

# NVDRS Following Nationwide Implementation

A review of the history, successes, and challenges

April 2020



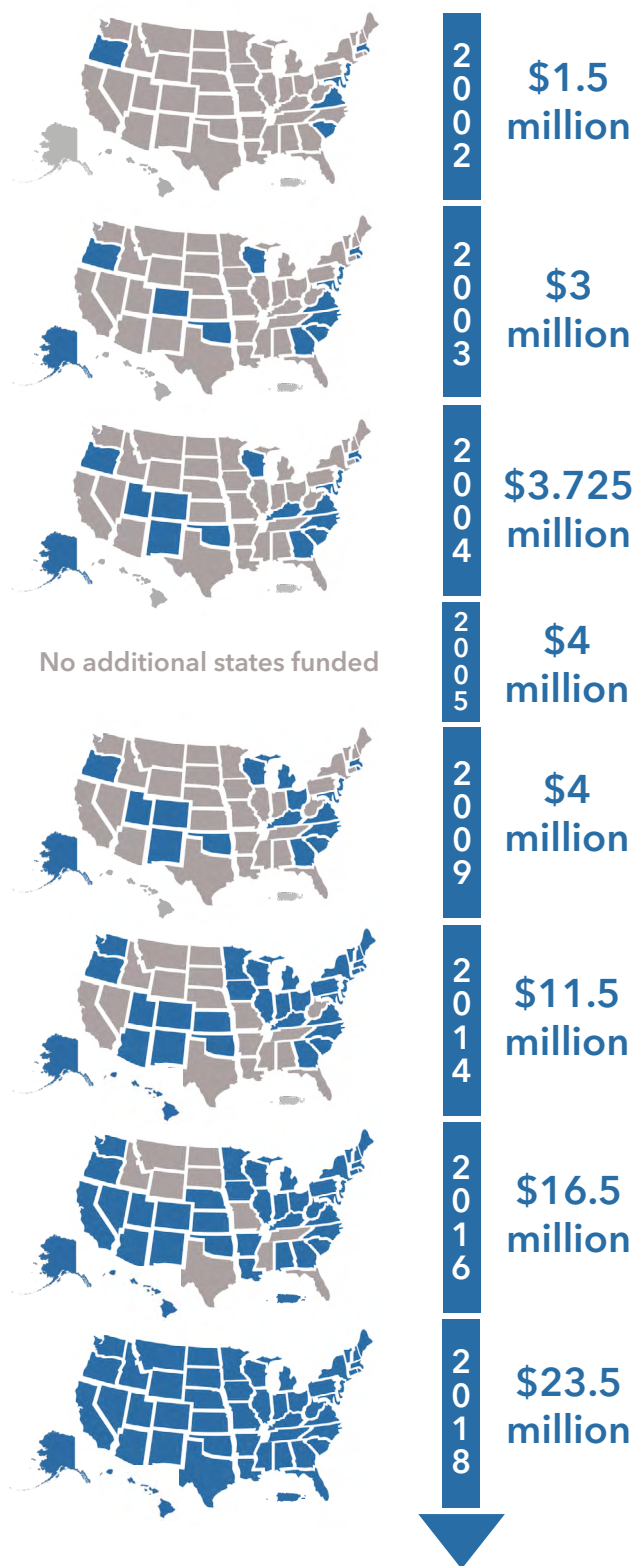
# NVDRS Program Background & History

In the United States, more than seven lives are lost per hour due to violence. More than 19,500 people were victims of homicide and over 47,000 people died by suicide in 2017.

To prevent violent deaths, Congress established the National Violent Death Reporting System (NVDRS), a surveillance system designed to collect information on the “who, when, where, and how” surrounding violent deaths. NVDRS is the only state-based surveillance system that pools more than 600 unique data elements from multiple sources into a usable, anonymous database. The system captures all types of violent deaths – including homicides and suicides – in all settings for all age groups. NVDRS’ ability to capture the circumstances surrounding a violent death is essential for identifying trends and opportunities for intervention to prevent similar events from occurring; however, funding for the program does not support the design and implementation of targeted prevention programs.

