

SUPPORTING STATEMENT: PART B

The National Violent Death Reporting System

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Point of Contact:

Shane Jack

Center for Disease Control and Prevention

4770 Buford Highway

Atlanta, GA 30341

MS F-64

Phone: 770-488-5726

Fax: 770-488-4349

Email: gdo4@cdc.gov

B. Collection of Information Employing Statistical Methods

1. Respondent Universe and Sampling Methods

The respondent universe comprises the 56 state, District of Columbia, and U.S. territory health departments. NVDRS funds states to collect data on all violent deaths occurring in their jurisdiction. The exception is for “large” states that have more than 2,000 violent deaths occurring per year—these states have the option to collect data in selected counties/ targeted areas that represent at least 40% of all violent deaths occurring within their jurisdiction. Presently, California is the only “large” state funded to participate in NVDRS. They joined the system in 2016 and will be collecting data on 80% of their violent deaths. No sampling methods will be employed.

2. Procedures for the Collection of Information

The system is coordinated and funded at the federal level but is dependent on separate data collection efforts managed by each state health department (or their bona fide agent). NVDRS collects data on violent deaths, defined as a death resulting from the intentional use of physical force or power (e.g., threats or intimidation) against oneself, another person, or against a group or community. This includes all homicides, suicides, unintentional firearm deaths, deaths of undetermined intent, and deaths due to legal intervention. NVDRS cases are identified using the International Classification of Diseases, Tenth Revision (ICD-10) codes, or by using the manner of death assigned by the coroner, medical examiner or law enforcement. In accordance with the system’s design principles, the data system is incident-based (violent deaths that are related and occur within 24 hours of each other, such as multiple homicides). The record for an incident includes information about all the victims and suspects in each incident and their relationships.

To fully characterize the incidents, states collect information about each incident from three primary data sources: death certificates, coroner/medical examiner reports (CME), and law enforcement records. Most states begin data collection with death certificates because the vital statistics office is located at the state health department where NVDRS program is housed. Over 250 data elements are collected on each incident, however the system has the capability to collect >600 variables for each death depending upon the content of the source documents and the various incident scenarios. See attached list of NVDRS data elements (Att. 8).

Data collection can be done either by manual abstraction from the primary data sources or by electronic transfer or importation, whichever proves to be the more timely way to acquire the necessary information. Death certificate information is available to most health department and entered into the system within 4 months. Law enforcement and CME data is most often available within 16 months of the occurrence of the death.

Data entry occurs at each state health department. The data is entered into a web-based system via a secure internet platform. The web-system interface includes internal validation checks and other quality control measures. Each state is provided a coding training to help increase data quality. Data are continuously transmitted via the web to a

CDC-based server.

Violent death surveillance faces challenges that are in some ways unique among public health surveillance systems. First, there is a fundamental difficulty with the use of different case definitions: the same death may be called unintentional on a law enforcement record, homicide by a medical examiner, and undetermined on the death certificate. Different case definitions may be used even within one professional community, such as that of medical examinersⁱ. To address this problem, NVDRS abstractors are trained to use standard conceptual definitions for different types of violent death, which are described in detail in the NVDRS web coding manual (Att. 7).

Second, there are more legal issues associated with violent deaths than with deaths from natural causes. The integrity of a death investigation is important, and access to law enforcement and medical examiner/coroner files may be restricted or delayed while investigations are still under way.

Third, the sources of information on violent deaths are not traditional ones for public health surveillance systems. The sources of information for maternal mortality surveillance, for example, are almost exclusively health care institutions, organizations with which health departments typically have well-established relationships. In contrast, although the situation is improving gradually, health departments typically have little experience working with law enforcement or medical examiners/coroners. The lack of such relationships may make data access more difficult or less timely.

The fourth challenge to collecting violent death surveillance is that many of the sources of information on violent deaths are non-centralized. Only 16 states and the District of Columbia have centralized medical examiner systems with centralized records; the remainder have county- or district- based medical examiners and/or coronersⁱⁱ. A given state may have dozens to hundreds of local police departments with which to set up data-sharing agreements to obtain their records. Moreover, CME and law enforcement information is not standardized and may not be computerized. Time consuming data collection and abstraction from these sources is required and poses a challenge particularly for states that have a high volume of violent deaths annually. To maintain timeliness and completeness standards, NVDRS has allowed states with more than 2,000 deaths to collect data on a subset of violent deaths that occur within their jurisdiction. The eventual use of electronic death certificate across states and efforts by the Department of Justice to develop the National Incident Based Reporting System for police information may dramatically reduce abstractor burden.

3. Methods to Maximize Response Rates and Deal with Non-response

This issue is not relevant with this methodology.

4. Tests of Procedures or Methods to be Undertaken

States began collecting data for NVDRS in 2003 and has been an ongoing data system in which states continually collect data from existing records. The currently funded states are finalizing data collection for 2015 and continuing to input data for 2016 and 2017. The system transitioned in 2013 from a distributed software system with data entry

housed in each state health department to a web-based data entry system (Att. 7) with streamlined coding system to facilitate data abstraction efficiency.

Each state is required to provide specific evaluation and performance measurement plan based on CDC's recommended guidelines for evaluating surveillance systemsⁱⁱⁱ. The plan describes the type of evaluation conducted (i.e, process and/or outcome), key evaluation questions and findings, and data quality metrics (completeness, accuracy, timeliness). NVDRS also routinely evaluates each state's performance for data quality. For states (e.g. California) that have the option to collect a subset of violent deaths, NVDRS will evaluate and determine if sampling methods or analytic statistical procedures are needed to ensure the data that is collected can accurately describe the occurrence and distribution of violent deaths in these states.

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

No sophisticated statistical techniques (e.g. weighting) is required to collect or analyze this surveillance data. Aggregated crude and age-adjusted rates for suicide, homicide, undetermined cause of death, legal intervention, unintentional firearm injury, and terrorism will be employed. The percent of different types of violent deaths associated with specific circumstances, e.g., a history of substance abuse, will be presented. Time trends will also be shown. Routine supervision of the analysis of data are with the following:

Keming Yuan
Mathematical Statistician
Division of Violence Prevention
National Center for Injury Prevention and Control
Center for Disease Control and Prevention
4770 Buford Hwy, MS F63
Atlanta, GA 30341

The State Unintentional Drug Overdose Reporting System (SUDORS) is a state-based surveillance system developed to provide more timely data on fatal and nonfatal opioid overdoses from vital statistics and coroner/medical examiner records. SUDORS uses the NVDRS web-based system to collect this data. SUDORS and NVDRS will independently analyze its own data.

ⁱ. Goodin J, Hanzlick R. Mind your manners: part II: general results from the National Association of Medical Examiners Manner of Death Questionnaire, 1995. *Am J Foren Med Path* 1997;18:224-227.

ⁱⁱ. <https://www.cdc.gov/php/publications/coroner/death.html> Accessed on 4/7/2017.

ⁱⁱⁱ. CDC. Updated Guidelines for Evaluating Public Health Surveillance Systems. Recommendations from the Guidelines Workgroup, 2001. *MMWR* 2001; 50 (No. RR-13)