22-INJ-01

Committee: Injury Control and Prevention

Title: Standardized surveillance case definition for law enforcement-involved injuries and fatal encounters (LEIFE) among community members

☐Check this box if this position statement is an update to an existing standardized surveillance case definition and include the most recent position statement number here: N/A.

Synopsis: This position statement creates a standardized surveillance definition for law enforcement-involved injuries and fatal encounters (LEIFE). Additionally, multiple data sources including traditional (e.g., clinical datasets, syndromic surveillance) or non-traditional (open-source databases developed outside of the clinical setting like Fatal Encounters) data that may be used to identify LEIFE cases among community members are described.

I. Statement of the Problem

Nationally, encounters with law enforcement result in nearly 80,000 non-fatal injuries requiring admission to a hospital and between 600-1,000 deaths among community members each year.[1] Members of racial and ethnic minorities are more likely to experience use of force (UOF) during law enforcement encounters. This risk is twice as high among Black or African Americans and Hispanics than among non-Hispanic Whites when interacting with police.[2] Previous studies have found Black and African Americans to have more than double the risk of death and to be five times more likely to be injured seriously enough to require medical care at a hospital following encounters with law enforcement than non-Hispanic Whites.[2] The risk of injury during law enforcement encounters is greater among persons with neurological conditions, substance use disorders, and other major psychiatric conditions.[2] To quantify and address the broad public health implications of law enforcement-involved injuries and fatalities, effective surveillance of these events is critical.[3] However, to quantify these downstream effects, public health must first be able to measure the burden of these fatal and non-fatal law enforcement encounters.

There is a dearth of timely, comprehensive, reliable, and detailed data related to law enforcement-involved injuries and deaths in the United States.[4,5] Better data are needed to more fully understand the prevalence, populations at risk, and the long-term consequences of these injuries and deaths, and to identify priority areas for prevention.

The focus of this position statement centers around a recognition that health disparities exist among LEIFE cases based on perceived racial and ethnic identity, and the burden of LEIFE on community members is not well described in epidemiological injury surveillance.

Community members are individuals, including persons of interest to law enforcement, suspects, and bystanders who are not acting in a law enforcement capacity at the time of the injury or fatal encounter, and do not include people who are incarcerated at the time of the encounter (e.g., held in a prison, jail, or detention center; see appendices). Law enforcement involvement includes events where the community member intended to die by law enforcement intervention and includes suspects and bystanders injured by a car chase between a suspect and law enforcement as well as bystanders hit by stray bullets where the shooter is known to be law enforcement. The specific data sources used for the criteria for reporting may define a law enforcement encounter differently, e.g., "use of force" or "physical force" or "legal intervention" or “law enforcement encounter.” Law enforcement personnel may include police officers, sheriffs, state troopers, active military, correctional officers, federal agents, and private security guards who, whether on- or off-duty, are acting in a law enforcement capacity. Each data source may differ in the level of detail provided on the type of law enforcement personnel involved, though ICD coding does allow for this differentiation.

II. Background and Justification

Increasingly, public health leaders are calling for recognition of injuries sustained through encounters with law enforcement, including police officers, sheriffs, state troopers, active military, correctional officers, federal agents, private security guards, and others acting in a law enforcement capacity as a public health area of concern.[2,6,7] A paucity of detailed, accurate, and timely data related to LEIFE cases complicates estimation of the true public health burden. Open-sourced data sources aggregated by independent researchers that serve to monitor these events, like Fatal Encounters, have been made available in response to the need for more complete, timely, and transparent data, and many of these sources tend to be very reliable. Despite their richness, these non-traditional resources are often not used by public health agencies.

However, 50% of all law enforcement-involved fatalities are missed by more traditional surveillance systems including vital statistics, Bureau of Justice Statistics (BJS) systems, and the Federal Bureau of Investigation's (FBI) Supplemental Homicide Reports.[8,9,10] In 2019, the FBI established a new National Use-Of-Force Data Collection program, but the system has had limited participation by law enforcement agencies.[11] While clinical and vital statistics data capture deaths caused by legal intervention as coded through International Classification of Diseases (ICD) coding, inconsistent coding, lack of standardization, variable review methods, and exclusion of injuries or deaths arising from injuries sustained through means besides the use of firearms (e.g., through use of blunt objects or manhandling) contribute to data inaccuracies and missingness.[9] In addition to death certificate (vital records) data, CDC's National Violent Death Reporting System (NVDRS) also draws from medical examiner/coroner and law enforcement data, capturing around 93% of law enforcement-involved fatalities. However, the system does not consistently capture accidental, non-firearm deaths while in custody, and the lag time for the data to become available to jurisdictions is long.[14] In addition, only in 2019 were all 50 states, the District of Columbia and Puerto Rico funded to participate.