## How it works

NVDRS requires the collection of data from death certificates, coroner/medical examiner, law enforcement, and toxicology reports into one central database. States access the database through the Secure Access Management System Partner Portal (SAMS). The combined data provided by states gives valuable context about violent deaths, such as relationship problems; mental health conditions and treatment; toxicology results; and life stressors, including recent money- or work-related problems or physical health problems.



Information gathered by the NVDRS provides researchers, law enforcement and public health officials with the opportunity to better understand the circumstances of violent deaths and the contexts in which they occur. With a more complete picture, law enforcement and public health officials are more effective at working together to identify those at risk and putting into place effective prevention policies and programs that may save lives.

Housed at the Centers for Disease Control and Prevention’s (CDC) National Center for Injury Prevention and Control (NCIPC), NVDRS has established itself as a vital surveillance and data collection tool. It is now the go-to data repository for anyone conducting research on the underlying circumstances of violent deaths to identify patterns and trends.

As of 2018, NVDRS is funded to collect data in all 50 states, Washington D.C., and Puerto Rico, at a level of \$23.5 million. Data from the program is now seeding the design and implementation of evidence-based violent death prevention programs in states across the country.

<p><b>DEATH CERTIFICATE</b></p> <ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• Residence</li> <li>• Marital status</li> <li>• Profession</li> <li>• Employment status</li> <li>• Veteran status</li> <li>• Cause &amp; manner of death</li> <li>• Time of death</li> <li>• Pregnancy status</li> </ul>	<p><b>LAW ENFORCEMENT</b></p> <ul style="list-style-type: none"> <li>• Narrative on the circumstances of the death</li> <li>• Wound locations</li> <li>• Weapon information</li> <li>• Relationships among victim, perpetrator, others involved</li> <li>• Information on suspect(s)</li> <li>• Potential evidence to substantiate/support conclusion about violent death type (suicide, homicide)</li> <li>• Presence/absence of suicide note</li> <li>• Interviews with any witnesses, family members, others</li> <li>• Critical stressors in victim’s life</li> </ul>	    
<p><b>MEDICAL EXAMINER/ CORONER</b></p> <ul style="list-style-type: none"> <li>• Brief narrative of incident</li> <li>• Demographics</li> <li>• Wound location</li> <li>• Weapon information, patterns on victim</li> <li>• Cause of death</li> <li>• Manner of death</li> <li>• Current disease/ health condition</li> <li>• Current/recent medical treatment</li> <li>• Current medication</li> <li>• Relationships among involved persons (if available)</li> <li>• Circumstances relevant to death</li> </ul>	<p><b>TOXICOLOGY</b></p> <ul style="list-style-type: none"> <li>• Presence or absence of alcohol or drugs in victim(s)</li> </ul> <p><b>OTHER DATA SOURCES</b></p> <ul style="list-style-type: none"> <li>• Crime Lab             <ul style="list-style-type: none"> <li>• Type, make, model, serial number of firearms involved</li> </ul> </li> <li>• Domestic Violence Fatality Review             <ul style="list-style-type: none"> <li>• Information on current/ former girlfriend, boyfriend, date, spouse</li> <li>• Court/prosecutor &amp; restraining order records</li> <li>• Perpetrator criminal history, charge/conviction</li> </ul> </li> <li>• Child Fatality Review             <ul style="list-style-type: none"> <li>• Information on victim’s household, caregivers, supervision, contacts with child protective services, relationship with perpetrator</li> </ul> </li> </ul>	

# Successes

Since the program's inception in 2002, NVDRS has experienced notable successes that have facilitated its nationwide expansion. Successes in the program's implementation, utilization and administration by the NCIPC have led policymakers to support increased funding for the program, while encouraging all states to apply for, and pursue program participation. The successes of NVDRS have solidified the program's standing among injury and violence prevention (IVP) stakeholders and policymakers as a valuable resource supporting state-based violent death prevention efforts. Below are examples of program successes voiced by officials who work directly with the program.

