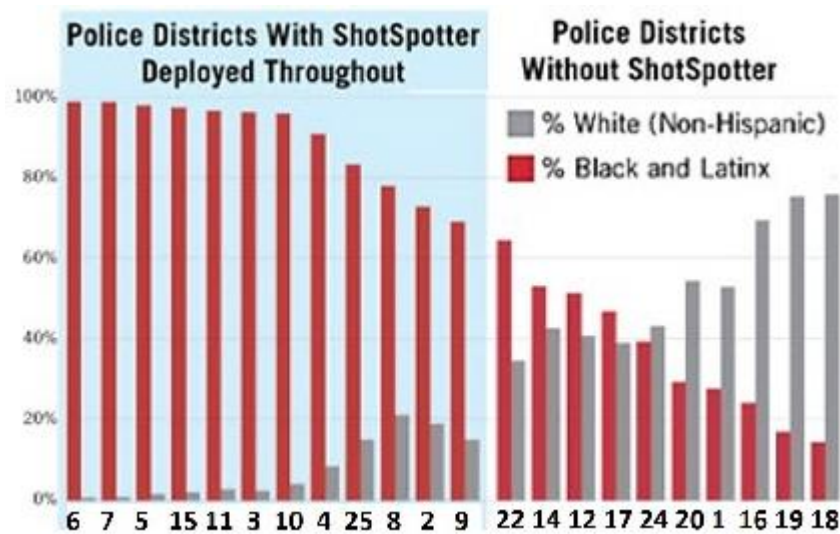


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A SHOW-STOPPER FOR SHOT-SPOTTER?

Gunshot detection technology leads progressives to cry foul



For Police Issues by Julius (Jay) Wachtel. Nowadays accusations of racially-biased policing seem commonplace. Problem is, law enforcement has always been an incubator of conflict. Given the complexities of policing, why officers sometimes act imprudently can be difficult to pin down. So when a respected organization [such as the ACLU](#) claims that a popular and supposedly objective law enforcement tool can make things worse one must simply have a look.

We're talking gunshot detection. [A comprehensive report](#) by Chicago's Inspector General focuses on [ShotSpotter](#), whose sensors are at work in [over one-hundred American cities](#). In Chicago they cover about half of the city's police districts. Alerts don't go directly to CPD. Instead, [they're electronically transmitted](#) to ShotSpotter, where analysts work around the clock to filter out fireworks and non-firearm noises "and publish confirmed gunshots to police."

[According to the MacArthur Center](#), though, Chicago's deployment of ShotSpotter – it's at work in twelve of twenty-two districts – does no good. Instead, it "tracks and exacerbates Chicago's racial divide":

The Chicago Police Department has a long history of excessive force, illegal and discriminatory stop-and-frisk, and other abusive policies and practices. ShotSpotter is a tool and tactic that contributes to these problems. It exacerbates

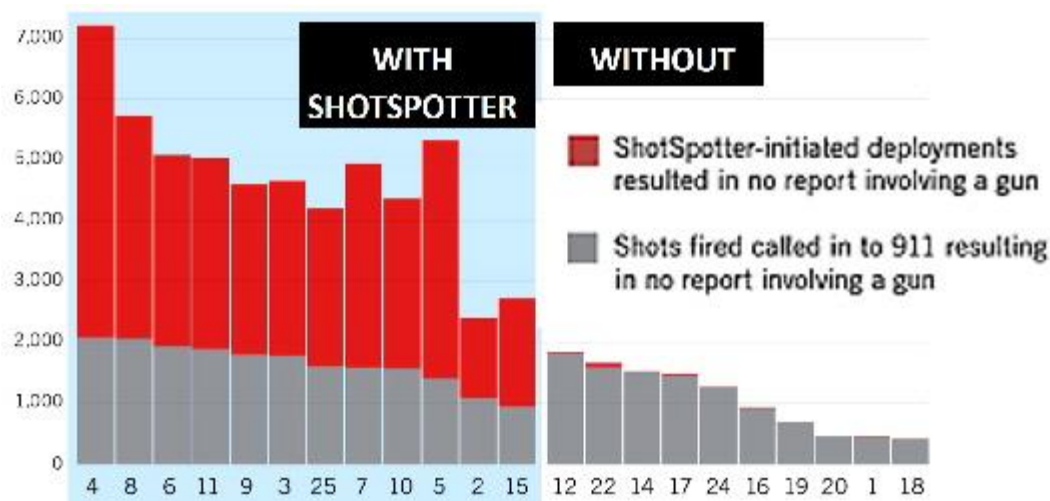
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police bias towards marginalized communities and foments distrust and fear among residents.

