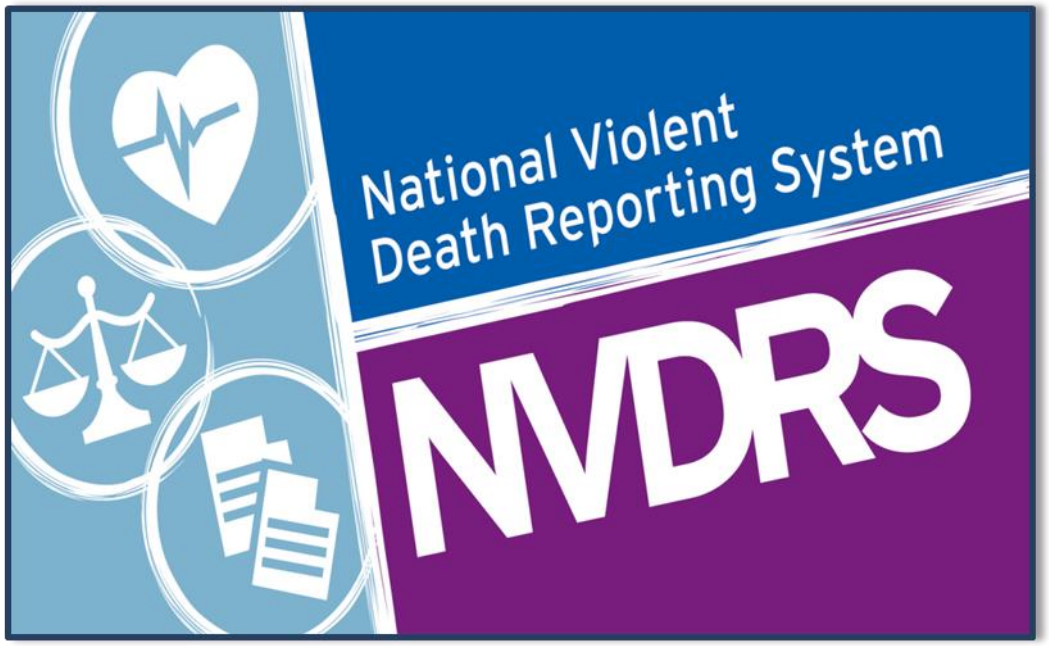
National Violent Death Reporting System (NVDRS) Implementation Manual: A State's Guide to Starting and Operating a Violent Death Reporting System



Mortality Surveillance Team
Surveillance Branch
Division of Violence Prevention
National Center for Injury Prevention and Control
Version Date: October 24, 2014

Contents

Acronyms, Abbreviations, and Definitions

ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives: ATF is a unique law enforcement agency in the United States Department of Justice that protects our communities from violent criminals, criminal organizations, the illegal use and trafficking of firearms, the illegal use and storage of explosives, acts of arson and bombings, acts of terrorism, and the illegal diversion of alcohol and tobacco products. http://www.atf.gov/content/About
CDC	Centers for Disease Control and Prevention
C/ME	Coroner or Medical Examiner
FARS	Fatality Analysis Reporting System: FARS is a nationwide census providing the National Highway Traffic Safety Administration (NHTSA), Congress and the American public yearly data regarding fatal injuries suffered in motor vehicle traffic crashes. http://www.nhtsa.gov/FARS
FBI	Federal Bureau of Investigation: The FBI is an intelligence-driven and threat-focused national security organization with both intelligence and law enforcement responsibilities—the principal investigative arm of the U.S. Department of Justice and a full member of the U.S. Intelligence Community. It has the authority and responsibility to investigate specific crimes assigned to it and to provide other law enforcement agencies with cooperative services, such as fingerprint identification, laboratory examinations, and training. The FBI also gathers, shares, and analyzes intelligence—both to support its own investigations and those of its partners and to better understand and combat the security threats facing the United States. http://www.fbi.gov/about-us/faqs
FFL	Federal Firearms Licensee
FOIA	Freedom of Information Act
HIPAA	Health Insurance Portability and Accountability Act
ICD	International Classification of Diseases: The ICD is the standard diagnostic tool for epidemiology, health management and clinical purposes. It is used to monitor the incidence and prevalence of diseases and other health problems.
ICD-9	International Classification of Diseases, 9th Revision
ICD-9-CM	International Classification of Diseases, 9th Revision, Clinical Modification
ICD-10	International Classification of Diseases, 10th Revision
IRB	Institutional Review Board

NCHS	National Center for Health Statistics
NIBRS	National Incident Based Reporting System
NVDRS	National Violent Death Reporting System
NVDRS application	Web-based program for collecting NVDRS data
NVISS	National Violent Injury Statistics System
SHR	Supplementary Homicide Report
UCR	Uniform Crime Reporting

Background

Violence is a major public health problem. Over 57,000 people died violently in the US in 2012, including 40,600 suicides and 17,238 homicides (1). Accurate, timely, and comprehensive surveillance data is needed to better understand and ultimately prevent the occurrence of violent deaths in the United States (2). A variety of public agencies such as law enforcement, coroners, medical examiners, and vital statistics collect information on violent deaths. Information from these sources, however, is not systematically integrated into a single description of a violent death. This results in an incomplete and fragmented description of violent deaths.

The National Violent Death Reporting System (NVDRS) is a state-based surveillance system that links data from law enforcement, coroners, medical examiners, vital death statistics, and crime laboratories to assist each participating state in designing and implementing tailored prevention and intervention efforts (See http://www.cdc.gov/violenceprevention/nvdrs/index.html).

NVDRS collects information on violent deaths, unintentional firearm deaths, undetermined deaths, where victims are killed, when they are killed, and what factors appeared to contribute to or precipitate the death. NVDRS is the first system to provide detailed information on circumstances precipitating violent deaths including brief narratives, to combine information across multiple data sources, to comprehensively describe violent deaths and to link multiple deaths that are related to one another (e.g., multiple homicides, suicide pacts, and cases of homicide followed by the suicide of the alleged perpetrator).

History of NVDRS

In 1999, the Institute of Medicine (IOM) issued a report entitled, *Reducing the Burden of Injury*, citing the need for a national fatal intentional injury surveillance system to provide objective data to monitor trends and to evaluate the effectiveness of prevention programs and policies (3). In 2000, the Harvard Injury Control Research Center piloted the National Violent Injury Statistics System (NVISS) at 13 sites, mostly universities, in order to advocate for its implementation at the national level by the federal

government. Harvard and the Joyce Foundation held a meeting in 2000 to suggest that CDC direct a publicly funded system to monitor fatal intentional injuries, and in late 2000, CDC started planning to develop the system and announced its intention to launch NVDRS. The first appropriation from Congress for NVDRS ($2.25 million) was given in 2002, and NVDRS data collection began in 2003 with seven participating state-based violent death reporting systems (VDRS). With the addition of six states in 2004, four states in 2005, and two states in 2010, a total of 19 states have been funded to collect NVDRS data. In 2014, 32 total states were funded to collect NVDRS data. All funded states share their de-identified data with CDC. NVDRS summary data from 2003 to 2011 are available at: http://www.cdc.gov/injury/wisqars/nvdrs.html.

The purpose of NVDRS is to build the capacity of states to collect and disseminate surveillance data on violent deaths. Such data provide critical insight into the magnitude, trends, and characteristics of violent deaths. NVDRS funding enables states to collect comprehensive and standardized descriptions of violent deaths by integrating information across multiple data sources, including death certificates, coroner reports, medical examiner reports, and law enforcement reports in a standardized manner. The collection of surveillance data on violent deaths is designed to enhance the effectiveness of violence prevention efforts implemented by stakeholders including public health and government agencies, researchers, community organizations, and the public. NVDRS data can be disseminated to stakeholders so that appropriate violence prevention efforts can be identified, selected, targeted, implemented and evaluated with the ultimate goal of reducing violent deaths.

Introduction

The purpose of this manual is to: (1) assist groups in developing and maintaining violent death reporting systems (VDRS) in their states; (2) provide information about available resources and sources of technical support for implementing a violent death reporting system; and (3) promote the development of uniform violent death reporting systems so that data can be compared across states and localities. The Centers for Disease Control and Prevention recommends that all staff familiarize themselves with the information in this manual in order to prepare for project implementation. Use of this manual will help to ensure procedures are carried out uniformly across all participating NVDRS areas.

Project Reference Materials and Resources

In addition to this Implementation Manual, several other resources can provide further guidance regarding NVDRS. These resources include:

National Violent Death Reporting System User Guide: This user guide assists abstractors in becoming familiar with the navigation and functionality within the web-based NVDRS.

NVDRS Coding Manual: The coding manual was developed through an extensive consultation process. It is published by the National Center for Injury Prevention and Control of the Centers for Disease Control and Prevention. The manual is used by NVDRS abstractors to guide abstraction data collection activities and provides information on how to code incidents and variables.

Help Section in NVDRS Web Application: This is a section in the NVDRS web-based system that can be accessed by selecting the "Help" radio button at the top of the page. The Help section consists of system help, coding help (links to the NVDRS Coding Manual), an introduction to the NVDRS Help Desk, analysis help, and training and resources. Contact your NVDRS Project Officer for more information on how to access the NVDRS web-based system.

Training modules: These are being developed to assist abstractors with using the web based data collection application. Select modules will be demonstrated during the CDC reverse site visit and will be available online.

NVDRS Help Desk: The help desk is supported by the Mortality Surveillance Team at CDC and functions as a single point of contact for all NVDRS service requests, technical assistance and programmatic questions **related to the web-based application**. The Help desk is available by sending an e-mail to NVDRSHelp@cdc.gov.

NVDRS Communication: CDC maintains an NVDRS listserv, or electronic mailing list, to facilitate communication among NVDRS staff across the project areas. This listserv is generally used by PIs, PMs, and other NVDRS staff to exchange information with VDRS staff in other project areas. For more information about this listserv, please contact your NVDRS Project Officer.

Informational Materials: CDC has developed materials that NVDRS states can use in their promotion and dissemination activities. The general NVDRS fact sheet developed by CDC provides an overview of NVDRS and is appropriate for widespread use. These materials can be accessed at the CDC NVDRS website: http://www.cdc.gov/ViolencePrevention/NVDRS/index.html.

NVDRS External Website: CDC maintains an external website to disseminate general information about NVDRS to the public. The NVDRS general website includes an overview of the project, contact information for participating VDRS states, fact sheets, and other materials. This information can be accessed at the CDC NVDRS website: http://www.cdc.gov/ViolencePrevention/NVDRS/index.html.

