

## National Violent Death Reporting System helping to save lives

*Researchers encouraged to use data*  
**System helps find preventive solutions for violent deaths**

**S**OMETIMES it is all in the details. For Sheryl Chatfield, PhD, of Kent State University, those details led to innovative research with surprising discoveries.

Chatfield conducted her research using the National Violent Death Reporting System, which shares data on violent deaths at a national level and goes far beyond the statistics of most mortality databases.

In 2002, the Centers for Disease Control and Prevention launched NVDRS by collecting data in six states and setting up an online resource site. Today, data is collected in every state, Puerto Rico and the District of Columbia. All types of violent deaths are covered, including homicide, suicide and unintentional firearm-related deaths.

NVDRS combines information from police reports, medical examiner and coroner reports, toxicology reports, death certificates, vital records and more. States receive federal funding to abstract their reports. With the linked information, the system is able to provide a more complete picture of the circumstances that contribute to violent deaths, offering

researchers an opportunity for innovative analysis.

“NVDRS data increase our knowledge about where violent deaths occur, who is most at risk and the factors that contribute to violent deaths,” Katherine Fowler, PhD, senior scientist in the Division of Violence Prevention at the Centers for Disease Control and Prevention, told *The Nation's Health*. “These data provide the foundation for building successful strategies for preventing violence so that all communities can be safe and free from violence and people can live to their full potential.”

About 67,000 people died violently in the U.S. in 2017. In a NVDRS Surveillance Summary published in December, data from over 46,000 of those cases were shared. The information, which came from 34 states, Puerto Rico and the District of Columbia, showed that, of overall violent deaths, 63% were suicides and 25% were homicides. A firearm was

used in half of suicides and in most homicides. Homicide was the leading cause of death for Black males ages 15-34. American Indian and Alaska Native men were killed by police at the highest relative rate, 2.8 per 100,000 population, seven times that of white males, the data showed. Black American males were killed at 1.2 per 100,000.

Researchers are digging through the new data to understand the context of U.S. homicides and other violent deaths, and developing preventive strategies.

“By having a clear understanding of the issues surrounding these deaths, we can focus on community-level interventions and provide supports to counter the cycle of violence,” said Mighty Fine, MPH, CHES, director of APHA's Center for Public Health and Professional Development. “It also positions us to evaluate our current prevention efforts and determine their effectiveness at addressing the root causes of violence.”

In partnership with CDC's National Center for Injury Prevention and Control, APHA created the NVDRS New Investigator Research Award program to encourage researchers who received a doctoral degree within the past five years to use NVDRS to analyze violent death data and submit findings for publication. Researchers have focused on topics such as homicides of pregnant women, events surrounding suicides by military veterans and intimate partner violence among adolescents.

Amy Hunter, PhD, an assistant professor of community medicine and health care at the University of Connecticut, received the award in 2018 to research child homicides. She and colleagues examined NVDRS information in 17 states between

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Data from violent death reporting systems have been used to identify trends and create interventions, such as providing targeted support for people who are at high risk for suicide.

*System now includes all 50 states*  
**NVDRS data supporting state work to end lethal violence**

**S**UICIDES IN KENTUCKY — as in the rest of the country — have been on the rise in recent years, with an average of one Kentuckian dying that way every 11 hours. To confront the problem, health workers are increasingly turning to a unique public health surveillance tool that captures both cause of death and the stories of people who have died from violent means.

Originally launched in just six states, the Centers for Disease Control and Prevention's National Violent Death Reporting System is about to enter its 20th year, with all 50 states, Washington, D.C., and Puerto Rico now on board. The surveillance tool covers a range of violent deaths, including homicides and suicides, and gathers hundreds of unique data points into one place where practitioners can study the circumstances and social factors surrounding such deaths, detect troubling trends earlier, and more precisely target intervention resources. Kentucky was one of the system's earliest participants, joining in 2004.

“The way (NVDRS) tells people's

stories — it's invaluable,” said Beck Whipple, state suicide prevention coordinator at the Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities. “It gives us a roadmap on where to go.”

Data from Kentucky's state-level violent death reporting system have been vital to state suicide prevention

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**Saving lives by examining violent deaths**

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Photo by Poba, courtesy iStockphoto

Researchers are using data from NVDRS to learn why violent deaths happen. Police reports, coroner records and even media reports offer vivid narratives that aid research.

## Violent death system continues to expand Partnerships key to bringing rich data, narratives to NVDRS

**M**OST SUCCESSFUL public health endeavors depend on strong partnerships, and the National Violent Death Reporting System is no exception.

