



Protesters march after a fatal shooting by police in Baton Rouge, Louisiana, in 2016.

# WHAT THE DATA SAY ABOUT POLICE SHOOTINGS

*Scientists are trying to come up with solid numbers for how often US law-enforcement officers use deadly force — and whether there is any evidence of racial bias.*

BY LYNNE PEEPLES

**O**n Tuesday 6 August, the police shot and killed a schoolteacher outside his home in Shaler Township, Pennsylvania. He had reportedly pointed a gun at the officers. In Grants Pass, Oregon, that same day, a 39-year-old man was shot and killed after an altercation with police in the state police office. And in Henderson, Nevada, that evening, an officer shot and injured a 15-year-old suspected of robbing a convenience store. The boy reportedly had an object in his hand that the police later confirmed was not a deadly weapon.

In the United States, police officers fatally shoot about three people per day on average, a number that's close to the yearly totals for other wealthy nations. But data on these deadly encounters have been hard to come by.

A pair of high-profile killings of unarmed black men by the police

pushed this reality into the headlines in summer 2014. Waves of public protests broke out after the fatal shooting of Michael Brown in Ferguson, Missouri, and the death by chokehold of Eric Garner in New York City.

Those cases and others raised questions about the extent to which racial biases — either implicit associations or outright racism — contribute to the use of lethal force by the police across the United States. And yet there was no source of comprehensive information to investigate the issue. Five years later, newspapers, enterprising individuals and the federal government have launched ambitious data-collection projects to fill the gaps and improve transparency and accountability over how police officers exercise their right to use deadly force.

“It is this awesome power that they have that no other profession has,”

WILLIAM WIDMER (NEW YORK TIMES)/REXUS/EVEMINE

says Justin Nix, a criminologist at the University of Nebraska Omaha. “Let’s keep track of it.”

Social scientists and public-health researchers have begun to dig into these records and have produced more than 50 publications so far — up from a trickle of papers on the topic before 2015. They are mining the new numbers to address pressing questions, such as whether the police are disproportionately quick to shoot black civilians and those from other minority groups. But methods and interpretations vary greatly. A pair of high-profile papers published in the past few weeks<sup>1,2</sup> come to seemingly opposite conclusions about the role of racial biases.

Scientists are now debating which incidents to track — from deadly shootings to all interactions with the public — and which details matter most, such as whether the victim was armed or had had previous contact with the police. They are also looking for the best way to compare activities across jurisdictions and account for misreporting. “It’s really contentious because there’s no clearly right answer,” says Seth Stoughton at the University of South Carolina in Columbia, a former police officer who now studies the regulation of law enforcement.

Although the databases are still imperfect, they make it clear that police officers’ use of lethal force is much more common than previously thought, and that it varies significantly across the country, including the two locations where Brown and Garner lost their lives. St Louis (of which Ferguson is a suburb) has one of the highest rates of police shooting civilians per capita in the United States, whereas New York City consistently has one of the lowest, according to one database. Deciphering what practices and policies drive such differences could identify opportunities to reduce the number of shootings and deaths for both civilians and police officers, scientists say.

“We need to standardize definitions and start counting,” says Stoughton. “As the old saying goes, ‘What gets measured, gets managed.’”

### SPOTLIGHT ON A BLIND SPOT

In December 2014, spurred by unrest in the wake of Ferguson, then-US president, Barack Obama, created a task force to investigate policing practices. The group issued a report five months later, highlighting a need for “expanded research and data collection” (see [go.nature.com/2kqoddk](http://go.nature.com/2kqoddk)). The data historically collected by the federal government on fatal shootings were sorely lacking. Almost two years later, the US Federal Bureau of Investigation (FBI) responded with a pilot project to create an online national database of fatal and non-fatal use of force by law-enforcement officers. The FBI director at the time, James Comey, called the lack of comprehensive national data “unacceptable” and “embarrassing”.

Full data collection started this year. But outsiders had already begun to gather the data in the interests of informing the public. The database considered to be the most complete is maintained by *The Washington Post*. In 2015, the newspaper began collecting information on fatal shootings from local news reports, public records and social media. Its records indicate that police officers shoot and kill around 1,000 civilians each year — about twice the number previously counted by the FBI.

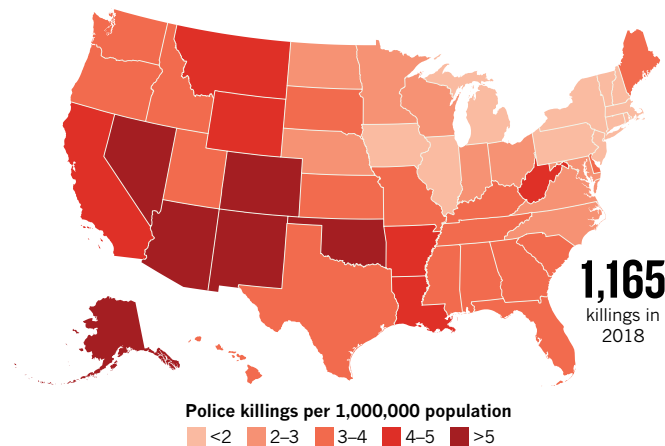
Recognizing that ‘lethal force’ does not always involve a gun and doesn’t always result in death, two other media organizations expanded on this approach. In 2015 and 2016, UK newspaper *The Guardian* combined its original reporting with crowdsourced information to record all fatal encounters with the police in the United States, and found around 1,100 civilian deaths per year. Online news site VICE News obtained data on both fatal and non-fatal shootings from the country’s 50 largest local police departments, finding that for every person shot and killed between 2010 and 2016, officers shot at two more people who survived. Extrapolating from that, the actual number of civilians shot by the police each year is likely to be upwards of 3,000.