Meetings and Trainings: CDC will convene regular in-person meetings and webinar trainings with Principal Investigators (PIs), Program Managers (PMs), abstractors and other partners to address specific content areas and provide a forum for sharing information across VDRS areas. Abstractors will be offered in person or webinar trainings to provide them with information and skills related to the successful execution of NVDRS. CDC also holds regular all-states conference calls with participating VDRS areas. In addition, CDC project officers will travel to project areas to conduct annual site visits.

Collaborating Agencies and Stakeholders

NVDRS is conducted through CDC's Division of Violence Prevention and the following state health departments or other entities:

Alaska Department of Health and Social Services
Arizona Board of Regents on behalf of Arizona State University
Colorado Department of Public Health and Environment
Connecticut State Department of Public Health

Georgia Department of Public Health
Hawaii State Department of Health
Illinois (Lurie Children's Hospital of Chicago)
Indiana State Department of Health
Iowa Department of Public Health
Kansas Department of Health and Environment
University of Kentucky Research Foundation
Maine Office of Chief Medical Examiner; Office of Attorney General
Maryland Department of Health and Mental Hygiene
Massachusetts Department of Public Health
Michigan Department of Community Health
Minnesota Department of Health
New Hampshire Department of Health and Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health/Health Research Inc.
North Carolina Department of Health and Human Services
Ohio Department of Health
Oklahoma State Department of Health
Oregon Health Authority Public Health Division
Pennsylvania Department of Health
Rhode Island Department of Health
South Carolina Department of Health and Environmental Control
Utah Department of Health
Vermont Office of the Chief Medical Examiner
Virginia Department of Health, Office Chief Medical Examiner
Washington State Department of Health
Wisconsin Department of Health Services

In addition to CDC and the state health departments, stakeholders for this project include other agencies and groups such as:

- American College of Preventive Medicine (ACPM)
- Council of State and Territorial Epidemiologists (CSTE)
- Institute of Medicine (IOM)
- International Association of Chiefs of Police (IACP)
- Joyce Foundation
- National Association of Medical Examiners (NAME)
- National Association of Public Health Statistics and Information Systems (NAPHSIS)
- Safe States Alliance

CDC established relationships with other federal stakeholders during the conception and development of NVDRS. Communications with these federal partners will continue. CDC will maintain communication with state and local health departments through e-mails, conference calls, site visits, and meetings with Principal Investigators, Project Managers, and other project staff.

NVDRS Objectives

The National Violent Death Reporting System (NVDRS) is a population-based active surveillance system that provides a census of violent deaths, unintentional firearm deaths, and undetermined injury deaths that occur among both residents and nonresidents of funded U.S. states. The objective of the system is to assist in the prevention of violent deaths in the U.S. through the provision of systematically and routinely collected, accurate, timely, and comprehensive data for prevention program development. This objective is met by achievement of five main goals:

1. Collect and analyze timely, high-quality, comprehensive data for monitoring the magnitude and characteristics of violent deaths at the national, state, and local levels.

2. Ensure that violent death data are routinely and expeditiously disseminated to public health officials, law enforcement officials, policy makers and the public, in accordance with data re-release plans.

3. Track and facilitate the use of NVDRS data for researching, developing, implementing and evaluating strategies, programs and policies designed to prevent violent deaths and injuries at the national, state and local levels.

4. Build and strengthen partnerships with organizations and communities at the national, state, and local levels to ensure that data collected are used to prevent violent deaths and injuries.

5. Identify creative strategies for expanding and sustaining NVDRS in all 50 states, the District of Columbia (DC) and U.S. territories.

NVDRS is coordinated and funded at the federal level. NVDRS depends on separate data collection efforts from violent death reporting systems in each state. Generally, but not always, state health departments manage the state violent death reporting systems.

NVDRS Methodology

Unlike most public health surveillance systems that are based on the individual victim, the NVDRS is incident-based and links all victims and alleged perpetrators (suspects) associated with a given incident in one record. Each incident record includes information about victims, suspects, their relationships, and any weapon(s) involved in the incident. For NVDRS surveillance purposes, the following are included: suicides (taking one's own life intentionally and voluntarily), homicides (the killing of one person by another that results from the intentional use of any means to injure, poison, or threaten another person), deaths of undetermined intent, unintentional firearm deaths, legal intervention (excluding executions) and deaths due to terrorism. Death certificates use International Classification of Disease, 10th Revision (ICD-10) codes to note underlying causes of death, and this is how these cases are typically classified. However, a death that is not given an appropriate ICD-10 code may be included if the death certificate, law enforcement report, or coroner/medical examiner report characterizes the death as any of the causes listed here. The ICD-10 codes that define NVDRS incidents are as follows:

Suicide: X60-X84, Y87.0, U03*
Homicide: X85-X99, Y00-Y09, Y87.1, U01-02*
Undetermined intent: Y10-Y34, Y87.2, Y89.9
Unintentional firearm: W32-W34, Y86 (firearm)
Legal intervention: Y35.0-Y35.7 (except Y35.5), Y89.0
*Terrorism U01, U03, U02

NVDRS is the first system to provide detailed information on circumstances precipitating all types of violent deaths including brief narratives, to combine information across multiple data sources, and to link multiple deaths that are related to one another (e.g., multiple homicides, suicide pacts, and cases of homicide followed by the suicide of the suspect). To fully characterize incidents, states collect information about deaths from numerous data sources. These sources include death certificates, coroner/medical examiner, and law enforcement reports.

Data are collected on the following:

Data Level	Topic
INCIDENT	Date
	Incident Type
	Incident Location Type
	Death Investigation Sources
	Incident Address
PERSON (Victim & Suspect)	Demographics
	Circumstances
	Toxicology Results
	Weapon
WEAPONS	Type/Characteristics

Data Collection Approaches

Beginning with the fiscal year 2014 funding cycle, states have flexibility with collecting information on violent deaths in their jurisdictions. Several approaches can be used during the five year funding period, consisting of the 3 options listed below. Options 2 and 3 allow for a pilot during the first year of funding, (i.e., collecting data on a subset of violent deaths, or collecting data from a subset of counties, respectively).

1. States can collect data on all violent deaths occurring during years one through five of their funding in their jurisdiction (e.g., all violent deaths in the state for a state government and all violent deaths in a territory or district for U.S. territories and the District of Columbia, respectively).

2. States can conduct a pilot during the first year of funding. During the pilot, the applicant can collect data on a subset of violent deaths in their jurisdiction (i.e., only collect data on a percentage of violent deaths occurring in 2015) and make preparations for collecting data on all violent deaths in

their jurisdiction. In funding years two through five, the awardee must collect data on all violent deaths in their jurisdiction (e.g., all violent deaths in the state for a state government and all violent deaths in a territory or district for U.S. territories and the District of Columbia, respectively).

3. States can collect data on violent deaths occurring in a subset of their counties for funding years two through five in which over 80% of all violent deaths occur in their jurisdiction (e.g., a state chooses to collect data on 2016 to 2019 violent deaths occurring in 40 out of 50 counties that accounted for 87% of the violent deaths in their state in 2010) OR at least 1,800 violent deaths occur (e.g., a state plans to collect data on all violent deaths occurring from 2016 to 2019 in five counties that experienced 2,000 violent deaths in 2010). The selected counties must capture a minimum of 25% of the suicides and 25% of the homicides that occurred in their full jurisdiction in 2010 according to National Center for Health Statistics (NCHS). The applicant can conduct a pilot during the first year of funding or collect information on all violent deaths in its target area (i.e., subset of counties). During the pilot, the applicant can collect data on a subset of violent deaths in targeted counties (i.e., only collect data on a subset of violent deaths in its target area occurring in 2015).

For additional information regarding the data collection approaches, please refer to the Funding Opportunity Announcement, "Collecting Violent Death Information Using the National Violent Death Reporting System, CDC-RFA-CE14-1402, dated 4/9/2014, located at the following link: http://www.grants.gov/web/grants/view-opportunity.html?oppId=253589

Alternative Sources of Violent Death Data

Two alternative national sources of data on violent deaths are the National Center for Health Statistics' National Vital Statistics System, which is based on death certificate data, and the Federal Bureau of Investigation's Supplementary Homicide Report (SHR), which is filed by local police departments as part of the Uniform Crime Reporting Program. Selected elements from the death certificate are used for NVDRS, and SHR reports may also be used to provide information for NVDRS. However, some limitations of these data sources include:

- Vital statistics data do not include important information about the circumstances under which homicides or suicides occur or the victim-offender relationship in homicide cases.
- Vital statistics data are victim-based and provide no method of linking multiple victim incidents (e.g., homicides that are followed by the suicide of the offender).
- The SHR is a voluntary system, and not all law enforcement agencies submit SHRs to the FBI's Uniform Crime Reporting Program.
- SHR data only provide information about homicides; suicide data are not included.
- Vital statistics and SHR data provide very few details about the characteristics of the weapons used in these events.

NVDRS addresses limitations of the aforementioned data sources by linking these and other sources together at the local level to create comprehensive data about all violent deaths.

MORE RESOURCES:

National Center for Health Statistics National Vital Statistics System:
http://www.cdc.gov/nchs/nvss.htm

Federal Bureau of Investigation, Uniform Crime Reporting Program, Supplementary Homicide Reports:
http://www.fbi.gov/about-us/cjis/ucr/nibrs/addendum-for-submitting-cargo-theft-data/shr

Planning for a Violent Death Reporting System

NVDRS Staffing

Careful screening and selection of staff is critical to the overall success of NVDRS. Strong leadership abilities, good communication skills, and a marked enthusiasm for the project are essential attributes for VDRS staff. The following is the CDC recommended staffing structure for VDRS programs. Although the following information is a guide, project area staff is encouraged to tailor the information in this section to reflect their local staffing guidelines.

Principal Investigator (PI)

The PI is primarily responsible for the oversight of the VDRS in the project area. Specific duties at the local level include providing administrative, scientific, and technical guidance to local staff, engaging community stakeholders, and communicating findings from VDRS. The PI is also fiscally responsible for the project including submitting financial and status reports to the CDC Procurement and Grants Office (PGO) (e.g., Interim Progress Reports, Responses to Technical Reviews, etc.). In addition, the PI will apply for and obtain Institutional Review Board (IRB) approvals and amendments (if applicable to the local project area) and will participate in CDC site visits, CDC reverse site visits, and monthly conference calls.

Project Manager (PM)

The PM manages the daily operations of VDRS in the project area for implementation. Specific duties include (but are not limited to) coordinating and evaluating the activities of VDRS staff, liaising with advisory board members, reporting findings to community stakeholders, and ensuring that proper procedures for NVDRS data collection are followed. The PM will also participate in CDC site visits, CDC reverse site visits, and monthly conference calls.