The surveillance system — launched by the Centers for Disease Control and Prevention in 2002, with programs in all 50 states as of 2018 — gathers data on violent deaths such as homicides and suicides from multiple sources in one place, giving public health workers a fuller picture of the circumstances surrounding violent deaths and clearer insights into how to prevent them. Across the country, NVDRS data is used to detect emerging trends, identify risk factors and vulnerable communities, and direct prevention resources.

When a violent death occurs, details on cause and context end up in multiple locations, such as in police notes, in death certificates filed with vital records offices, and in coroners' reports. NVDRS is the only system in the country that gathers all that data together, which makes local, state and national partnerships essential for success.

"This isn't new data, it's just a new way to collect the data so we can use it better," said Kathryn Pinneri, MD, vice president of the National Association of Medical Examiners and liaison between the association and NVDRS. "And the NVDRS does this for the whole country, which is very unique."

As a national NVDRS

partner, the association encourages offices to participate and develop tools that make it easier for medical examiners to contribute to their state's violent death reporting system. The goal is to make data sharing easier on both sides, she told *The Nation's Health*.

"(Medical examiners) have a whole lot of data that people are interested in, but we don't always have the capacity to provide it easily," said Pinneri, who is also the director of Montgomery County Forensic Services in Conroe, Texas. "Working with the NVDRS has made it easier to collect and retrieve data people want."

Another NVDRS partner, the National Association for Public Health Statistics and Information Systems is also helping its members — state vital records offices — more easily share data. This year, for example, the association is working closely with NVDRS to improve functionality with the State and Territorial Exchange of Vital Events system, which could foster better data sharing between vital records and violent death surveillance, according to Shae Sutton, PhD, senior director of programs at the association.

"The data (NVDRS) collects is so important and such a unique dataset," Sutton told *The Nation's Health*. "It's a crucial one to continue to collect."

For more information on the partnerships that support NVDRS, visit [bit.ly/nvdrspartners](http://bit.ly/nvdrspartners). ■

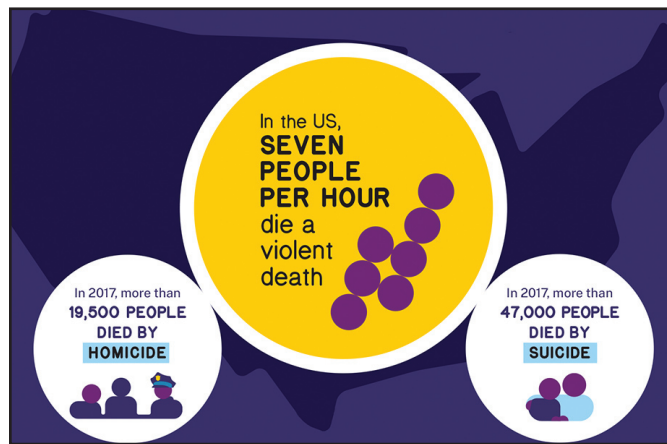
— Kim Krisberg



Photo by Filadendron, courtesy iStockphotos

NVDRS encourages its member partners to prioritize entering data so that the system can be as current as possible.

## System offers wealth of data for researchers



Infographic excerpt courtesy CDC

By using data from NVDRS, researchers can help reduce the toll of violence, which ends more than 65,000 U.S. lives a year.

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2011 and 2015 and found 1,023 cases among newborns to 10-year-olds.

In almost half the cases, a child's father or stepfather was the perpetrator, according to the study, published in 2019 in the *Journal of Interpersonal Violence*. The data also showed that an intimate partner killed a child in the home in 22% of cases. The research revealed a little-discussed fatality risk: a man, his intimate partner and a child of whom he is not the biological father living under one roof.

NVDRS enabled Hunter to find vivid narratives from police reports and other sources that told a rare but tragic story, brought to the surface by the system's granular data and large sample size. Based on the findings, Hunter and her co-authors called for interventions focused on men and research on child violence by parental intimate partners.

"It is such a rich source of data and it really allows for so many different types of analyses," Hunter told *The Nation's Health*.

Chatfield, an assistant professor at the College of Public Health at Kent State, received an APHA award in 2018 for NVDRS research. She set out to analyze intimate partner violence, but instead discovered a little-known trend in assisted-living communities for older adults.

She researched 101 homicides involving long-term care roommates

between 2003 and 2016, combing through linked police reports, medical reports, death certificates and even media stories. A typical case involved a senior who kills his roommate, who is over a decade older and suffering from dementia. In 2019, Chatfield co-authored a study on the results that appeared in the *Journal of Applied Gerontology*.