## Increased Awareness of IVP

Implementation of the NVDRS program, as well as the ensuing partnerships between IVP professionals and data providers, has **increased the awareness of IVP** as a public health concern and created a forum for future **collaboration and enhanced state infrastructure for IVP** in many states. NVDRS officials noted that the increased awareness of IVP has translated into invitations to present at local, state, or national conferences to promote their IVP work. Others highlighted their participation at hearings organized by their state legislature as evidence that IVP issues enjoy greater visibility. The ability of NVDRS to promote IVP issues more broadly is viewed as a major program success.

## Partnerships

The implementation of the NVDRS program has **strengthened partnerships** between NVDRS officials and their data providers, such as medical examiners, coroners, and law enforcement agencies. For many states, NVDRS implementation acted as the seed that fostered a novel and formal partnership between law enforcement and public health. While there have been challenges in building these partnerships, the persistent efforts to work cooperatively have resulted in county- and state-wide alliances that have the potential to facilitate continued cross-sectoral collaboration.

### VDRS IN ACTION

The New Jersey VDRS program solidified a partnership with law enforcement agencies through a shared interest in addressing the rise in gang-related violence. State VDRS officials and law enforcement representatives worked on a shared definition of "gang violence" that subsequently allowed VDRS officials to provide law enforcement with a geo-map of gang violence hotspots. With the VDRS data in hand, law enforcement had the information they needed to target their resources to those areas with the greatest need.




## Improved Standardized Reporting

In some cases, data providers have been able to use the NVDRS program as an incentive to improve their data reporting processes, either with state-centralized databases or standardized data reporting. Ultimately, these enhanced data reporting processes have

**streamlined data collection** for NVDRS abstractors and **improved broader public health data collection and surveillance efforts**. This allows state VDRS programs to enhance their efficiency and maximize their resources while also providing more timely data.

**VDRS IN ACTION**  
Kentucky developed a standardized reporting form for coroners to ensure consistent, complete data from all providers, enhancing the data collection process.




## Unique and Rich IVP Database



In addition to strengthening partnerships between IVP professionals and data providers, the NVDRS program facilitates the **collection of valuable, in-depth data** highlighting trends associated with violent deaths. The comprehensive set of data variables allows researchers and analysts to connect violent deaths to the circumstances that precede them. This detailed data footprint **provides IVP stakeholders with a unique and rich database** that informs the design and implementation of targeted violence prevention efforts.

In addition to annual CDC data reporting requirements, state VDRS officials use the NVDRS data to provide a variety of reports to partner organizations at the state and local levels, reinforcing and furthering partnerships built through NVDRS efforts. States typically disseminate their annual reports widely to **showcase the program's value and increase utility of the data they collect. Additionally, states field requests to create customizable reports based on their partners' needs.**

**VDRS IN ACTION**  
Illinois used NVDRS data to create homicide heat maps for the state attorney's office to identify the best locations for a new community justice center.



The California VDRS program provided data for the development of the state's suicide prevention plan, while Utah added suicide prevention training to its Conceal Firearm Permit program as a result of the data.



## VDRS IN ACTION

The Kentucky VDRS program provided results from NVDRS statistical analysis to U.S. Representative Andy Barr to assist in the drafting of legislation to address veteran suicide.



For instance, data reports have been used to support legislation that bolsters violence prevention efforts, such as multiple bills addressing veteran suicide prevention. These data reports have also been used to support new and existing relationships between IVP professionals and stakeholder organizations committed to public health advocacy and IVP policy reform.

## Ability to Leverage New Funding

Expanding beyond the many ways that NVDRS data can be used to support prevention, the program has also **positioned states well when applying for grants to extend their IVP capacity.**

The benefits of NVDRS data collection, implementation, and usage increase states' competitiveness and readiness to leverage the program in support of new efforts.

## VDRS IN ACTION

IVP professionals supporting the Michigan VDRS program successfully applied and received funding for opioid surveillance.



California successfully secured increased staffing resources internally within the Department of Public Health for additional violence prevention work as a result of the strong infrastructure, partnerships, and readiness created through NVDRS implementation.



