Surveillance 101 - National Violent Death Reporting System (NVDRS) Summary and access to data

2018 GL Smith Memorial Act suicide prevention Conference
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The Public Health Approach to Prevention

- Assess the Problem
  - What's the problem?
- Identify the Causes
  - Why did it happen?
- Develop & Evaluate Programs & Policies
  - What works?
- Implementation & Dissemination
  - How do you do it?
Why Is Surveillance Important?

- Collecting data is merely one step
- Critical goal is to control and/or prevent diseases or adverse health conditions
  - Any data collected must be organized and carefully examined
  - Any results need to be communicated to public health and medical communities

Why Is Surveillance Important?

- Vital to communicate results
  - During potential outbreak so public health and medical communities can help with disease prevention and control efforts
  - During non-outbreak times to provide information about baseline levels of disease
    - Baseline provides information to public health officials monitoring health at community level, serves as reference in future outbreaks
Surveillance

Information for Action

Uses of Public Health Surveillance

- Estimate the magnitude of illness
- Determine the geographic distribution of illness
- Detect epidemics
- Generate hypotheses to stimulate public health research
- Capture the natural history of a disease
- Evaluate control measures
- Detect changes in health/medical practices
- Facilitate public health resource planning

Source: Thacker and Stroup 1998. Public Health Surveillance and Health Services Research
History of NVDRS

1999: Institute of Medicine report cited the need for a national fatal intentional injury surveillance system
2000: National Violent Injury Statistics System (NVISS) piloted at 12 sites, mostly universities
2000: Meeting with Harvard and the Joyce Foundation to suggest that CDC direct a publicly funded system
2000: CDC begins planning
2002: First appropriation from Congress for NVDRS
2003: NVDRS data collection begins with six states
2004 - 2014: More states added
2016: Funding for additional expansion

National Violent Death Reporting System

- State-based surveillance system
- Funding began in 2002
- Now funded in 40 states, DC, and Puerto Rico
- Eventual expansion to 50 states
The Need for NVDRS

- Ongoing surveillance needed to monitor violent deaths and to support planning and evaluation for prevention

- Information on violent deaths contained in multiple sources
  - Death certificates
  - Coroner/medical examiner reports (including toxicology reports)
  - Law enforcement reports

- Information collected at state, county, and city level

The Need for NVDRS

- Information not integrated, standardized, or focused on prevention
  - Suicide – Limited to counts and demographic descriptions
  - Homicide – Limited to law enforcement information or death certificates

- Results in incomplete and fragmented descriptions of violent deaths; we need the full picture

- NVDRS combines multiple sources to get the full picture (e.g., information about victims, suspects, circumstances)
What is NVDRS?

- Active, ongoing state-based surveillance system
- Data collected by states through partnerships
- Information abstracted using a web-based application
- Provides comprehensive information on all violent deaths within participating states to fully characterize incidents

Operational Definition for NVDRS Case Ascertainment

- Suicide
- Homicide
- Deaths of undetermined intent
- Unintentional firearm deaths
- Legal intervention (excluding executions)
- Deaths due to terrorism
Use of Definitions

• NVDRS case definition used to:
  - Collect manner of death information in a standardized way
  - Select cases for reporting at the national level
  - States can use broader definitions to identify and collect non-NVDRS cases (e.g., unintentional drug overdoses)
  - Check “not an NVDRS case” in the Case Status field

Scope of NVDRS

Intentional Injury Deaths:
- Suicide (including terrorism)
- Homicide (including terrorism)
- Legal intervention (excluding legal executions)

Unintentional Injury Deaths

Deaths of Undetermined Intent

Unintentional Firearm Deaths
Current NVDRS States

NVDRS Data Uses

- Inform communities
  - Documents circumstances of all violent deaths
  - Who, what, when, and where?
  - Insight as to why

- Guide and target violence prevention programs, policies, and practices
  - Support planning and implementation of activities at the local, state, and federal levels

- Monitor and evaluate prevention programs and strategies
NVDRS - Linking Data to Save Lives

- **Primary required sources:**
  - Death certificates
  - Coroner or medical examiner (CME) reports (including toxicology) (have narratives)
  - Law enforcement (LE) reports (have narratives)

- **Secondary optional sources:**
  - Child Fatality Review (CFR) team data
  - Intimate Partner Violence (IPV) Review team data
  - Crime lab data
  - Supplementary Homicide Report

