwestern Neighborhood & Network Initiative** (N3) promotes new ways for faculty, experts, and students at Northwestern University's Institute for Policy Research to engage communities, civic partners, and policymakers to address core problems facing the residents of Chicago and surrounding communities. Specific projects and types of engagement will be linked by a focus on how the social relationships among networks, geographic communities, and the constellation of groups, organizations, and civic partners affect what we feel, think, and do—and how understanding, building, and leveraging this sort of network-thinking can improve neighborhoods, the city, and our region.

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Acknowledgements

N3 would also like to thank Akshay Jain and James Murphy for their comments on this work.

Analyses were conducted by The Northwestern Neighborhood & Network Initiative (N3) using data provided by the Chicago Police Department (CPD). The results and findings of this report only reflect those of the authors and neither those of the CPD nor the City of Chicago.

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