## Technical Assistance

NVDRS has experienced a gradual roll-out with new states added to the program over time, leading to significant variation in IVP capacity across states. Several states noted that **CDC's technical assistance has been essential to an efficient start up period.** CDC's technical assistance is intended to help states with continued maintenance of the program, and CDC matches trained project officers to best support states depending on where they are in the implementation process. While CDC has continued to grow its technical assistance program in response to state needs, additional opportunities exist to expand upon their offerings.

## VDRS IN ACTION

States see the opportunity to collaborate as a major program success and have expressed their desire to continue to share ideas.



Building on the direct technical assistance provided to states, CDC has employed peer-to-peer learning across states. The stepwise national expansion of NVDRS has allowed more experienced states to assist those newly funded. While somewhat taxing on the more experienced states, these **peer learning opportunities have been instrumental in onboarding newer states** to facilitate successful implementation of the program.

## Web-based Data Submission System

In addition to providing technical assistance, CDC is receptive to receiving input on the challenges associated with the NVDRS program's web-based software, fielding questions from the states and taking feedback about suggested updates and new data points. CDC recently rolled out an update to its web-based data submission, which has resulted in a significant decrease in error messages and lost data. However, as states expand their VDRS programs and caseloads continue to grow, the system will need continued maintenance and upgrades.



### VDRS IN ACTION

CDC's dedication to addressing state needs with the data submission system ultimately improves the timeliness and quality of data submitted.



## Flexible Administration

While the NVDRS program is often housed within state health departments, the program is designed to allow its administration within an academic institution. **The benefits of hosting the program in an academic institution are multifold.** While academic institutions have significant overhead compared to state health departments, these institutions are typically well equipped with resources that may offset the increased overhead expenses. Such resources can include access to enhanced data analysis tools; faculty with expertise in surveillance, epidemiology, and prevention; additional funding streams to leverage in concert with NVDRS funding; and access to supporting datasets. Additionally, CDC recently modified the guidance on the required NVDRS annual reporting, to allow professionals at academic institutions to produce data briefs that abide by both CDC and university requirements. While there is value associated with housing the state VDRS program at an academic institution, **the flexibility for states to pick the best solution for their circumstances is a benefit.**

Researchers at academic institutions can also access the Restricted Access Database (RAD), CDC's compilation of NVDRS data, with ease compared to those with programs housed at state health departments. With access to the RAD, researchers have a greater ability to analyze NVDRS data, which increases the visibility and utilization of the program.

### VDRS IN ACTION

The Kentucky VDRS program, housed at the University of Kentucky, received access to Research Electronic Data Capture (REDCap) through their university affiliation and developed a mirror data system in REDCap that allows them to import their data into the system at a pre-selected time avoiding peak usage when errors are most common.



## VDRS IN ACTION

The Illinois VDRS, housed at Lurie Children's Hospital of Chicago and Northwestern University, has shared NVDRS data with researchers at the University of Illinois Champaign Urbana to gain a better understanding of suicides among agricultural workers, and with the Illinois Nurses Association to better understand suicide among Illinois nurses, and the Illinois Poison Center to investigate the mix of prescription and illicit drugs in overdose deaths.



# Challenges

NVDRS has seen many successes as increased funding and support have led to tremendous growth in the program; however, its ongoing evolution means that opportunities for improving program implementation and utilization of the data in the field grow alongside the program.

## Lack of Support and Participation from Data Partners

One of the main challenges that IVP professionals face when implementing NVDRS is the **initial lack of support from law enforcement agencies, medical examiners, and/or coroners**. These data providers are sometimes skeptical of providing identifiable data to abstractors due to concerns about security and a lack of awareness of the protections in place to safeguard them. Additionally, there exists an inherent lack of understanding of the role that these data providers play in advancing a public health approach to the prevention of violent deaths. These concerns have made it challenging for state officials supporting NVDRS to get data provider agreements in place and move forward with data collection. CDC has made efforts at the national level to foster partnerships across these communities, but there remains substantial pushback at the state and local levels.

Additionally, turnover in local offices has posed a challenge to maintaining relationships and seamless data collection after initial hurdles are addressed, as ongoing collaboration requires the active commitment and participation from all partners. These challenges also decrease program efficiency and require that states use a significant amount of their programmatic resources to recruit, train, and onboard new partners.