Suicide Variables*

- Current depressed mood
- Current mental health problem
- Other mental health diagnosis
- Current treatment for mental illness
- Ever treated for mental illness
- Alcohol problem
- Other substance problem
- Other addiction
- Job problem
- School problem
- Financial problem
- Anniversary of a traumatic event
- Person left a suicide note
- Disclosed intent to commit suicide
- History of suicide attempts
- Crisis in past 2 wks
- Physical health problem
- Intimate partner problem
- Other relationship problem
- Suicide of friend or family in past 5 years
- Other death of friend or family in past 5 years
- Recent criminal legal problem
- Eviction/loss of home

*Source: Nat’l Violent Death Reporting System
Health/Behavior information for suicide decedents by sex* - 18 states, 2014

Mental Health information for suicide decedents by sex* - 18 states, 2014

Source: Nat'l Violent Death Reporting System
* Categories are not mutually exclusive
Precipitating circumstances of suicide among persons aged 10-17 years – 16 states, United States, 2005-2015

Source: CDC’s National Violent Death Reporting System
17 states = AK, CA, CO, GA, KY, MD, MA, NJ, NC, MA, OK, RI, SC, UT, VA, and WI
* Includes those suicides with 1 or more precipitating circumstances
Percentages may add to more than 100 since a suicide may have had >1 precipitating circumstance

Trends in precipitating circumstances among persons dying by suicide – U.S. 16 states

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a APC, annual percent of change.
b The APC is statistically significantly different from 0 (P <0.05).
Military and Veteran Suicide Surveillance

- Findings and Impacts
  - Intimate partner problems are just as important as mental health problems
    **Impact:** Submitted DoD proposal to evaluate “Strength at Home” program re suicide-related outcomes
  - Military/Veteran suicides mostly involve firearms and are highly concentrated in small % of counties
    **Impact:** Informed 2017 DoD Safe Firearm Storage Policy

NVDRS: Future

- Promote expansion to all 50 states, the District of Columbia, and U.S. territories, funding permitting
- Enhance technical assistance to new and existing states
- Strengthen relationships with partners
- Improve system infrastructure
- Disseminate useful, actionable data
Accessing NVDRS Data

1. **Restricted Access Dataset**
2. CDC NVDRS WISQARS
3. NVDRS Surveillance Summary
   - 2005 - 2013 data published in MMWR surveillance summary series: [www.cdc.gov/mmwr](http://www.cdc.gov/mmwr)
4. Collaboration with CDC scientists
5. Collaboration with state scientists

**NVDRS Restricted Access Dataset (RAD)**

- Case level data
- Restricted to PhD/MD level researchers and their research partners
- **Application**
  - Abstract
  - Primary investigators and partner affiliations
  - Study questions/hypotheses
  - PH benefit
  - Methods
  - Anticipated products/reports/manuscripts
  - Data security assurance
  - Variables
NVDRS Restricted Access Dataset (RAD)
http://www.cdc.gov/ViolencePrevention/NVDRS/RAD.html

- Submit to CDC
- Reviewed by scientific approval committee
- Collaboration between CDC and applicant on questions
- CDC
  - develops file specifications
  - creates dataset
  - sends data set via FTP
- Email confirmation of receipt is requested
- Consultation with researcher if assistance is requested

Web-Based Statistics

- www.cdc.gov/ncipc/wisqars/default.htm
- Injury mortality and leading cause of death statistics available by:
  - Intent, Method
  - Year
  - State
  - Demographics
    - Age, Sex, Race
  - Injury morbidity
    - Hospital emergency dept events
Data Limitations

- Toxicology testing is not done on all decedents
- Circumstances are not available for all cases
- Temporal pattern of circumstances not always clear
- Mental and physical health data not necessarily from medical records
- May be other circumstances not captured
- Not nationally representative

Conclusion

- Assessment is a foundation for public health action
- Existing systems for assessing injury are useful but have limitations
- Need exists for improved and expanded surveillance systems regarding injury
Acknowledgments

• NVDRS Grantees

• Vital Statistics, Coroner/Medical Examiner and Law Enforcement staff in NVDRS States

• Surveillance Branch, Office of the Chief

• Mortality Surveillance Team

Thank You

For more information please contact
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Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info
Questions and Comments