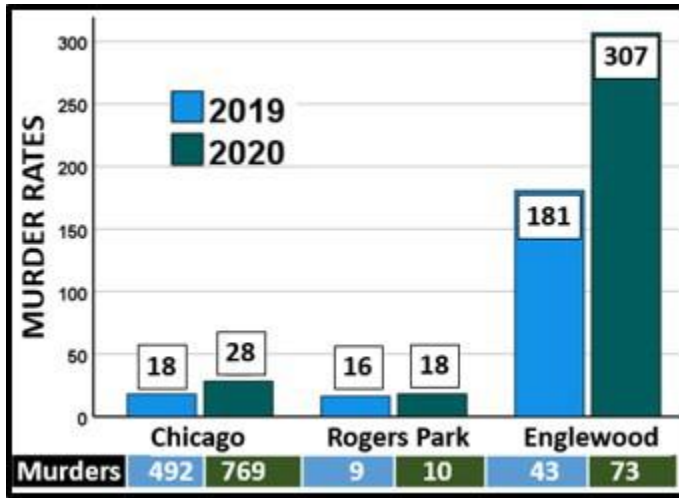
In a recent court filing the Center submitted the above graphic (we slightly tweaked it to fit). As they point out, it illustrates that sensors are only located in police districts that are predominantly populated by persons of color.

Of course, if ShotSpotter worked as advertised, its deployment would be welcomed by everyone but criminals. MacArthur, though, insists that the technology [is fundamentally defective](#). Chicago P.D. officers reportedly answered 46,743 ShotSpotter alerts between July 1, 2019 and April 14, 2021. But in only 5,114 instances – 10.9% – did cops confirm that a gun-related event actually took place. (And in only 14 percent that a crime even occurred.) Bottom line: “There is no good evidence that ShotSpotter can reliably distinguish the sound of gunfire from other loud, impulsive noises.”

MacArthur’s filing includes [a second image](#) (see below) that depicts unverified gunfire alerts from both ShotSpotter and citizen 911 calls. It supposedly illustrates how Chicago uses exaggerated accounts of gunplay in areas predominantly populated by persons of color to justify “racialized and oppressive patters of policing” (i.e., intensive enforcement, stop-and-frisk, etc.)



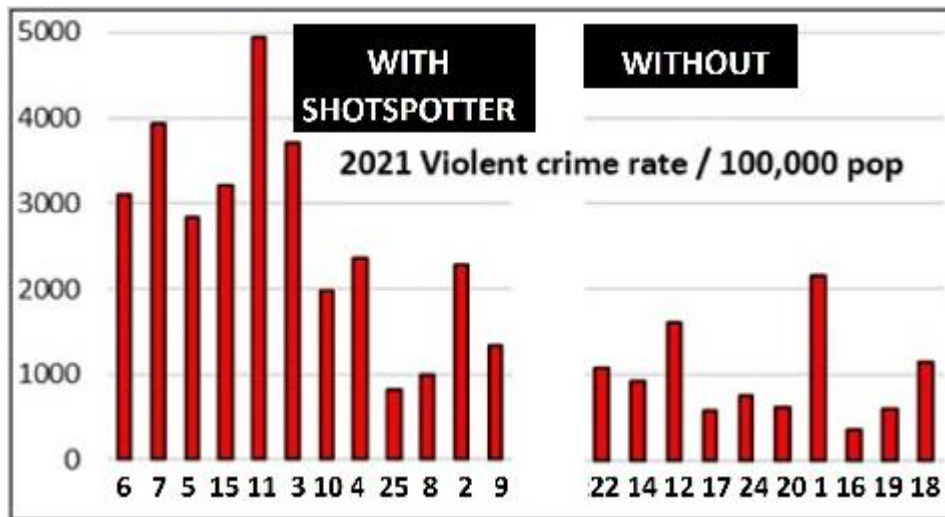
MacArthur’s analysis was triggered by an actual killing, which is discussed below. But first, what *should* count? Considering the realities of the urban environment, the Center’s insistence that reports of gunfire are meaningless unless they’re confirmed seems unrealistic. If there are no suspects at hand and no one got hurt, expecting busy cops to, say, scour sidewalks and streets for bullet casings seems a stretch.