To truly drive this work forward, the NVDRS program would benefit from a paradigm shift to drive the collaboration of the two communities through state legislation mandating data sharing or additional funding to provide financial incentives to data providers.



## De-centralized States

Expanding on the challenges associated with data collection, many states have **de-centralized medical examiner, coroner, or law enforcement agencies**. In these scenarios, abstractors must work with local data providers directly to collect data, sometimes requiring that they travel to individual counties to collect physical case report forms. This process puts an added strain on state VDRS officials, especially in large states with many counties, and drains a significant portion of available resources. As a program initially rolled out among smaller states, the nationwide expansion of NVDRS has resulted in substantial challenges for geographically larger or more populous states. Finally, in addition to the lack of centralized databases, many states' data providers do not have standardized reporting forms, making data collection more challenging and data entry prone to errors.



The efficiency of the NVDRS program would improve substantially with centralized information management software programs and standardized case reporting forms.

As states noted the greatest variation in data reporting coming from coroners and medical examiners, action is needed to instill some level of standardized data reporting across the coroner and medical examiner field. Recognizing that states maintain jurisdiction over the field and that a 50-state patchwork of standardization requirements is not helpful, a campaign should be mounted to appeal to the federal government for assistance. Such a campaign would benefit state and federal data collection efforts and inform current work to modernize public health data surveillance systems.

## Funding Formula Challenges

The historical roots of the NVDRS program in smaller states has created an efficiency and equity issue as the program has expanded to larger states. Many of the less populous, larger geographic states have higher proportions of under-served and native populations whose rates of violent deaths are disproportionately higher than their counterparts. The data collection challenges in these states – often due to the obstacles related to decentralized systems noted above -- further perpetuate gaps in prevention efforts for these communities. Similarly, more populous states are limited in their ability to conduct VDRS efforts statewide because the funding formula used to determine state allocations does not provide sufficient support, and thus focus on select counties or regions within their state.



The NVDRS program would benefit from the CDC reviewing the current formula used to determine funding levels to promote equity, sustainability, and comprehensive coverage across states.

## Web-based Data Submission System

One of the most widely cited challenges across programs is the data entry process into the NVDRS web-based system. **The process of data entry can be tedious and time-consuming and is made more challenging by technological inefficiencies in the SAMS system.** As previously mentioned, the CDC is aware of and responsive to the technological difficulties posed by the web-based data entry system and has made recent updates to reduce the amount of time the system is down or simply inoperable. However, states are still reporting system errors and unusual delays in submitting their data, especially during peak work hours across all time zones. These system errors and resulting inefficiencies present a burden to the state VDRS officials who should be the programs' strongest champions.



Significant enhancements to the web-based system would increase efficiency of state resources

and increase utility of the NVDRS data for prevention efforts.



## Epidemiology Support and Capacity

The NVDRS program includes specific data reporting requirements and is accompanied by limited funding to support a portion of an epidemiologist's time, leading to the sharing of epidemiologists between NVDRS and other competing state programs. **Because the limited funding currently available does not support a full-time epidemiologist, states are stymied in the depth of analysis they can perform, making overall data dissemination and reporting to partners challenging.** With the goal of the NVDRS program being to provide communities with a clearer understanding of violent deaths so that they can be prevented, data reporting and dissemination is vital.



Lack of adequate funding to support data analysis, dissemination, research, and subsequent

prevention programs is one of the most fundamental challenges associated with the NVDRS program.

Without the resources to truly examine the data and produce meaningful reporting, states are limited in their capacity to develop or maintain prevention activities at proven points of intervention. With this exists a fear among states that NVDRS may be viewed as just another CDC data collection effort without much meaningful benefit to a state. Providing states with adequate resources to use the data collected for their prevention efforts would allay this concern.

Further, if states wish to use external partners to conduct data analytics, the hurdles that partners face in accessing the data through CDC is often prohibitive. Researchers who want to access and use NVDRS data through the RAD must contend with a cumbersome application processes. The process currently in place to access RAD data is extensive and time-consuming, and many potential data users are ineligible due to strict CDC requirements that an organization or researcher must meet. Researchers in academic institutions are one of the data user groups who more easily meet the requirements needed to access the RAD, but the application process remains cumbersome even for these individuals.