Abstractors

Abstractors are primarily responsible for abstracting the information from death certificates, coroner/medical examiner records, and law enforcement records. Given the disturbing nature of such records, abstractors may need an additional level of self-care. The supervisor should be particularly

aware of assessing abstractor well-being and utilizing any local resources to do so. This is discussed in further detail on page 17 of this manual. They may also be involved in liaising with partners such as vital statistics, law enforcement, or coroner or medical examiners offices. Abstractors will also participate in CDC-sponsored trainings.

Supportive Relationships/Partners

Vital Statistics Staff

Working with staff in the vital statistics department is critical to NVDRS, as vital statistics staff provide death certificate information that is often used to initiate an incident in the reporting system.

Health Department Staff/Directors

Health department staff and directors may support NVDRS by sharing information about the project with others and using letters of support to garner support for the project. The data collected in NVDRS is useful for health departments because it can inform stakeholders about the extent of and circumstances surrounding violent deaths across their jurisdiction.

Selecting Stakeholders

Stakeholders are people or organizations that are invested in the system, are interested in the data, and/or have a stake in what will be done with the results of the data. These stakeholders should be made aware of the purpose of NVDRS, and the data the system may provide to support violence prevention activities. Representing their needs and interests throughout the process is fundamental to a good surveillance system. Many NVDRS states that are already implementing the project have established relationships with the community.

Stakeholders can help (or hinder) a VDRS at any stage of its development or functioning but are much more likely to support the evaluation and act on the results and recommendations if they are involved in decision-making processes. Conversely, without stakeholder support, the VDRS may be ignored, criticized, resisted, or even sabotaged.

In selecting stakeholders, it's important to give priority to those stakeholders who:

- Can increase the credibility of your efforts
- Are responsible for day-to-day implementation of the activities that are part of the program
- Will advocate for continuation, expansion, or improvements to the system

In addition, to be proper/ethical and accurate, you need to include those who participate in the program and are affected by the program or its evaluation.

Leaders in the fields of law enforcement, criminal justice, health and mental health can become valuable advocates for VDRS and should be invited to attend stakeholder meetings. The convener/chair for stakeholder meetings should be carefully considered. Potential chairpersons include judges or district attorneys, faith community leaders, university presidents, respected physicians, or presidents from the state's coroner/medical examiner or law enforcement association).

Obtaining initial support from potential stakeholders can be challenging. Institutional and political support will vary greatly from site to site. Strategies for addressing these challenges will vary. Community input may be sought from established groups (such as community planning groups and other potential consumers of the surveillance data) or a group of community representatives convened to consult with the health department about the project. Other input may be obtained by presenting the purpose of the project and its aims at local meetings or through newsletters, or other networks.

Holding a Stakeholder Meeting

NVDRS states have successfully used stakeholder meetings before or at the initiation of project implementation to promote support among participating agencies, to recruit expertise, and to address objections and concerns that stakeholders may have before they become obstacles (e.g., They may ask, "Why should we be interested in the reporting system, and how will this benefit me or my local community?") The stakeholder information meeting can happen from a variety of platforms, for example, as part of a larger conference about violence or as a dedicated meeting. It may have local, regional, and statewide constituencies. A neutral location for the meeting such as a local college or hotel meeting room can also be considered (See Appendix A for a sample letter of invitation to stakeholder meetings).

At the initial stakeholder meeting, consider the following key agenda items in order to engage stakeholder participation.

- Explain why the reporting system is needed. Describe what is known and not known about the problem of violent injuries in your state or community. Discuss the opportunities a violent death reporting system offers to combat myths and misunderstandings, to develop and refine prevention programs and to evaluate programs and strategies. References in the bibliography may be helpful for this task. CDC can also provide an NVDRS slide set that can be used for presentations.

- Describe the challenges and obstacles to success of the system as well as key contacts and resources.

- Promote buy-in from agencies and individuals who may provide data by identifying the benefits of a violent death reporting system.

- Establish a list of roles and responsibilities for stakeholders.

- Develop a mission statement for the VDRS and for the stakeholder committee. A draft mission or vision statement may be useful to include in an initial letter of introduction or invitation to the stakeholder meeting, and can serve as starting point for discussion.

A mission statement may be informed by state statute or developed independently. For instance, several states have legislation authorizing injury prevention programs that include injury surveillance or reporting. This type of legislation can be referred to in a mission statement. Injury prevention is a goal that offers common ground for parties who might not otherwise agree about issues involving violence, especially firearm violence. (See Appendix B for a sample mission statement)

- Discuss an action plan. Pay particular attention to immediate next steps for stakeholders, including the development of an advisory board.

MORE RESOURCES:

Appendix A: Sample letter of invitation to stakeholder meetings
Appendix B: Sample mission statement

Developing an Advisory Board

Purpose of an Advisory Board

Whether identified as a steering committee, technical board, advisory group, or otherwise, this board can offer technical advice, strategic planning, and support for NVDRS's success. The goal of an advisory board is to advise the core VDRS staff about the establishment and scientific integrity of a VDRS, act as a vehicle for information dissemination, and to help leverage the support of new organizations and resources. Those who have a real voice in the direction of the program are more likely to offer assistance and resources.

Be clear about the expectations for members and their initial term of membership, including an explanation of the board's advisory and policy roles. Note: It is important to be clear that the state health department has final responsibility for policy decisions. (See Appendix C for a sample letter of invitation for advisory board members)

Advisory Board Composition

Board members should include persons who are associated with and knowledgeable about the data sources, are interested in using/analyzing the information, have expertise in data collection, will come to meetings, represent local/state agencies, and can influence agency decisions and cooperation (or effectively communicate reporting system concerns back to the decision makers). (See Appendix D for a suggested list of advisory board members).

Ideally, the board should consist of leaders from the following domains:

- Law enforcement
- Coroners/Medical Examiners (C/MEs)
- Vital registrars
- Health care (including health departments)
- Policymakers/Advocacy groups
- Business

• Community organizations (including the faith community)
• Researchers/Educators

Roles of the Advisory Board

Activities of the advisory board can include:

• Reviewing and advising policies and procedures regarding data collection, linkage, and publication
• Providing technical advice on implementation of the VDRS
• Identifying the best uses of the data
• Strategizing about how to remove political, legal or technical obstacles and inefficiencies
• Providing speaking opportunities with professional organizations
• Obtaining or sign data-sharing agreements
• Serving as evidence of broad, high-level support for the system
• Facilitating the dissemination of data reports
• Consulting on use of VDRS data to inform local prevention efforts

STATE EXAMPLES:

Here is an example of advisory board composition from the North Carolina Violent Death Reporting System (NC-VDRS): http://www.injuryfreenc.ncdhhs.gov/About/NC-VDRSAboutAdvisoryBoard2014.pdf

Here is an example of advisory board composition from the Ohio Violent Death Reporting System (OH-VDRS):
http://www.healthy.ohio.gov/~/media/HealthyOhio/ASSETS/Files/injury%20prevention/OH-VDRS%20Advisory%20Board%20Members.ashx

MORE RESOURCES:

Appendix C: Sample Letter of Invitation for Advisory Board Members
Appendix D: Suggested list of Advisory Board Members

Technical Preparation for Operating a Violent Death Reporting System

Since July 2013, the NVDRS has used a web-based system for data collection. Sites implementing a VDRS in their state must use this web-based system so that data structures are consistent across reporting sites. With the web-based system, states can directly import their data into the national database. Death certificate data can be imported directly; data from other sources may have to be converted prior to importation. The CDC software provides an export function for creating files that contain only the state's variables.

There are three essential components required for VDRS data collection:
- A personal computer with adequate internet access
- Personnel experienced with the Microsoft Windows environment as well as data management
- Access to required data sources

It is important to share the list of required data elements with reporting sources early in the process of implementation. For more information on the web-based application, please refer to the National Violent Death Reporting System User Guide.

Equipment Needs

NVDRS data are collected via a web-based application; therefore a laptop or desktop computer is needed. Use of tablet computers is not recommended.

MORE RESOURCES:

States participating in NVDRS can obtain technical support for the web-based platform via email at help@nvdrs.com.

Financial and Personnel Resources

Staff time requirements

The amount of personnel time required to abstract a VDRS case will vary for each reporting site depending on: (1) the number of violent deaths in the jurisdiction; (2) whether data are centralized; and (3) whether data are available electronically or manually.

STATE EXAMPLES:

Table 1. Data Abstraction Time Requirements

State	No. of Violent Deaths per Year	Total hours per incident	Total Hours per Year (hours x cases)	FTEs needed*
Maryland	~1550	2.5 – 3.0	3875 – 4650	1.9 – 2.2
Wisconsin	965	1.5-3.0	1,448-2,895	1.8

*Full time equivalent (FTE) calculated by dividing total hours per year required to complete each case by the total hours in a year for an FTE position.

Staffing level

Staffing needs will vary depending on: (1) the number of violent deaths occurring in the jurisdiction; (2) the type of sponsoring institution (public/private); (3) access to resources (e.g., an information systems department); and (4) if data are centrally located and available electronically or not. A core staff (part-time or full time) may include: Program Manager, Data Manager, Research Analyst, and Principal Investigator (e.g., Director of Health Statistics or equivalent) to negotiate contracts and to secure funding.

Sites may have different combinations of the above core staff and may have one or more persons who perform a variety of duties. In some states, the data manager may also abstract some incidents and

coordinate electronic submission of data. The data manager may also be responsible for uploading all of the death certificate data to initiate an incident in the VDRS system.

STATE EXAMPLES:

Table 2. Core Staffing Requirements

State	Number of violent deaths	Staff Epidemiologist?	Number of staff abstractors
New Mexico	700	yes	2 full time
Utah	800	yes	1.25 full time
Ohio	2200	yes	2 full time/4 part time

Additional financial considerations

Data sources may require compensation for sharing or allowing access to their records. Additional fees may be charged for things like criminal history background checks, copying/mailing reports or hard copies of death certificates. On-site review/data abstraction may be an option to avoid/reduce such additional fees.

STATE EXAMPLES:

- Wisconsin: Local C/ME and Law Enforcement may charge for copying/mailing of reports. This varies by county and generally costs $0.25/page.

- Utah: By waiting for electronic death certificate data, charges are avoided. Data on fatalities are usually available 3 to 4 months after the death.

Staff Training

As stated previously, CDC will conduct abstractor trainings using a standardized tool. Principal investigators for participating NVDRS states should also consider developing their own training protocols for new staff. CDC also holds monthly coding workgroup calls to discuss issues that are of interest to abstractors.

Staff Care

Given the subject matter of NVDRS, it is important that all NVDRS staff have procedures in place for accessing staff well-being, particularly that of abstractors who will be reading coroner and medical examiner reports, law enforcement reports and death certificate information. The Mortality Surveillance Team (where NVDRS resides at CDC) is developing procedures for Atlanta-based staff, and encourages all state VDRS staff to be aware of local resources (e.g., Employee Assistance Programs, etc.) that are available in their respective states.