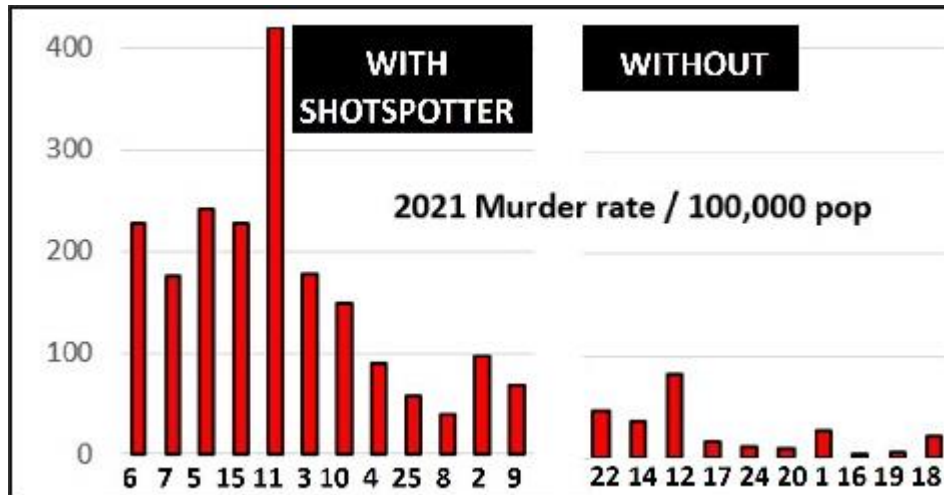
That Chicago singled out twelve districts is not in doubt. What is in question is *why*. And we have a pretty good idea. Our “[Neighborhoods](#)” essays have consistently demonstrated **that poverty, which disproportionately burdens persons of color, is strongly associated with violence**. This image from “[The Usual Victims](#)” contrasts murders and murder rates for two Chicago neighborhoods, Rogers Park (24th. police district, no ShotSpotter) and Englewood (7th. police district,

with ShotSpotter). Rogers Park, pop. 51,270, is 41.9% White and its [poverty level is 26.3%](#). Englewood, pop. 26,025, is 95% Black and its [poverty level is 46.3%](#).

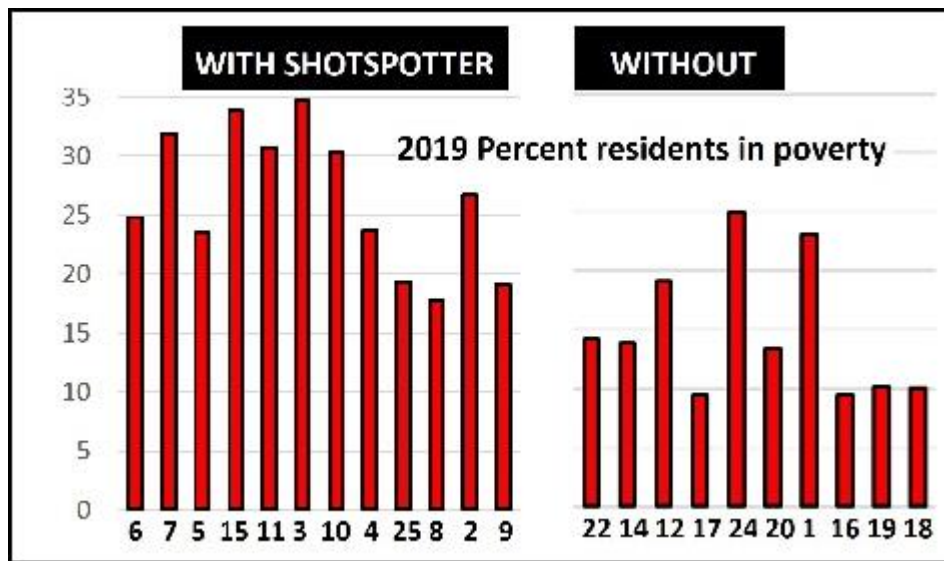
Our present inquiry uses [Chicago PD crime data](#) to probe poverty and violence in the precincts identified by MacArthur. Since police district and neighborhood boundaries differ, police district populations are from [johnkeefe.net](#). His tallies reflect the 2010 census but remain useful for comparison. Our graphs follow MacArthur’s format, with the twelve police districts that deploy ShotSpotter on the left, and the ten that don’t on the right.



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It takes only a glance to confirm that ShotSpotter deployment is biased towards the high-violence precincts. As for the link with economic conditions, the below graph reports percentage of residents in poverty at each precinct's ZIP from the [2019 ACS](#).