The inability to access state NVDRS data through the RAD leads to decreased data utilization and could be improved by easing the eligibility requirements and application process to allow broader usage of the data.

## Program Staffing

Beyond epidemiological support, proper staffing of the NVDRS program in the states is vital to its success. However, this can be challenging given the existing barriers with program implementation and funding. Abstractors, who most regularly interface with data providers, must be tactful and resourceful to build successful relationships, while also having patience and skill to address the data collection and entry challenges. Moreover, abstractor positions tend to be funded at entry-level salaries, leading to significant turnover in the role, thus slowing down the overall operation of the program. Turnover is further incurred due to the psychological toll often taken on these professionals as they consistently navigate difficult and heavy subject matter while maintaining high caseloads. In addition to proper staffing amongst abstractors, program epidemiologists must be able to produce clear and actionable data reports, while also focusing on other workloads, which can be challenging as noted above. States have also acknowledged the benefits of having a state official solely dedicated to program strategy to promote program expansion within the state. **Ultimately, adequately and appropriately staffing the NVDRS program in the states can be a challenge at current funding levels.**



Increasing funding to state VDRS programs would allow states to

fully staff their programs to ensure full program implementation and utilization.

Adequate training has the potential to address some of the staffing challenges noted above. Even with the CDC's technical assistance, onboarding can be difficult for newer states as



The NVDRS program would benefit from various training resources, such as video tutorials,

to aid in onboarding and supporting existing team members.

they must learn how to navigate the web-based data entry system, understand the data variables, identify data providers, and secure memorandums of understanding, among other tasks. Abstractors, in particular, need easily accessible training to introduce them to the system and its basic functions. State VDRS officials would also benefit from ongoing training, such as psychological autopsy certification or training to interview those impacted by a violent death but are typically unable to do so because states do not have adequate resources.

# Innovative Solutions

Despite facing challenges with the implementation and utilization of the NVDRS program, states have been successful in using innovative measures to meet the requirements set forth by the CDC and to grow their programs.

For example, Ohio has worked with their policy makers to enact legislation mandating data sharing, which greatly facilitates collaborating with medical examiners, coroners, and law enforcement agencies in the collection of violent death data. Other states, like Illinois and Kentucky, have hired individuals with backgrounds in law enforcement to build relationships with data providers, resulting in improved collaboration and partnership. Some states have provided financial assistance to data providers to support their work with the NVDRS program.

To address the web-based data entry system challenges, states choose specific times during the day when states in other time zones are less likely to be active in the system. As previously mentioned, Kentucky created a mirror data system in REDcap to import the data into NVDRS during downtime to reduce the time spent waiting for the system to respond. States have also shown ingenuity in their use of the data by linking it to other existing data sets to support prevention efforts.

Ultimately, there are many examples of states using ingenuity to overcome challenges associated with the NVDRS program.



States would benefit from having SAMS support linkages to other datasets as the system is continuously being improved.



To enhance the program's implementation and utilization, dedicated funding could support efforts aimed at scaling many of these examples across states or regions.

## Methodology

The Safe States Alliance produced this issue brief, with the intention of better understanding the history, successes, and challenges of the National Violent Death Reporting System. This issue brief was informed by key informant interviews representing injury control research centers, the Centers for Disease Control and Prevention, and state VDRS programs from Wisconsin, Kentucky, Michigan, Illinois, Minnesota, Pennsylvania, California, Florida, and Oregon. All findings were synthesized and summarized to provide a comprehensive view of the program's successes and challenges. This report was funded by the Joyce Foundation.

The Safe States Alliance is a national, 501(c)3 non-profit organization and professional association, comprised of public health injury and violence prevention professionals representing all U.S. states and territories. For over 25 years, Safe States has been forging strong partnerships and amplifying the voice of injury and violence prevention to strengthen the practice and understanding of prevention. The Safe States Alliance membership is comprised of nearly 600 injury and violence prevention practitioners representing state health departments, local health departments, universities/ academic institutions, hospitals/ healthcare organizations, federal agencies, and non-governmental organizations.



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