Additionally, when data from coroners and medical examiner reports are requested, VDRS staff in some states specifically ask the data providers not to include incident scene photos, given that they are not part of data collection and are not needed for the purposes of this project.

Privacy Protection and Information Policies

The nature of data collected in a VDRS makes careful consideration of privacy and confidentiality a necessity. Some common related concerns regarding VDRS data include:

- Collecting information from restricted sources.
- Sharing and publishing data locally
- Providing data to a national system
- Preventing the unauthorized access and release of data
- Protecting information from release in legal processes
- Preventing the loss, distortion, or inappropriate alteration of data

Privacy versus Confidentiality

The term "privacy" refers to the rights of an individual to be free from physical and informational intrusion by others, while the term "confidentiality" refers to the obligation of a party to protect the private information they have been given about an individual from disclosure to others without permission.

Confidentiality in Violent Death Reporting Systems

In addition to legal responsibilities required under widely varying state and local laws and ethical obligations, protecting private or otherwise sensitive information from disclosure serves several practical concerns faced by reporting projects. This is true even where personally identifying information is not directly implicated. For instance, most law enforcement agencies are reluctant to divulge information that could even remotely compromise pending investigations. Law enforcement may be particularly sensitive about "legal" interventions or deaths that occur in the course of duty. Protecting confidences and assuring that data will not be reported in a manner that could lead to distortion or misunderstanding can contribute to the level of trust necessary for timely and comprehensive cooperation from data providers. In this respect, confidentiality also involves assurance to reporting agencies that rigorous security standards are in place. State health departments submit information to CDC that does not include personally identifiable information such as names, addresses, and dates of birth. The names of individual victims and suspects are not released at the state level. Local laws that protect other types of health department records, such as communicable disease records, also apply to NVDRS files.

Institutional Review Board (IRB) clearance and VDRS

The U.S. Department of Health and Human Services regulations for the protection of human subjects in research projects conducted at institutions receiving federal support are codified at Title 45 Part 46 of the Code of Federal Regulations.

The regulations require that institutions receiving federal funds to conduct human subjects research implement a program of protection for affected individuals that includes privacy protections. This is sometimes referred to as the IRB (Institutional Review Board) process.

This primary purpose of public health surveillance is to benefit the population under surveillance. This is in contrast to the purpose of research, which is to generate new knowledge. CDC's view and that of many state agencies is that NVDRS and participating VDRSs represent public health surveillance rather than research and therefore does not require IRB clearance.

However, IRB clearance is required for the following:

- External research would require IRB clearance because the potential for disclosure of personal identifiers about living individuals in NVDRS data.

- Individual states may have different policies and require state IRB clearance for all projects using identifiable data, no matter what their purpose.

State surveillance staffs should consult with their state privacy boards or IRB to determine whether local review will be required.

HIPAA (Health Insurance Portability and Accountability Act) and VDRS

HIPAA privacy regulations, effective April 14, 2003, govern access to and release of individually-identifying health care information and supersede state laws. The regulations apply directly to health-care providers including hospitals, clinics, paramedic and EMS programs, and most private health practitioners. It is important for VDRS projects to educate their data sources about the exceptions in the HIPAA regulations that expressly authorize disclosure of this information for purposes of public health surveillance. Law enforcement, coroners, medical examiners, and other sources of data are therefore not prohibited from contributing to NVDRS by HIPAA.

HELPFUL HINTS:

- Allow sufficient lead-time to obtain IRB approval, if necessary. In some cases, the process may take many months.

- Prepare working definitions of privacy, confidentiality, health records, juvenile records, criminal records, etc., for your local reporting system. These definitions will vary among project sites.

- Prepare an inventory or checklist of legal requirements regarding information acquisition and protection.

MORE RESOURCES:

Appendix E: Sample Summary Elements for an IRB Protocol

Initiating a Violent Death Reporting System

This section describes steps to initiate and implement a violent death reporting system in your jurisdiction.

Working with Data Providers

This section describes data access issues common to all of the data providers and offers some comments about data linkage. Several tools for system implementation are listed throughout this section.

The first step in developing a successful linked data system is to establish cooperative and mutually-beneficial relationships with the data providers and organizations involved in the initial stages of data collection.

There are several ways to approach data providers:

- Speak directly with the local agencies (coroner/medical examiner or law enforcement).
- Speak with someone at the state level (state police, state medical examiner's office, or crime laboratory).
- Get involved with the data provider's state professional organization (e.g., Coroner's Association, Medical Examiner Association, Police Chiefs Association, and Sheriff Association).
- Approach an advisory board member to help identify the appropriate contact person.

Once contact is made, set up a meeting either in person or over the phone to discuss the type of data elements needed, data confidentiality, how the data can be collaboratively used and in what form the data are available (electronic files or hard copy reports). A protocol for data-related projects might already exist for some data providers (e.g., C/ME offices have historically worked on data-related projects, such as child fatality reviews or Sudden Infant Death Syndrome projects).

Accessing data

Some data providers have electronic data systems, and information is transferred easily by disk or email. There may be some providers who are willing to modify their electronic data collection process to accommodate information collected for the VDRS. Other data providers rely on paper filing systems. In these situations, data providers may be willing to complete data collection forms. Be sure that the forms are easy to understand and that there is ample space to write a narrative about the circumstances of the incident. Provide the option of mailing or faxing in the form or files while ensuring confidentiality. When data providers have a substantial number of cases, consider traveling to do on-site data collection. One alternative is to ask agencies to mail/fax copies of their reports and abstract data yourself.

There are pros and cons to manual versus electronic data collection. In general, if the necessary data are available electronically, advocate for electronic transmission. Electronic transmission is less labor-intensive, but the data may be less detailed than what is available through manual abstraction. Sites

that rely on agencies to conduct their own manual abstraction, however, may receive less detailed and less reliable information.

Consider targeting large cities or regions of the state with centralized data, or alternatively, target regions with computerized data. If electronic data are not available, at least manual abstraction will be concentrated in a specific geographic location.

Addressing Barriers to Accessing Data

If access is restricted, call on the relationships built with advisory board members and other data providers, since their connections or experience in a community may provide access. One of the barriers to access is often that the data provider is busy accommodating other data requests and does not have time for yet another. Offer to help with an existing fatality research project and concurrently capture the data you need. This provides a win-win situation for both the reporting system and the data provider.

If resistance continues, appeal to the agency that oversees the particular data provider or consider submitting an "Open Records" or "Freedom of Information Act" (FOIA) request. These types of requests vary from state to state, but almost all contain exceptions for certain kinds of sensitive identifying information. Information from completed law enforcement investigations may be subject to an "Open Records" or a state "FOIA" request (See Appendix F: Open Records Request).

It is always better to have a working relationship with the agency, rather than to try to compel their disclosure of data. Some law enforcement and C/ME offices may wish to have a written request in their files for political or public relations reasons or legal protection. Alternatively or in addition, review the state statutes regarding the release of violent death records in your state for any exceptions that apply to public health efforts. If no exception exists, explore a legislative proposal.

STATE EXAMPLES:

Ohio: Ohio was successful in passing legislation regarding the establishment, reporting, and confidentiality of VDRS in Ohio Revised Code. The bill specifies that the VDRS is permitted to collect information about violent deaths in Ohio only from existing sources related to violent crimes and explicitly prohibits the VDRS from conducting independent criminal investigations in order to obtain information, data, or records for use by the Reporting System. The bill also requires that every state department, agency, and political subdivision in Ohio provide information, data, and records, and otherwise assist in the execution of the Reporting System. Visit this website to see the full bill:

http://www.healthy.ohio.gov/~/media/HealthyOhio/ASSETS/Files/injury%20prevention/ORC%20-%20OH-VDRS.ashx

Data Provider Turnover

Build relationships with several people in an office. Please plan on personnel turnover. The more people who know you and the importance of the project, the easier the transition will be when a contact leaves.

STATE EXAMPLE:

North Carolina: North Carolina was granted access to the death certificate files on the secure North Carolina Center for Health Statistics website and imports the files weekly. This system worked well until there was a personal shift in the North Carolina Center for Health Statistics. When this occurred, the assignment of ICD-10 codes was impacted and in consequence NVDRS cases were delayed.

MORE RESOURCES:

Appendix F: Open Records Request
Appendix G: Letter for Contacting Data Providers

Death Certificates

The death certificate is the "gold standard" for identifying a fatal event and is often the first step in the data collection process. Because death registration is mandatory in all states, using the state's vital records office to identify cases is the best way to ensure that intentional deaths are captured. Each state has unique laws for accessing death certificate data, so meet with the state's registrar's office to find out what the laws are in your area.

Several individuals actually fill out a death certificate. When a death occurs, the funeral director obtains information from the family about the decedent's education, occupation, birthplace, racial identity, etc. The local C/ME supplies cause of death and basic scene information. The certificate is then filed with the local or state health department. Most states have a nosologist at their state health department registry of vital records. A nosologist is a health care professional whose main duties are to analyze clinical statements and assign standard codes using a classification system. The nosologist assigns the International Classification of Diseases (ICD) cause of death codes, usually with software assistance. Other coders code and enter the remaining information, and in some states, assign codes for the victim's usual occupation and industry.

Types of Death Certificate Data

There are three types of state death certificate data. First, there is the death certificate itself, which is usually available within a few weeks after the death. The certifier enters the information about the cause of death and nature of injury, but may or may not have coded it.

The second type is preliminary electronic data, either in electronic form or a hard copy printout. Sometimes these preliminary electronic data are available within weeks of the certificate being filed. Some states have a portion of their death registration system in electronic form, which can save the time of manual abstraction.

The third type is final death certificate data that are cleaned and fully coded. This level of data may not be available for a long time, as much as a year and a half after the close of a data year. In most states these data can be released to the public. A written request and, in some cases, submission of an IRB application (see section on Privacy Protection and Information Policies) may be required before access to individual level records containing personal identifiers can be granted.

Some states now have electronic registration systems, which allow the medical certifier to directly enter the cause of death data, which may speed up the accessibility to cause of death information. However, in some states, registrar personnel still enter data from hard copies.

Manner and Cause of Death

All death certificates will identify both a Manner of Death (natural, accident, suicide, homicide, pending investigation, or "could not be determined.") and a Cause of Death. The Cause of Death section consists of two parts. Part I is for reporting a chain of events leading directly to death, with the immediate cause of death on line “a” and the underlying cause of death on the lowest used line. Part II is for reporting all other conditions that contributed to death but did not result in the underlying cause. Some injury deaths are coded as “Pending” for manner of death because they are still under investigation. Periodically check on the status of these cases by referring back to the certificate.