"NVDRS probably facilitates putting that information together better than any other data set that may try to capture that information," Chatfield told *The Nation's Health*.

She has also used the system to research youth suicides, looking for evidence whether adolescents ages 9-17 were experiencing conflicts with family or friends in the 24 hours preceding their death. Nearly 200 cases were found across multiple states describing the social context of the final hours prior to suicide.

Chatfield thought she would find bullying. To her surprise, a quarter of cases involved strife

between parent and child due to restricted cell-phone use, social media use or both. Restricting technology was either a primary or secondary cause of suicide for adolescents at the lower ages of the study.

"About every other type of data that researchers use is more about suicide intention or self-harm," Chatfield said. "But we were looking at actual cases and could see the actual behavior, which is different than someone talking about (suicide)."

To help prevent suicides among youth, the Centers for Disease Control and Prevention recommends reducing access to lethal means, strengthening family relationships, teaching coping and problem-solving skills, and increasing access to mental health care.

This year, NVDRS added the School-Associated Violent Death Surveillance System, which reports deaths on school grounds and during school events. The data will help assess national trends in school-related violent deaths. The system also recently received funding to develop the Public Safety Officer Suicide Reporting System module to cover suicides among police officers.

For information on using the National Violent Death Reporting System for research and gaining access to system data, visit [bit.ly/CDC\\_NVDRS](http://bit.ly/CDC_NVDRS).

For information on the New Investigator Research Awards, visit [bit.ly/NVDRS](http://bit.ly/NVDRS) awards or email [mighty.fine@apha.org](mailto:mighty.fine@apha.org) ■

— Mark Barna



Photo by DNY59, courtesy iStockphoto

Scientific findings that incorporate NVDRS data can be used to inform decisionmakers and influence public health policy.

## 'Learn from the dead and let the data live and breathe'

# Q&A with researcher Catherine Barber: NVDRS death data can bolster public health

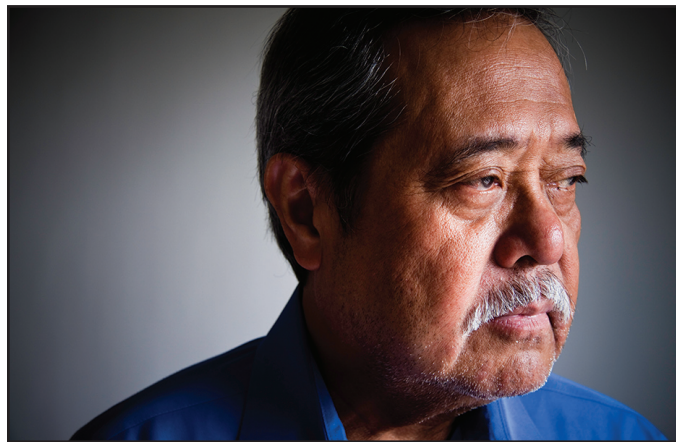


Photo by Azndc, courtesy iStockphoto

Violent deaths can shatter families and communities. Tracking U.S. deaths may help advocates develop preventive measures.

**C**ATHERINE BARBER, MPA, is a senior researcher at the Harvard T.H. Chan School of Public Health's Injury Control Research Center. She led work to design and test the pilot for the Centers for Disease Control and Prevention's National Violent Death Reporting System. Barber is also founding director of Means Matter, a project to disseminate research and interventions that reduce access to lethal means of suicide for at-risk individuals.

### How has NVDRS changed what we know about violent death?

NVDRS gives us incident-based reporting on suicides and homicides, and a few other types of deaths, and provides highly detailed data, because it joins existing information from vital records, the coroner or medical examiner's office, and police reports together. So you get a ton of information in one place. It includes quantitative data, but also incident narratives, so you get a qualitative feel for what happened.

It gives us critical details on violent deaths like suicides, such as whether the person was known to be in mental health care, were they struggling with a particular problem, and what was the nature of that problem. We get just a tremendous amount of detail on context.

Another benefit of the NVDRS is it gives us the ability to get the count right for things like legal intervention deaths, mass public shootings, fatal firearm accidents. For example, official death certificate data and FBI data miss almost half of police shooting deaths, but NVDRS captures the vast majority. And the incident narratives provide substantive insights on

these deaths.

You've got to really learn from the dead and let the data live and breathe on its own. You can't prevent something if you don't really understand the dynamics of what is causing the problem.