Unofficial national databases have also popped up outside the major news organizations. Two small-scale private efforts, Fatal Encounters and Mapping Police Violence, aggregate and verify information from other databases with added details gleaned from social media, obituaries, criminal-records databases and police reports (see ‘Shootings by police — the data’).

## SHOOTINGS BY POLICE — THE DATA

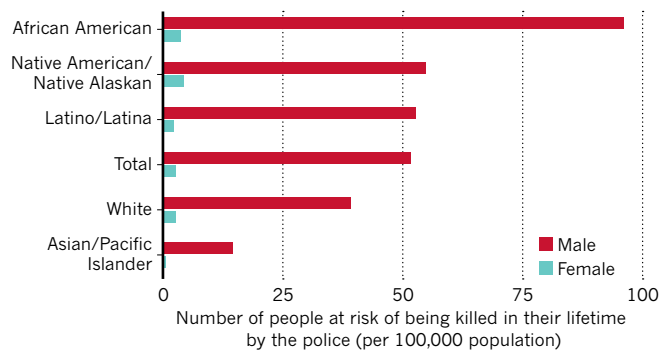
News-media outlets and private citizens have been collecting data on the number of people killed by the police each year. Compiled from news reports, the data suggest that more than 1,100 individuals are killed in the United States each year through shootings and other uses of force.

**INTERSTATE DISPARITIES:** Data from the privately run project Mapping Police Violence show wide state-to-state differences in the number and rate of people killed.

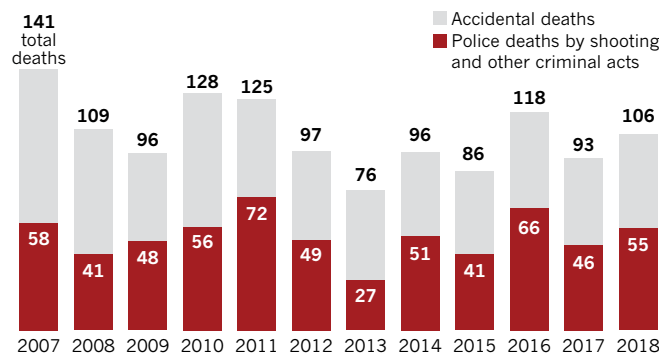


SOURCES: MAP: MAPPING POLICE VIOLENCE; ETHNIC IMBALANCE: REF. 1; POLICE DEATHS: FBI LEOKA REPORT 2018

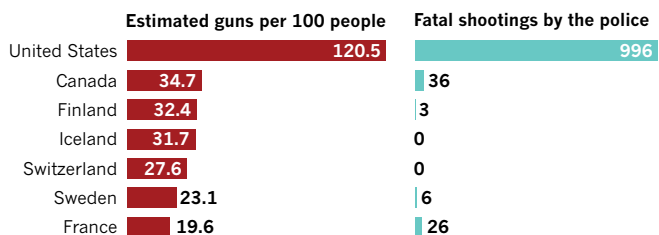
**IMBALANCES BY ETHNIC GROUP:** A recent analysis<sup>1</sup> suggests that about 96 black men per 100,000 are at risk of being killed by the police, more than twice the risk relative to white men.



**POLICE AT RISK:** Officers’ lives are at risk, too. In 2018, more than 50 US police officers were shot and killed, and many more died through other means.



**LOOKING FOR EXPLANATIONS:** The number of people shot and killed by the police in the United States is vastly higher than for other wealthy nations. Some suggest that US gun culture and high rates of gun ownership contribute to the problem (2016–17 data).





Body cameras worn by police officers can capture crucial information.

The results paint a picture of definite disparity when it comes to race and police shootings. Although more white people are shot in total, people from minority ethnic groups are shot at higher rates by population. One paper published in August found that a black man is 2.5 times more likely than a white man to be killed by the police during his lifetime<sup>1</sup>. The difference, albeit smaller, is also there for women. But the authors did not make any conclusions regarding racial bias of police officers, in part because not everyone has an equal chance of coming into contact with the police. Crime rates and policing practices differ across communities, as do the historical legacies that influence them. Aggressive policing over time can increase local levels of violence and contact with the police, says Frank Edwards, a sociologist at Rutgers University in Newark, New Jersey, and an author on the paper. “This is inherently a multilevel problem,” he says.