Accessing death certificates

First, try contacting the state vital records office. Many offices will not have extra personnel to take on additional projects. Accessing the data may require a memorandum of understanding even if the vital records office is within the state health department. Paying for vital records may be necessary. There are a number of ways to collaborate with vital records. For instance, VDRS data can be used to perform data quality checks on the vital records data or VDRS may collaborate with vital statistics on a project.

STATE EXAMPLES:

- Wisconsin: A memorandum of understanding with vital records allows an electronic file of violent death certificates to be received. However, some key variables are not yet electronic and need to be hand keyed into the system.

- Maryland: The Maryland Violent Death Reporting System (MVDRS) has a Memorandum of Understanding with the Maryland Vital Statistics Administration and obtains electronic death certificate data from vital statistics typically six to eight weeks after the month of death. The electronic death data is supplemented with information from the paper records, which are requested once during the data year. No costs are involved in obtaining papers records of death certificates.

Manual versus electronic death certificates

For states without electronic registration, the delays between the occurrence of a death and the release of electronic data may be considerable. Searching through paper records may be required to identify violent deaths in a timely way. However, cause of death, occupation, and industry may not be coded on these reports.

STATE EXAMPLES:

- Wisconsin: electronic death certificate data is timelier than paper, however, Wisconsin currently still has to manually enter some key variables that are not electronic. Wisconsin vital records will be fully electronic by fall of 2013 so the process should become even timelier.

- Utah: Coded and cleaned electronic death certificate data are shared with the VDRS because of a pre-existing relationship with vital records.

Discrepancies in county or state of injury and the county or state of residence

While the process of filing death certificates is standard (death certificates are filed in the county where the decedent is pronounced), the process of who investigates deaths varies. Some deaths are investigated in the county where the injury occurs and others where the decedent is pronounced. Check with your state vital records office to determine who investigates and signs death certificates. VDRS sites are asked to collect information about all of their residents' violent deaths (wherever the injuries occur), and all fatal violent injuries that occur in their state regardless of the location of death.

STATE EXAMPLES:

- Wisconsin: Death certificates are signed by the investigating C/ME in the county of injury. In cases where the injured person dies from injuries in a county different from where they are injured, the death certificate is filed in the county of death. If a person sustains an injury in Wisconsin and is pronounced dead in another state, the C/ME in the other state will sign the death certificate, using information from Wisconsin law enforcement.

- Maryland: Maryland's VDRS collects information on fatal violent injuries that occur and are pronounced in the state as well as information on cases in which the injury occurred out-of-state but the victim is pronounced in Maryland. Maryland's VDRS initiates violent death cases by electronic death certificate records and not by law enforcement reports. Consequently, they do not receive death information on cases in which a victim is injured in Maryland but hospitalized and pronounced in Washington D.C., West Virginia or other neighboring states.

- Utah: Death certificates are signed and filed based on where the decedent is pronounced dead.

Timeliness of death certificates

Each state has laws requiring that death certificates be submitted to a specific agency within a certain number of days after the pronouncement of death. There may also be a policy requiring that all deaths for a given year be submitted within a certain amount of time after the year's end (e.g., three months). Check with the state vital records office for specific time requirements.

STATE EXAMPLES:

- Maryland: MVDRS receives electronic death certificate records in a timely manner and the records are available typically between six to eight weeks after the month of death.

- North Carolina: On average it takes about 10 weeks for the DC to show up in the electronic dataset, the DC has to be filed in the county of death within 5 days and it is then certified on the state level. NC gets access to the electronic data weekly.

"Pending" Manners of Death on the Death Certificate

A case might be listed as "Pending" for as long as it takes the investigators to make a determination of the manner of death. Some cases may remain pending indefinitely, while others are eventually assigned a manner of death, however, the time delay is such that the updated information may not be captured in that states reported statistics. Develop a procedure for monitoring "pending" cases and for re-checking with vital records.

Identifying Multiple-Victim Incidents

Linking victims who die in a multiple-victim incident is a challenge since most data sources are victim-based, and not incident-based. There are several ways to link cases, none of which are foolproof. For homicides, the Supplementary Homicide Report (SHR) of the Uniform Crime Reporting Program has a field called Situation, which indicates whether the victim died in a single- or multiple-victim incident. The police report offers another opportunity to link deaths, as it may refer to other related deaths. Finally, the C/ME report may list other related fatalities in multiple-death incidents. Linkage is more difficult when only electronic data are received from data sources. In these cases, work with local law enforcement or the C/ME to ensure that the incident number and linked fatalities are included in the transmitted data. Querying your data for cases that occur in the same county on the same day may also identify missed linkages.

International Classification of Disease (ICD) Codes

The World Health Organization maintains the International Classification of Disease (ICD, which is revised approximately every 10 years. The 10th revision (ICD-10) (3) is used in the U.S. for deaths occurring in 1999 and beyond. The International Classification of Disease, Ninth Revision, Clinical Modification (ICD-9-CM) (4) was developed by the U.S. National Center for Health Statistics to classify morbidity information. Hospital discharge data are still coded using ICD-9-CM.

Both ICD-9 and ICD-10 contain codes specifying the nature of a disease or injury and codes classifying the external causes of injuries (e.g., e-codes). These external causes of injury codes provide information about whether the injury was violence-related, the mechanism of injury (e.g. motor vehicle, fall, poisoning), and information about the location (e.g. home, farm) for unintentional injuries and assaults. The first three numeric digits give the major grouping, and the fourth digit, when present, provides further detail.

HELPFUL HINTS:

- Vital records may charge a fee for making photocopies of death certificates to cover administrative costs.

- Occasionally the medical examiner reports an intentional death that was reported in vital statistics as a natural cause (e.g., a SIDS case that the medical examiner later determined was a homicide). Contact vital records and ask that the death certificate be updated in their files.

- Vital records offices in each state are supposed to receive copies of death certificates of their residents who die out of state (per interstate agreements). Because of differences in confidentiality laws, states need only report information about the decedent that follow their own state's reporting statute. Note: Information about deaths of non-residents in these states will eventually be available on the NCHS mortality tape (without personal identifiers).

- All vital records offices report their annual mortality statistics based on residence.

MORE RESOURCES:

Appendix H: U.S. Standard Certificate of Death

For a list of ICD-10 codes see: http://www.cdc.gov/nchs/icd/icd10cm.htm

Coroner/Medical Examiner Data

Coroners and Medical Examiners (C/MEs) are responsible for investigating violent or sudden deaths and for providing an official determination of the cause of death. Because of their relationship with law enforcement, district attorneys, or other mandatory reporting systems, C/MEs straddle both the judicial system and public health/medical arenas. While death investigation practices vary widely across states, specific responsibilities may include:

- determining the circumstances surrounding the death
- investigating the scene
- arranging for or conducting postmortem exams or autopsies
- toxicology testing
- certifying the cause of death

Some states use a medical examiner system, others use a coroner system, and some use a combination of both. Medical examiners are usually appointed officials, have jurisdiction in states, districts or counties, and in most states (but not all), hold a medical degree. Coroners are usually elected and have jurisdiction in counties or districts. In many states, coroners are not required to have medical knowledge or experience in death investigation. However, they are typically required to be a resident of the county in which they practice, and they must be 18 years of age or older.

Death investigation guidelines vary between states, but C/MEs typically investigate deaths due to homicide, suicide, or unintentional injury (5).

Funding can affect toxicology and autopsy practices. Some C/ME offices may have multiple investigators, computerized data systems, and full service morgue facilities, while others may have a single investigator with no office or sophisticated database.

The information that C/MEs collect during death investigations provides important information for the study of mortality trends in the U.S., and has long been recognized as a good source of data for public health surveillance. C/MEs provide the reporting system with very valuable information about the victim the results of toxicology tests and the circumstances surrounding the incident.

Accessing Coroner/Medical Examiner Data

After identifying all violent deaths through vital records, consult the death certificate to find which C/ME investigated the death. In some states this information is listed on the death certificate; in others, the county of injury indicates the C/ME to contact. Once contact is made with the correct person, determine the office's protocol for data abstraction.

STATE EXAMPLES:

- Kentucky: There is a state-mandated training in which all coroners participate. This is a way of raising awareness and obtaining coroner participation in the VDRS.

- Wisconsin: Case information is requested via written communication. C/MEs either send copies of the narrative report, toxicology findings, and autopsy report, or send a completed data collection form. Counties that do not respond receive a second letter. Counties that have responded in the past but don't respond to a specific request will receive a phone call.

- North Carolina: North Carolina VDRS receives an electronic copy of the records of deaths on a monthly basis that are included in the Medical Examiner Information System.

Addressing barriers to accessing C/ME data

If barriers arise, find out what the C/ME's concerns are and see if there are ways to address those issues to everyone's satisfaction. There may be an opportunity to help with another fatality review project, (e.g., child fatality/death review or domestic violence review) while collecting violent death data. This will help cut down on the number of people requesting information from the C/ME. If there is continued resistance, assess the possibility of a legislative initiative for mandatory reporting.

STATE EXAMPLES:

- Wisconsin: While a data provider may not provide any response to a request, it is rare that a request is denied. When this happens, the Principal Investigator will work with the data provider to identify the potential reason and trouble shoot barriers (often a discussion of authority, protection and use resolves the situation).

- Kentucky: To overcome some challenges of accessing coroner data, Kentucky's VDRS developed a smart phone application that will allow coroners/deputy coroners to enter basic information at the scene on a smart phone or an iPad. This application is demonstrated at each in-service and several counties have asked for demonstrations at their offices. This tool will likely improve timeliness of data collection and the data providers have been very receptive to using the tool.

Determining which C/ME investigated the case

This process will depend on the type of C/ME system in each jurisdiction. Check with state vital records to determine who investigates and signs death certificates. Also, refer back to the death certificate section of this manual for more information about how cases are handled when county of residence, county of injury, and county of death differ.

Paying for C/ME data access

This is one solution to gaining access to data; however, it is an expensive solution. Alternative suggestions include: (1) making the process of completing and sending data collection forms as simple as possible, (2) traveling to the C/ME office to gather the information; or (3) offering to purchase computer equipment so that data can be transferred electronically.

Timeliness of C/ME data

Timeliness varies from state to state and office to office and can depend on whether the C/ME system is centralized, and on available resources in the office.

Actual investigative reports may be available right away. However, toxicology and autopsy findings may take much longer as they are subject to staff availability. There may be situations in which no part of the C/ME case is available until the investigation is completed and a determination of death is made. Additionally, the time frame for data turnaround can vary even within the same state.