### Over the system's two decades, what kind of data has been especially surprising?

I became really struck by the suicides, both for their greater numbers than homicides, but also because within each suicide story, there were often clues to things — that had they been different, that person probably wouldn't have died.

One thing that was very surprising, as I was reading through the first 100 or so suicide reports that came in during the pilot phase, I realized about one of five mentioned a crisis that happened that day. This wasn't at all what I had pictured.

Back then, I had often thought of suicide as being the end point of a very long, linear process of greater and greater distress and more deliberative planning. But it was clear that in a lot of cases, the person did not wake up that morning thinking "I'm going to take my life."

Often, there was a pre-

cipitating event that spiked an already-troubled person's risk. So the lethality of the method that's easily accessible in that moment makes a difference. That led me and others to work with groups like firearm instructors and gun shops on suicide prevention — to take sort of a "friends don't let friends drive drunk" approach to urging your friend or loved one to store their guns away from home temporarily if they're really struggling.

### Preventing gun-related deaths is a top public health priority. What's an example of how NVDRS data is useful there?

With prevention, you want to look at data and then slice it as thin as possible to find the right people who can help you prevent the deaths.

Take suicides that occur at shooting ranges, which are a tiny proportion of the suicide problem: NVDRS data is really helpful in detailing the circumstances of those deaths. It turns out, if a gun range has certain rules such as requiring people to bring their own guns to the range as opposed to renting them, or come with another person, it could probably prevent most of the suicides. And, really, nobody's more committed to preventing these deaths than the person who owns the shooting range.

### In 2018, NVDRS expanded to all 50 states. What does that mean for violence prevention work?

The system already gets really good data, and once NVDRS is truly statewide in all 50 states — a few big states aren't quite there yet — we can focus on both improving data quality and putting it to use. And because CDC funds not just data collection, but also state epidemiologists to use the data, it gives us local capacity to turn that data into actionable findings. ■

— Interview conducted and edited by Kim Krisberg

For more information on NVDRS, visit [bit.ly/CDC\\_NVDRS](http://bit.ly/CDC_NVDRS). For more on Means Matter, see [www.hsph.harvard.edu/means-matter](http://www.hsph.harvard.edu/means-matter).

## LINKING DATA TO SAVE LIVES


How CDC's NATIONAL VIOLENT DEATH REPORTING SYSTEM data can help prevent violent deaths.

### Preventing Violent Deaths Starts with KNOWING THE FACTS


The National Violent Death Reporting System (NVDRS) is the only state-based reporting system that links information from multiple sources in a usable, anonymous database.

NVDRS brings together data on the **WHO, WHEN, WHERE, and HOW** of violent deaths to help us better understand **WHY** they occurred.


### NVDRS Collects Detailed Information from...



Law Enforcement Reports



Death Certificates














Coroner/Medical Examiner Reports  
(Including Toxicology Reports)


Data are collected in all 50 states, Puerto Rico, and the District of Columbia.

### What KIND of Data Does NVDRS Collect?


NVDRS covers all types of violent deaths, in all settings, for all age groups. Over 600 data elements are captured, including:

 Location of injury	 Mental health problems and treatment
 Characteristics of victim	 Intimate partner violence
 Relationship of victim to suspect	 Physical health problems
 Weapons used	 Relationship problems
 Toxicology reports	 Problems with job or finances
 Alcohol or substance abuse	


### How Can NVDRS Data be Used to Prevent Violent Deaths?



**INFORM DECISION MAKERS**  
about the magnitude, trends, and characteristics of violent deaths




**EDUCATE COMMUNITIES**  
about circumstances that contribute to violence



**HELP DECISION MAKERS AND PROGRAM PLANNERS**  
develop and enhance comprehensive violence prevention efforts to maximize benefits.

For more information, including how to access the NVDRS database, visit

<https://www.cdc.gov/violenceprevention/datasources/nvdrs/index.html>



## National Violent Death Reporting System collecting data from states

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activities, Whipple said, and are the basis of a number of targeted prevention efforts, such as work to address high suicide rates in rural communities and prevent youth access to means of death, such as firearms. The system's rich data points can also pick up on trends that might otherwise go undetected if practitioners had to rely only on basic cause of death and demographic data.

Earlier this year, for example, Whipple said the system picked up on an increase in suicides among lawyers. In response, his office reached out to the Kentucky Bar Association to alert them to the trend and offer its help.

"Being able to build these relationships is really starting to change the face of suicide prevention in Kentucky, because it's all data-driven," Whipple told *The Nation's Health*.