As one would expect, higher-violence precincts tend to be substantially poorer. Such as the 10th., where nearly one in three live in poverty. That's where [a ShotSpotter device reported gunfire](#) during the early morning hours of March 29, 2021. As police arrived an adult male and his 13-year old companion, Adam Toledo, ran off. Toledo had a gun, and within moments an officer reportedly mistook a gesture as a lethal threat and shot the teen dead. (For more about the encounter see "[Regulate. Don't Obfuscate.](#)" For a recent news article about the episode click [here.](#))

Responses to reports of gunfire can place cops and citizens – both innocent and not-so-innocent – at considerable risk. But until recently we didn't know that a ShotSpotter

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alert – again, in Chicago – supposedly led to a wrongful arrest for murder. On May 31, 2020, Chicago resident Michael Williams, 64 brought Safarain Herring, 25 to an emergency room. [Herring had been shot dead](#). Williams told police he was giving Herring a ride when gunfire rang out from a passing vehicle. But video from the gunshot location identified by ShotSpotter showed Williams' car. And it was parked.

There was apparently little other evidence. Williams's criminal history – he had served prison terms for attempted murder, robbery and a gun crime – may have sealed his fate. He was arrested and jailed pending trial. Months later public defenders submitted [an elaborate Frye motion](#) that criticized ShotSpotter's technical claims as “unscientific and reckless.” What's more, ShotSpotter employees were accused of purposely changing the location of the gunfire to where the video depicted Williams' vehicle had parked. MacArthur lawyers [joined in with a motion](#) contending that ShotSpotter grossly exaggerates how much gunfire actually takes place.

Vice Media quickly [posted the juiciest parts](#) of the damning assessments online. The *Associated Press* followed up with [a major investigative piece](#) that blasted ShotSpotter. Its work was picked up by news outlets throughout the U.S.

Alas, the *Frye* motions on which the newsies relied weren't totally accurate. Among other things, ShotSpotter employees didn't change the location of the gunfire: they had always mapped it at the same intersection. The original street address was incorrect, though, so that was (innocently) changed. ShotSpotter demanded retractions; ultimately, every outlet but *Vice* apparently complied. (Scroll to the end of [AP's news piece](#) to read its correction.) As for *Vice*, [ShotSpotter's suing](#). Still, the ruckus didn't help the criminal case. In February 2022, after Williams had spent nearly one year locked up, prosecutors dismissed the case for lack of evidence.

[Chicago's contract with ShotSpotter](#) runs through August 2023. Two years earlier, only five days after *AP's* original blast, the city's Inspector General issued a report report disparaging the technology's usefulness. In line with MacArthur's findings, the IG suggested that ShotSpotter was actually making things worse:

CPD responses to ShotSpotter alerts rarely produce evidence of a gun-related crime, rarely give rise to investigatory stops, and even less frequently lead to the recovery of gun crime-related evidence during an investigatory stop...Additionally, from qualitative review of ISR narratives, OIG found evidence that CPD members' generalized perceptions of the frequency of ShotSpotter alerts in a given area may be substantively changing policing behavior.

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However, the door was left somewhat open. After all, poor police recordkeeping (meaning, about the circumstances of ShotSpotter calls) could be “obstructing a meaningful analysis of the effectiveness of the technology.”

Academic reviews of ShotSpotter’s usefulness are decidedly mixed. [An early \(1998\) study](#) of gunshot detection technology (GDT) reported that it “accurately detected” 80 percent of test shots and accurately placed 72 percent. While GDT seemed to work well for pistols and shotguns, though, it was stumped by an MP-5 assault rifle. A study of a selected neighborhood also revealed that police were responding somewhat *less* quickly to GDT alerts than to citizen calls. Most importantly, there were *nearly three times as many* of the former. Whether that reflected GDT’s technical failings or citizen underreporting of gunfire couldn’t be determined. But GDT caused officer workloads to skyrocket. Two decades later, though, [a DOJ-funded evaluation](#) of ShotSpotter in Denver, Milwaukee and Richmond (Calif.) concluded that GDT actually *reduced* response times:

Evaluation findings suggest that GDT [gunshot detection technology] is generally but not consistently associated with faster response times and more evidence collection, with impact on crime more uneven but generally cost-beneficial. We also conclude that agencies should implement GDT sensors strategically, train officers thoroughly, ensure that GDT data are used and integrated with other systems, and engage with community members early and often.

In the end, there is little to suggest that gunshot detection technology can lessen firearms violence. [A study of gun homicides](#) in 68 “large metropolitan counties” between 1999-2016 reported that ShotSpotter “has no significant impact on firearm-related homicides or arrest outcomes.” Really, expecting a narrow technical approach to ameliorate the consequences of America’s murderous affair with the gun seems a stretch. Being promptly alerted to gunfire seems like a good idea. But doing it right can require a large police force and prove *very* expensive, to say nothing of intrusive. In this highly fraught, post-George Floyd era, we might do better by keeping things at a lower key and investing in *human* capital.

You know, our *neighborhoods*. And their *cops*.