States with a couple of regional medical examiner offices or a single state medical examiner office may want to meet to determine the most efficient process for obtaining information. It may be more realistic for states with a lot of C/ME offices to use the phone, fax, and mail to work out reporting time frames. If there is limited information in case records, it might be wise to advocate for electronic data transmission.

STATE EXAMPLES:

- Maryland: Maryland had a statewide, centralized Medical Examiner System. Maryland's VDRS obtains electronic medical examiner data from the Maryland Office of the Chief Medical (OCME) once a month. This electronic data is imported into the database within 2 to 3 months after a death occurs. Manually collected data (e.g. precipitating circumstances, narratives, toxicology, wound information) is completed and entered into the database approximately 1 year after a death occurs due to ongoing investigations and waiting for documents to be finalized.

- Wisconsin: The majority of cases are available within a few weeks of the incident; however some cases are not available for review for 6 to 12 months. The variability depends on whether toxicology results are sent out for analysis, C/ME resources, and the ability to do on-site abstraction when the C/ME is unable to send copies of the report. For example, in the largest metropolitan area, data are electronic and the medical examiner has a laboratory for autopsy and toxicology testing. Therefore, the data are available very quickly. In smaller, more rural counties, there is

fewer office staff and the toxicology testing is sent out for analysis. The data may not be available for several months.

Manual versus electronic C/ME data

Frequently, only manual reports are available from C/MEs. Because these reports are the richest source of information for the reporting system, the investment of time required to abstract data manually from the reports is worthwhile. Many state medical examiner offices or larger C/ME offices have electronic databases.

If these databases include a narrative section about how the death occurred, they will be an efficient source of information. If the database does not include narrative sections, and if the variables essential to the NVDRS are excluded, the greater efficiency of the electronic database may not be worth the limited information available. It may be wise in that case to request access to the narrative report and to invest the time to abstract the data.

STATE EXAMPLES:

- Kentucky: A centralized or nearly centralized web-based system is expected. To date 80 of the 120 counties have not only signed up for the web system, but have entered cases into the web-based Coroner Investigation Reporting System (CIRS). Deputies in Jefferson County (the county with the highest number of violent death cases) are currently being trained on KY's CIRS web-based system.

- Virginia: Virginia's Violent Death Reporting System does not currently import data electronically. The project is located in the Office of the Chief Medical Examiner, which means that VDRS staff has routine access to death certificates and investigatory reports from the medical examiner (CME), law enforcement, and forensic sciences. Electronically importing death certificate information would likely result in a *longer* period of time for abstraction. Additionally, electronic import relies strictly on what is written in the document, while the VDRS coding model permits abstractors to read and compare several sources of information and then make the correct coding decision. For example, if Virginia's VDRS imported death certificate data, there would be many decedents whose home address would reflect that they lived in the City of Richmond because that is their technical mailing address. By visually abstracting the death certificate, we can distinguish between those who actually live in Richmond and those who live in surrounding localities. This type of accuracy is only possible by visual inspection of core source documents before making a coding decision. Virginia's VDRS abstractors do view and abstract from electronic versions of the CME when needed, but not through an import process. The Office of the Chief Medical Examiner uses a database called Virginia Medical Examiner Data System. This database has a basic version of the CME form that can be used when the death record is not immediately available. However, this version of the CME is typically scaled down, has no narrative, and is not reliably updated to reflect changing information. So, while the electronic version of the CME may be used to open an incident, the completed paper form of the CME must be used before the incident is closed.

Death certificates versus C/ME records

Death certificates are considered the "gold standard" for death counts. Therefore, reviewing death certificates will guard against missing cases whose C/ME files were overlooked. Conversely, death certificates will not contain information that C/ME records have, such as codes for underlying cause of death or coded occupation and industry information about the victim.

If death certificates are reviewed prior to C/ME records, the abstractor will have case names, and, for a C/ME without a computerized data system, this makes the process of manually pulling cases for review much easier. The C/ME assigns the manner of death on the death certificate. This variable is part of the reporting system. In addition, reporting sites assign a manner of death (which may contradict the C/ME manner of death code) based on reading reports from all the data sources. The assigned manner of death is based on uniform protocols for defining intent. (See the NVDRS coding manual for the protocol).

Toxicology Testing

States vary in terms of when toxicology testing is mandatory, what tests are run, and how quickly test results are made available. Becoming familiar with toxicology procedures will help you better understand when to request toxicology results. Please ask the data provider about the process and be sure that you are familiar with toxicology testing procedures in your state.

HELPFUL HINTS:

- Having a list of death certificates from vital records helps identify some cases that are not initially identified by the C/ME. The list of death certificates allows for double checking cases with the C/ME.

- The Attorney General may help facilitate access to important information from death investigators.

- Offer to pay (or provide supplies) for copying records.

- C/ME offices are usually under-funded and under-staffed. Keeping the process of data collection as simple and efficient as possible will go a long way toward achieving buy-in. Avoid a process that requires multiple staff and long meetings.

- Start attending the state coroner association meetings. Coroners may be more likely to respond to inquiries from people they have met.

- Provide training opportunities for C/ME investigators about the reporting system and the type of information needed. This will help to assure that C/ME reports are complete and accurate.

MORE RESOURCES:

For more information about the differences between coroners and medical examiners and death investigation regulation, see: http://www.cdc.gov/nchs/data/misc/hb_me.pdf.

Law Enforcement Data

Law enforcement records provide a rich source of information about the environment in which a fatality takes place. Law enforcement usually plays more of a role in homicide investigations than in suicides. However, depending on the jurisdiction, there may be some good information about suicides. There are two types of police data to consider when implementing a reporting system. Both originate from local law enforcement: Supplementary Homicide Reports/NIBRS Homicide Reports and Police Case Reports. This section will also describe sources of detailed firearm data. Specifically, there will be descriptions on crime lab data and trace data from the Bureau of Alcohol, Tobacco, and Firearms.

Supplementary Homicide Reports and NIBRS Homicide Reports

The Supplementary Homicide Report (SHR) is a voluntarily- submitted report that was added to the UCR to capture standardized, incident-based information about homicides.

Most states submit data to the SHR/UCR system; however some states are transitioning to a newer system called the National Incident Based Reporting System (NIBRS). Few states have been certified as NIBRS states. The move toward the NIBRS began in the late 70s when the quantity, quality, and timeliness of UCR data needed enhancement. The NIBRS improves the methodology for compiling, analyzing, auditing, and publishing the collected crime data, and gathers crime information about 46 specific crimes voluntarily-reported by state and local law enforcement agencies.

Both the SHR and homicide reports within NIBRS are incident-based and are voluntarily-reported to a state UCR office or directly to the FBI (for states without UCR offices) on a monthly basis. Both reports contain information about age, race, and sex of the victim and offender, victim-offender relationship, precipitating circumstances, weapon type, jurisdiction, and month/year of offense. However, the NIBRS has several advantages:

- Information is reported about the particular crime rather than in aggregate.
- More specific information is reported about assaults, sex offenses and homicides by increasing the number of reportable offenses in an incident.
- NIBRS data are captured in a relational database and can therefore capture multiple circumstance codes (the SHR captures only one) and victim-offender relationship for each victim-offender pair in an incident (SHR data only captures relationship information about the first victim).
    - NIBRS has standard fields for personal identifiers.

Accessing SHR data

To access SHR data, talk to local law enforcement and determine which state agency is the repository for SHR data. It is typically located in the state police or public safety department.

Barriers to accessing to SHR data

If the state UCR program is unwilling to make electronic data available, they may be willing to photocopy the SHR forms filed by the police. If there is continued resistance, work with a local police chief who may be able to help facilitate a meeting with the UCR program coordinator. Additionally, sites may need to appeal to the agency that oversees the state UCR program.

SHR Timeliness

Data are generally submitted on a monthly basis to a state/federal agency; revisions to previous submissions are also forwarded monthly. States have different protocols regarding the stage at which data can be released. Sites need to work with their state or federal contact to receive SHR data (electronic or hard copies) when it is first available. Reporting systems in states with manual SHR need to continue to advocate for timely electronic data.

STATE EXAMPLES:

- Maryland: SHR data are available within 4 to 6 months after a death occurs. SHRs are received on a quarterly basis from a law enforcement agency.

- Wisconsin: A manual review of SHR data is done annually as time and staff allows. Subsequent reports are compared to see if any codes were changed on previously reported homicides. Any updates are recorded.

Police case reports versus SHR

The SHR provides basic data for a reporting system. Police reports provide much greater detail. One advantage of reading case reports is the ability to capture and code multiple circumstances (e.g., burglary, juvenile gang violence, and suspected offender shot by police may apply to one incident). Therefore, sites should seek access to the original police reports whenever possible.

STATE EXAMPLE:

- Wisconsin: In the majority of cases the Law Enforcement report contains all necessary data and SHR are redundant.

Death certificates versus SHR

Traditionally, death certificates report a greater number of homicides than SHR. The numbers may not match because: SHR is a voluntary reporting program and not all law enforcement agencies participate, and those who do participate may not consistently report all cases. Nationwide, the SHR misses at least 20% of all homicides.

MORE RESOURCES:

• For more information UCR/NIBRS visit: http://www.fbi.gov/about-us/cjis/ucr

• For a list of state UCR program contacts see: http://www.asucrp.net/Membership%20Listing.html

Appendix I: Supplementary Homicide Report
Appendix J: National Incident Based Reporting System Form

Law Enforcement Case Reports

Law enforcement reports are found in police files and provide an overview of the type and location of the incident, circumstances, victim(s), suspect(s), and weapons recovered. Reviewing case reports can be labor-intensive; however it provides an opportunity to obtain rich data.

Accessing Law Enforcement data

Contact law enforcement (directly, through the C/ME, or through an advisory board member), and organize a meeting with police management to discuss the mission and objectives of the project. Once law enforcement is supportive, discuss the data elements needed, data confidentiality, how the data may help them, and in what form the data are available. Law enforcement reports are often not standardized, which can result in multiple types of forms being used. VDRS staff should familiarize themselves with the different types of forms that are used in their state.

Review the procedures for data access with each jurisdiction. When inquiring about a case, provide a case number if possible; otherwise provide the victim's name, date of birth and date of incident. Data can be obtained either from an electronic database or from a manual review of cases.

STATE EXAMPLES:

- Maryland: In approximately 2/3 of cases, the police report is included in the Medical Examiner file. The remaining 1/3 are all requested at the same time near the end of the data collection time frame from various state and local law enforcement agencies. Since a given data year must be closed out by June 30th, the missing police reports are requested in March to allow enough time for receipt, abstraction and entry into the database.

- Wisconsin: Most law enforcement agencies prefer a written request for their reports. Once law enforcement receives a request, the information is faxed, mailed, or phoned in depending on the agency. When the largest police departments in the state do not have the personnel to pull, copy, and send requested cases data may be gathered through on-site case abstraction.