NVDRS gathers data from existing sources — such as police reports and notes, vital records, toxicology reports, child fatality reviews, medical examiner and coroner offices — and often captures information highlighting the factors shaping the risk of violent death, such as information about employment, life stressors and access to lethal means.

Jacqueline Seals, DrPH, project manager of the Kentucky VDRS, which is housed at the University of Kentucky, said the national system's 2018 expansion to all 50 states helps "paint a clearer picture" of the nature of violent deaths and how to prevent them.

"If the system were to disappear tomorrow, we'd be losing a huge amount of data," Seals said. "And while we talk about it as data, these were people. Their lives matter even in death, and hopefully (their experience) can go on to prevent future deaths."

Around the country, NVDRS data reveal local areas and populations at risk and inform a range of tailored responses, from work to address suicide among veterans in Alaska to programs to improve elder maltreatment surveillance in North Carolina.

Paul Bonta, MA, director of government relations at the Safe States Alliance, a professional association of injury and violence prevention practitioners, noted that before NVDRS, no system gathered data on the circumstances surrounding violent deaths in one place. When NVDRS rolled out in the early 2000s, it was the first opportunity practitioners had to see a more complete picture of violent death trends and the stories behind them, he said.

"There's a narrative with each violent death, and coupled with the data, it really provides a much stronger and enhanced understanding," Bonta told



Photo by SDI Productions, courtesy iStockphoto

NVDRS data have been used to shape programs, policies and interventions in communities and states across the U.S.

*The Nation's Health*. "It makes states far better equipped to design and implement targeted prevention programs."

While NVDRS is officially nationwide, a few states are still in the implementation stage, though Bonta expects every state VDRS will be operating statewide very shortly. The power of NVDRS is "limitless," he noted, though additional funding is needed to expand use of its data. In particular, Safe States Alliance and fellow advocates are calling for a federal funding boost of \$5 million per year over five years, which would eventually bring NVDRS funding to a total of \$50 million.

"The potential here to prevent violent deaths is tremendous, but to realize that, we need to continue to allocate additional funds," Bonta said.

Kathleen Maese, MSP, an NVDRS epidemiologist and program manager for the New Mexico VDRS at the New Mexico Department of Health, called the

unique surveillance system a "hidden gem."

New Mexico joined NVDRS in 2004, and like fellow states, collects an abundance of variables around each violent death, such as the state of a person's mental health, whether drugs were involved in their death, if a suicide note was left, the type of weapon used and how it was stored. In addition to shaping local interventions, Maese said the data have also been used to analyze proposed policy responses, such as state bills regulating homemade guns and extreme risk protection orders.

While the robust information within NVDRS is underused at times, Maese said she hopes the system's expansion nationwide will boost awareness of its potential.

"Having it in all 50 states is fantastic," she said. "It's going to make the data so much better."

To learn more about state VDRS programs, visit [bit.ly/vdstateprofiles](http://bit.ly/vdstateprofiles). ■

— Kim Krisberg

### Gun Violence Prevention: A Public Health Approach

Edited By: Linda C. Degutis, DrPH, MSN, and Howard R. Spivak, MD



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*Gun Violence Prevention: A Public Health Approach* acknowledges that guns are a part of the environment and culture. This book focuses on how to make society safer, not how to eliminate guns. Using the conceptual model for injury prevention, the book explores the factors contributing to gun violence and considers risk and protective factors in developing strategies to prevent gun violence and decrease its toll. It guides you with science and policy that make communities safer.

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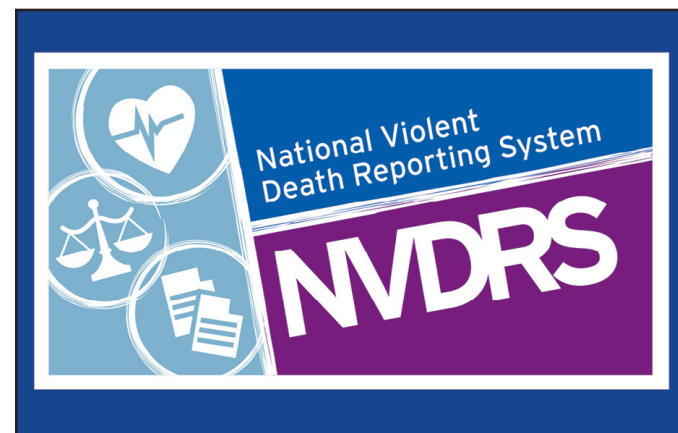


Image courtesy CDC

NVDRS pools more than 600 unique data elements from multiple sources into a usable, anonymous database.