Researchers have used various approaches to try to determine the best benchmarks for the data, such as looking at the arrest rates where the shootings occurred or factoring in the context of encounters that end in a shooting. Did the suspect have a weapon? Were officers or another civilian being threatened? In a 2017 study<sup>3</sup>, for example, Nix determined that black people fatally shot by the police were twice as likely as white people to be unarmed. Those findings align with many studies published since 2015 suggesting that racial biases do influence police shootings.

Some research runs counter to this conclusion. This July, authors of a study that pulled information from *The Washington Post* and *The Guardian* databases, as well as directly from police departments, said they found no evidence of biases against black or Hispanic people<sup>2</sup>. In addition to factoring in the crime rates of the communities where the shootings happened, the authors looked at the race of the officers involved.

Several scientists have taken issue with their methods, however. To sidestep some of the questions about encounter rates, the study authors started from the pool of people shot by the police and then calculated the chance that they were of a certain race. Jonathan Mummolo, a political scientist at Princeton University, New Jersey, argues that the real question to ask in order to detect racial bias is the reverse: does a citizen of a certain race face a greater chance of getting shot by the police? And answering this question requires knowing, or at least reasonably approximating, that elusive encounter rate.

The national-scale databases are inherently messy, in part as a result of disparate definitions of the ‘use of force’, as well as different police protocols and reporting requirements. Other studies have avoided some of these inconsistencies by focusing on local data.

A 2017 study of data collected from the Dallas Police Department in Texas indicated that although race was not a significant factor in decisions to pull the trigger, Dallas officers were more likely to draw their firearms on minority suspects<sup>4</sup>.

The Dallas Police Department declined to comment on the study but highlighted its officer-education efforts, including in areas of cultural diversity and implicit bias, as well as its deployment of body cameras, which many agencies have adopted as a way to improve transparency.

Some researchers say it's important to shift the discussion to examine when — rather than whether — racial bias factors into the use of deadly force. Does it come into play when a department decides which neighborhoods to police most heavily? Or is it when an officer first lays eyes on a civilian, or is it when they make that split-second decision to pull the trigger? Andrew Wheeler, a criminologist at the University of Texas at Dallas, says that national-level databases should at least include all levels of use of force — down to the drawing of a weapon — in order to answer questions and create change. “Collecting data in and of itself is a good mechanism to hold police agencies accountable,” he says.

### COUNTING ON THE FEDS

In January, after more than three years of pilot development, the FBI unveiled its official National Use-of-Force Data Collection, which covers dozens of variables including fatal and non-fatal injuries incurred through a variety of police encounters. The database, according to the FBI, aims to inform dialogue by filling the information gap. But data submission is entirely voluntary. And no data are yet available for outside review.

Nix and others doubt that all of the more than 18,000 police agencies in the United States will voluntarily report incidents. But Darrel Stephens, a retired police chief and the interim executive director of the Major Cities Chiefs Association, is more optimistic. Growing public pressure will force agencies to participate, he says. At the same time, he adds, the increased scrutiny since Ferguson has also come at a cost. In a 2017 national survey by the Pew Research Center, 76% of police officers reported that they had become more reluctant to use force when it is appropriate. Police officers, too, face risks. An average of around 50 officers are shot and killed by civilians every year.

In other wealthy nations, where accurate tracking of shootings is generally a given, officials tend to have fewer deaths of both civilians and officers to count. Terry Goldsworthy, a criminologist at Bond University in Queensland, Australia, highlights one potential explanation for the difference: a stark contrast in the attitude towards and availability of guns. “Generally, when a police officer pulls up to a car in Australia, they don't expect someone to be armed,” he says.

Australia keeps a tally of its approximately five civilian deaths at the hands of the police per year, using a central government database. Similarly, in the United Kingdom, an independent inquiry is initiated every time a police officer is involved in a shooting.

To encourage US law-enforcement agencies to report use-of-force information, Stoughton, who has published widely on deadly force, says officials should consider making federal grants conditional on whether departments submit use-of-force data to national collections. But he recognizes the challenges. “We're not talking about anything that is practically difficult,” he says. “This is something that is politically difficult.”

Researchers, meanwhile, aren't going to wait around for the FBI. Some are refining methods to better analyse the imperfect data they have; others are continually trying to improve the information collected so far. Academics are expanding the Fatal Encounters database and filling in holes, for example, by adding police-department demographics and the location of the nearest emergency department, as well as using surname and demographic information to guess at the race of someone where it isn't identified. “I don't think we've closed the book on any of this,” says Mummolo. “We're just beginning.” ■ [SEE EDITORIAL P.5](#)

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2. Johnson, D. J. *et al. Proc. Natl Acad. Sci. USA* **116**, 15877–15882 (2019).
3. Nix, J., Campbell, B. A., Byers, E. H. & Alpert, G. P. *Criminol. Public Policy* **16**, 309–340 (2017).
4. Wheeler, A. P., Phillips, S. W., Worrall, J. L. & Bishopp, S. A. *Justice Res. Policy* **18**, 48–76 (2017).