Barriers to accessing law enforcement reports

Law enforcement data are often the most challenging to collect. There are several ways to build relationships with law enforcement in order to overcome some of the barriers to accessing police reports. If you have a good relationship with the C/ME, ask them to call or write a letter of support.

Ideally, your advisory board would have a law enforcement representative. This representative can help connect you with the appropriate contacts in local or state agencies. They can also provide consultation on how to overcome challenges you may be facing.

It may be helpful to become involved with the Police Chiefs' Association and get to know local law enforcement. Consider filing an open records request. However, be prepared to pay for copies and mailing. Agencies must cover their administrative costs.

Since a majority of homicides occur in a handful of large cities, some sites find that it is more efficient to develop relationships with those agencies, rather than with the hundreds of other smaller police departments in the state. Therefore, concentrating efforts on particular agencies may be an effective strategy for obtaining data.

STATE EXAMPLE:

- Wisconsin: One law enforcement agency did not want to participate in providing information, so a formal records request was filed with the police chief (Wis. Stats. Sec 19.35). The agency sent the requested information for a fee to cover the cost of copies made.

- Maryland: Memorandums of Understanding (MOUs) are in place with the seven largest police agencies in the state to ensure cooperation. Two agencies require that data be abstracted on site at their headquarters.

Manual versus electronic abstraction

As with other data providers, electronic transmission is preferred. However, with manual case abstraction, there is an opportunity to capture case numbers linking to other data sources, such as the crime lab. Electronic data transmission may not have linking case numbers. If this is the case, work with law enforcement to add these fields to their database.

If sites have the resources, data obtained through manual case abstraction can be very valuable. Detailed information about the mechanism of injury, circumstances, and suspect(s) is usually helpful for describing the incident and useful for comparisons with SHR data.

Additional law enforcement data on suicides or unintentional firearm fatalities

Law enforcement may provide additional information about the weapon used and the events leading up to the event that may not routinely be in C/ME reports. One of the reasons police arrive on the scene is to rule out foul play.

STATE EXAMPLES:

- Wisconsin: In some cases LE reports provided additional information about the weapon and circumstances not always captured by the C/ME and are requested.

- North Carolina: The level of quality and completeness varies from agency to agency. Many hospital suicides are not included. If information is available, generally they are poisoning deaths. If there are no visible wounds, trauma or other evidence suggesting an intentional act EMS takes the victim to the hospital without LE notification. Several agencies now work with local hospitals to get notification if toxicology screen suggest non-natural death. This includes victims transported by private vehicle.

Average time required for law enforcement to clear a case

The time it takes for a case to clear varies, and some cases never clear. A law enforcement case "clears" when an offender is arrested; there is a determination of self-defense, the offender dies, etc. Sites may be allowed to review part or all of a police case report once it clears. Sites need to set up a protocol for checking back with law enforcement to see when cases "clear."

STATE EXAMPLES:

- Wisconsin: As a general rule of thumb, most cases clear in nine months.

- North Carolina: This varies by agency. Most agencies send reports at the end of the calendar year although some fax reports over a few days after the investigation is completed.

Cases still under investigation

Cases still under investigation are generally not available. Sites need to develop a procedure for checking back with law enforcement.

STATE EXAMPLE:

Wisconsin: Follow-up on cases is done quarterly. If a fatality does not clear after two years, it is considered lost-to-follow-up. Only vital records, C/ME, SHR, and crime laboratory data (if applicable) are entered into the database.

Police-related shootings

Availability of data on police-related shooting will depend on the jurisdiction. It is possible that only limited information will be available.

STATE EXAMPLES:

- Wisconsin: Data from police-related shootings are obtained the same as any other violent death data. Occasionally the name of the police officer (s) involved will not be released but all other data is normally received.

- North Carolina: Most agencies send reports and for those who are reluctant, NC gets information from the state bureau of investigation. They are responsible for investigating all officer involved shootings.

HELPFUL HINTS:

- It is important to recognize that law enforcement's goal for data gathering is to prevent and solve crimes. If police perceive that collaborative data efforts will compromise their mission, cooperation will not be forthcoming.

- Sites need to determine what type of law enforcement data collection is feasible. At the very least, sites need SHR data to describe the event. The NVDRS proposes some steps to consider when determining the extent to which law enforcement reports and SHR data are included in a reporting system:

- Determine if law enforcement can provide detailed electronic data on violent deaths.

- Review police case reports if resources permit. Case reports tend to be more comprehensive than standard coded information obtained through the SHR and include information about suicides.

- SHR, depending on whether it is available electronically, may be more feasible. Check with the state or federal UCR program coordinator to determine whether state-level electronic SHR data are available. (Eventually, all state SHR data are available without identifiers in the national database). And if it is a question of electronic or hard copy reports of SHR, try to obtain both. A state's SHR hard copy may include a narrative statement about the event that is helpful.

- Focus resources in large cities or metropolitan areas that make up the majority of homicides and may be accessed more efficiently.

- Ask local law enforcement to include the case report in the C/ME file. If they do, check to see if reviewing the report at the C/ME office is possible. This may save data abstractors a trip to the local law enforcement agency.

Crime Laboratory Data

The Crime Lab reviews physical evidence from crime or injury scenes. The crime lab is the gold standard for detailed information about the firearms, bullets and casings involved in firearm injuries and fatalities. Often, there are only a few crime labs in each state, making it a very efficient data source. Crime labs can vary in their structure: some laboratories are part of local law enforcement, state police, or C/ME offices, while others are run by a large state agency or a private company.

Crime lab data differ from law enforcement information in several ways:

- Crime labs may have more detailed firearm information, while law enforcement has more information about circumstances;
- Crime labs examine evidence with the goal of documenting evidence for court records while police data are used for solving crimes and making arrests;
- Firearm and tool mark examiners have specific training in firearms and tool marking and do ballistics testing (e.g., determine if a bullet/casing was fired from the gun, calculate the distance

between the firearm and the victim, etc.) which is outside the normal scope of a police department.

Accessing Crime Lab data

Contact the crime lab director or firearms examiner and ask for a meeting to discuss the project, the data elements needed and what is available. If there is no response, use local law enforcement (they may be the best point of reference as they consistently work with crime labs to solve crimes) or the C/ME to arrange a meeting with crime lab management. It is important to note that crime labs may not have all firearm cases.

STATE EXAMPLE:

Wisconsin: The crime lab was happy to provide access to records; however a state statute prohibited them from providing the information until the respective county prosecutor authorized the record review. County prosecutors have had to sign a letter authorizing the review of county records at the crime lab. This process took eight weeks to complete with over 90% of the prosecutors signing the authorization form. Crime lab cases are not reviewed for the few counties that did not return an authorization letter.

Crime lab data is abstracted on-site once per year as staff and time allow. Similar to the SHR, crime lab data tends to be redundant from data received in the LE report. Local law enforcement decides which confiscated evidence to forward to the crime lab during an investigation. Therefore, the lab may not receive evidence in all homicides or suicides. In cases of firearm suicide, the gun is generally left at the scene and law enforcement usually obtains enough information off the gun to determine if it was the one fired in the suicide. Therefore, only a small portion of guns used in suicide are forwarded to the crime lab.

Bureau of Alcohol, Tobacco and Firearms

The Bureau of Alcohol, Tobacco and Firearms (ATF) provides information about the first retail sale of a firearm. The National Tracing Center conducts all traces. The tracing process works two ways: (1) a local law enforcement agency can submit traces to the National Tracing Center (NTC), or (2) local law enforcement can request that their regional ATF office submit a trace to the National Center. It is estimated that 40% of crime guns are traced. Therefore, not all crime guns are traced and some guns that are traced were not involved in crimes at all. The ATF NTC is the only organization authorized to trace U.S. and foreign manufactured firearms for international, Federal, State, and local law enforcement agencies. Its purpose is to provide investigative leads in the fight against violent crime and terrorism and to enhance public safety. Firearm tracing is requested using eTrace, a paperless firearm trace submission system. Information from ATF about eTrace is available here: http://www.atf.gov/content/Firearms/firearms-enforcement/atf-national-tracing-center

In addition to a trace number and request date, a firearm trace report may include:

- Purchaser information:

    - name, address, purchase date, purchaser date of birth, race, sex, height, weight, sex, and two forms of identification such as a driver's license
- Firearm information:
    - manufacturer, model, caliber, serial number, type, country, importer, identifying marks, etc.
- Recovery information
    - recovery date, time from purchase to recovery, possessor, and possessor date of birth
- Dealer information ship date, phone number, and whether the dealer was out of business

Tracing helps indicate if firearms are being obtained on the secondary market and helps to evaluate the effectiveness of prevention strategies (such as waiting periods).

Accessing firearm trace data:

Work with law enforcement, either at the local or state level (depending on the reporting region) to obtain firearm trace results. There is no method for health departments or academic institutions to directly submit trace requests to the ATF. Traces must be submitted by a law enforcement agency. In addition, the ATF can only release trace results to law enforcement agencies. Once a trace request is filed and given to law enforcement, the trace is the property of that law enforcement agency and may be distributed at their discretion. (See Appendix K: Firearm Trace Request)

The following information is needed for each firearm trace:

- Manufacturer and if the firearm manufacturer is foreign
- Model
- Caliber
- Serial number
- Importer name (Importer information is stamped on the firearm. There are some cases where the barrel length may also be required for tracing.)
- City and state

Traces may have already been requested by the local law enforcement agency. ATF will not duplicate the trace but will send a confirmation that the trace was already requested. Work with local law enforcement or the regional ATF office to request a copy of results.

HELPFUL HINTS:

A trace may come back incomplete if the firearm:

- Was manufactured prior to 1969
- Has an invalid serial number
- Cannot be located
- There is no FFL record for that time or the FFL is out of business
- There is no importer information

FFLs are not required to retain records for more than 20 years, which explains why some older firearms are untraceable.

MORE RESOURCES:

Appendix K: Firearm Trace Request

Bureau of Alcohol, Firearms, Tobacco and Explosives Firearm Tracing:
http://www.atf.gov/firearms/enforcement/about-firearms-tracing.html

NVDRS Data Quality

Staff at CDC checks the data quality and timeliness of data submitted by each state participating in NVDRS. Specifically, CDC monitors data quality using performance measures, which are supplemented by periodic data quality reports. Also, CDC staff reviews the coding of a subset of incidents to assess for coding accuracy, especially of circumstances and the narrative, and provides feedback to each NVDRS. The consistency and intensity of these efforts are dependent are resource available.

Brief descriptions of the key data quality measures used by CDC are provided below.

1. Timeliness:
    a. The percent of violent deaths that are initiated within the NVDRS system within 180 days of the date of death
    b. The median number of days from the date of death that violent deaths were initiated in NVDRS

2. Data Completeness:
   Data completeness is investigated by looking at the percent of cases that have different variables or sets of variables completed. All measures of data completeness need to be analyzed by manner of death (e.g., suicide and homicide).
    a. The percent of violent deaths that have descriptive information complete (e.g., date of death, sex of decedent, location of death) as determined by a formula created by CDC.
    b. The percent of violent deaths for which CME circumstance information is available.
    c. The percent of violent deaths for which LE circumstance information is available.

Data quality measures are designed to help states participating in NVDRS identify and address data quality problems. In addition to data quality checks performed at the national level, it is expected as part of the funding announcement that each state will develop its own data quality procedures and perform on-going checks to maintain its data quality and timeliness.

Given the importance and complexity of NVDRS, we recommend that all states establish clear quality assurance procedures to verify the accuracy and completeness of NVDRS data. Because it is not logistically feasibly to verify the accuracy of every incident, we recommend that all states implement a

comprehensive strategy based on: 1) rigorous training of abstractors; and 2) ongoing assessment and training throughout the data collection cycle. Look for opportunities to discuss abstractions as a group.

NVDRS Evaluation

The NVDRS evaluation plan includes a national and state component. Per the Funding Opportunity Announcement CDC-RFA-CE14-1402, states must have a jurisdiction-specific evaluation and performance measurement plan that is consistent with the CDC strategy described above. At a minimum, the plan must:

- Describe how your state VDRS plans to monitor and verify data quality including completeness, accuracy and timeliness
- Describe how your state VDRS will monitor data requests, data dissemination, and stakeholder engagement, including and in addition to the CDC requirement to maintain a tracking sheet
- Describe how evaluation findings will be used for continuous program/quality improvement
- Describe who will be responsible for conducting evaluation activities
- Describe how your state will work with stakeholders on the evaluation (e.g., consulting the advisory committee on key topics and findings)

A schematic of NVDRS information flow may help with the system evaluation (See Appendix L: NVDRS Information Flow). As resources allow, CDC does site visits and state-specific evaluations.

A surveillance system must be evaluated periodically to assess the quality and representativeness of the data it produces. This is particularly true in a new system that taps into multiple, non-traditional sources of information. There are many potential sources of error in such a system.

What follows here is a brief discussion about conducting a basic evaluation of the data quality of local reporting systems.

Does the system capture the cases it should?

There are really two questions here: first, what proportion of the cases that should be captured are being captured ("sensitivity" rate); second, what proportion of the cases reported are true cases vs. false positives ("predictive value positive" rate). To illustrate the concept of measuring system sensitivity, take the fictional example of a statewide reporting system that used the state medical examiner's office for initial case identification. The medical examiner's office received copies of all death investigations conducted by its regional offices. Medical examiner personnel agreed to transmit these reports electronically to the reporting program on a monthly basis. The reporting program then contacted vital records, the crime lab, and the Uniform Crime Reporting program for further documentation on the cases. Six months after the close of the calendar year, electronic death certificate data were made publicly available. To evaluate the sensitivity of the reporting system, the program identified the total number of violent deaths (800) that occurred in their state according to death certificate data. The medical examiner had transmitted reports on 700 of these. Had the program not remediated the problem, their system's sensitivity rate would have been 87%.

Frequently, surveillance systems operate effectively with sensitivity rates well below 100% provided the program documents ways in which unreported cases differ from reported cases and the under-reporting level is relatively stable over time. Because death certificate data are considered the provisional gold standard for case identification and are publicly available, violent death reporting systems should have high sensitivity rates. In the example above, the medical examiner's office had actually reported 720 deaths (for a seeming sensitivity rate of 90%), but upon matching cases, the program found that only 700 of these were among the death certificate cases. The remaining 20 cases were reported by a regional medical examiner's office that consistently chose "suicide" as the manner of death for unintentional drug overdoses, reasoning that the ingestion itself was intentional. The vital statistics registry coded these cases as accidental poisonings since the medical examiner's narrative clearly identified their fatal outcome as unintentional. These cases, then, were "false positives." If the reporting system was left unmediated, its predictive value positive rate would have been 97% (or 3% false positives).

Occasionally, true cases will be received from other sources that were not among the death certificate cases. This occasionally results from data entry errors at the registry or when a medical examiner changes a finding but the vital record is not updated. Bring the error to the attention of the vital statistics registry so that they have the option of revising the record.

Is the information received from data providers representative?

There are dozens of ways in which the data from providers could be inaccurate or biased. One of the most important problems is a consistent pattern of missing data. For example, imagine that a reporting program was preparing a report about the circumstances associated with suicides in their state. The coroner's report was the only source of information about circumstances for suicides. In about two-thirds of all suicides, they had received reports from the coroner. They had coroner reports for 90% of suicide victims from urban areas, but only 40% for victims from rural areas. Their report would not do justice to rural suicide circumstances. They therefore decided that their first report about suicide circumstances would focus on urban populations. They also undertook an outreach campaign to increase the number of rural coroners who were sending them reports.

A second aspect to the missing data problem relates to testing. For example, a program wants to analyze the proportion of victims who tested positive for drugs or alcohol. They found that one-third of victims tested positive, one-third tested negative, and another third were not tested at all. They were inclined to report that among victims from whom drug and alcohol information was available, 50% tested positive. However, they saw that victims who were not tested differed in important ways from those who were tested. They contacted a number of coroners to learn more about the protocols governing toxicology testing. Some communities had a policy of running toxicology screens on all suicide victims while others did not. In those that did not, coroners tended to order tests only when drug or alcohol use was suspected. Because testing only suspected positives inflated the rate of test positives, the reporting program decided to report toxicology findings only for communities that screened all victims.

Are the data abstracted and entered in a consistent and reliable way?

One problem that compromises the integrity of the reporting system is the use of different definitions for the same data elements. This is a particularly relevant problem when coding the precipitating circumstances that preceded a violent death, as many qualitative judgments must be made. A good way to quantify the extent to which coding is inconsistent is to test intra-rater and inter-rater reliability periodically. Intra-rater reliability for data abstraction can be determined by having data abstractors re-abstract a small, random sample of cases they had abstracted previously. Inter-rater reliability can be determined by having multiple abstractors abstract the same set of cases.

Are the data abstracted in a timely way?

Timely information is critical to the usability of a surveillance system. Timeliness in NVDRS can be evaluated by calculating the median number of days from death to case completion and to completion of first and second priority variables. In addition, the number of observed (reported) cases from a certain time period can be compared with the number of expected cases each month after the close of the time period.

MORE RESOURCES

Use CDC's updated guidelines for evaluating public health surveillance systems when creating an evaluation plan: http://www.cdc.gov/mmwr/PDF/RR/RR5013.pdf. This report provides updated guidelines for evaluating surveillance systems based on CDC's Framework for Program Evaluation in Public Health, research and discussion of concerns related to public health surveillance systems, and comments received from the public health community. The guidelines in this report describe many tasks and related activities that can be applied to public health surveillance systems.

Some VDRS states (e.g., Oregon, Wisconsin) have conducted evaluations of their VDRS using the CDC criteria. For more information, please contact the Principal Investigators in those states by accessing the following link: http://www.cdc.gov/violenceprevention/nvdrs/stateprofiles.html

Dissemination of Data to Support Violence Prevention Activities

Once relationships are established with data providers, sites should work to ensure good, ongoing communication. Dissemination of data to data providers is a good way to maintain communication. CDC tracks the dissemination of VDRS data to key stakeholders as part of its evaluation of VDRS.

Mailing List

Consider putting contributing data providers on a mailing list to receive data findings and pertinent information.

Professional Associations

Also, inquire about various professional associations that data providers may be a part of. For example, it may be important to become involved in the following associations:

- Police Chiefs' Association
- National Association of Medical Examiners
  International Association of Coroner's Medical Examiner's Association
- National Sheriff's Association
- International Association of Chiefs of Police

Data Project Collaborations

Find out if there is another death investigation project that you can provide assistance to. There may be opportunities to present collaborative work, provide trainings about the data collection process, or to have an informational booth about the reporting system at the next association meeting. You may also be able to contribute to an association newsletter.

STATE EXAMPLES:

Data Reports

NVDRS: Stories from the Front Lines of Surveillance: (Safe States Alliance)
http://www.safestates.org/resource/resmgr/NVDRS/NVDRS_Stories_complete_repor.pdf

Deaths from Violence: A Look at 18 States: (National Violence Prevention Network)
http://preventviolence.net/pdf/NVPNMultiStateReport.pdf

Data Reports by State: For a more comprehensive list of reports, please visit to find the respective state VDRS link: http://www.cdc.gov/violenceprevention/nvdrs/stateprofiles.html

Alaska:

AKVDRS-related Epidemiology Bulletins

Data Summary & Reports

Maryland:

http://phpa.dhmh.maryland.gov/ohpetup/SitePages/mvdrs.aspx

Massachusetts:

http://www.mass.gov/eohhs/gov/departments/dph/programs/admin/dmoa/injury-suveillance/reports/violent-death-reporting.html

North Carolina:

http://www.injuryfreenc.ncdhhs.gov/DataSurveillance/ViolentDeathData.htm

Ohio:

http://www.healthy.ohio.gov/en/vipp/ohvdrs.aspx

Oklahoma:

http://www.ok.gov/health/Disease,_Prevention,_Preparedness/Injury_Prevention_Service/Oklahoma_Violent_Death_Reporting_System/index.html

Oregon:

http://public.health.oregon.gov/DiseasesConditions/InjuryFatalityData/Pages/nvdrs.aspx

Utah:

http://www.health.utah.gov/vipp/topics/nvdrs/resources.html

Virginia:

http://www.vdh.virginia.gov/medExam/NVDRS.htm#reports

References

1. CDC. Web-based Injury Statistics Query and Reporting System (WISQARS). Atlanta, GA: US Department of Health and Human Services, CDC; 2012. Available at http://www.cdc.gov/ncipc/wisqars/ default.htm. Accessed October 24, 2014.

2. Doll L, Bonzo S, Mercy J, Sleet D, Hass E, eds. Handbook of injury and violence. New York, NY: Springer; 2007.

3. World Health Organization. ICD-10: International Statistical Classification of Diseases and Related Health Problems: 10th Revision. Geneva, Switzerland: World Health Organization; 1992.

4. World Health Organization. ICD-9: International Statistical Classification of Diseases, Injuries, and Causes of Death: 9th Revision. Geneva, Switzerland: World Health Organization; 1977:627-8.

5. Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting. 2003. Available from: URL: http://www.cdc.gov/nchs/data/misc/hb_me.pdf