A standardized surveillance definition that specifies how LEIFE cases are classified using a diverse set of data sources will foster collection of consistent and comparable data and methodologic advancements, encouraging broader jurisdictional surveillance. This position statement has two core goals:

(1) To develop a standardized case definition for LEIFE among community members. This will include guidance for reporting to public health agencies and for case classification by public health agencies.
(2) To establish best practices for public health LEIFE surveillance, leveraging diverse datasets.

Guidance and methodologies for surveillance recommended in this position statement are intended solely to improve monitoring of the public health impact of LEIFE among community members (i.e., those who are not working in a law enforcement capacity) rather than to surveil for specific practices by law enforcement officers.

III. Statement of the desired action(s) to be taken

CSTE recommends the following actions:

1. Implement a standardized surveillance case definition for LEIFE among community members.
    A. Utilize standard sources (e.g., reporting*) for case ascertainment for LEIFE among community members. Surveillance for LEIFE among community members should use recommended sources of data to the extent of coverage presented in Section V.

    B. Utilize standardized criteria for case ascertainment for LEIFE among community members presented in Section VI and Table VI in Technical Supplement.

    C. Utilize standardized criteria for case classification for LEIFE among community members presented in Section VII and Table VII in Technical Supplement.

**Reporting: process of a healthcare provider or other entity submitting a report (case information) of a condition under public health surveillance to local, state, or territorial public health. Note: notification of nationally notifiable conditions is the process of a local, state, or territorial public health authority submitting a report (case information) of a condition on the Nationally Notifiable Conditions List to CDC.*

IV. Goals of Surveillance

The goals of surveillance of LEIFE among community members include:

- Enhance and standardize surveillance methodology for cases of LEIFE across all public health jurisdictions
- Estimate the burden of LEIFE at the national, state, and local levels
- Describe trends in LEIFE, both over time and through geographic comparison
- Characterize populations at increased risk of LEIFE
- Provide best practice guidance for detection of cases from traditional and non-traditional data sources:
  - Incorporation of open-sourced data to improve the completeness of detection of cases
- Identify higher-risk communities to inform mitigation efforts and lower-risk communities to inform best practices.

V. Methods for Surveillance: Surveillance for LEIFE among community members should use the recommended sources of data and the extent of coverage listed in Table V.

Suggested sources (case level data expected to be available indicated with an *):

- Hospital Discharge Data*
- Emergency Department Syndromic Surveillance Data*
- Emergency Medical Services (EMS) Data*
- Death Certificate Records*
- Medical Examiner/Coroner Reports*
- National Violent Death Reporting System (NVDRS)*
- Nonfatal Injury Reports: Accessible through CDC Web-based Injury Statistics Query and Reporting System (WISQARS), including aggregated reports of data from the National Electronic Injury System – All Injury Program (NEISS-AIP)
- Open-Sourced Data and Surveillance Systems (See Appendices 1 and 4a)*

No single data source presently captures all LEIFE cases among community members. Public health agencies should recognize the limitations inherent to the ascertainment and classification of cases from each system and seek to incorporate a multitude of surveillance sources into their work while also working to de-duplicate cases. Given the need to de-duplicate data sources, jurisdictions are advised to utilize sources that provide case level data, and those with sufficient case level data to allow for probabilistic or deterministic linkage.

Appendix 1 provides detailed descriptions of these sources, their limitations, available variables in them, and case definitions for LEIFE specific to each system. See Appendix 4a for guidance on the use of open-sourced data sources.

Table V. Recommended sources of data and extent of coverage for ascertainment of LEIFE among community members.

Source of data for case ascertainment	Coverage	
	Population-wide	Sentinel sites
Clinician reporting	X	
Laboratory reporting		
Reporting by other entities, specify: Hospitals, Emergency Medical Services (EMS)	X	
Death certificates	X	
Hospital discharge or outpatient records	X	
Data from electronic medical records	X	
Telephone survey		
School-based survey		
Other, specify: • Emergency Department Syndromic Surveillance Data • Autopsy reports • National Violent Death Reporting System (NVDRS)	X	

• CDC Web-based Injury Statistics Query and Reporting System (WISQARS) • National Electronic Injury System – All Injury Program (NEISS-AIP) • Open-Sourced Data		

VI. Criteria for case ascertainment

A. Narrative: A description of suggested criteria for case ascertainment of a specific condition.

Case ascertainment refers to the process of identifying cases. For LEIFE, cases may be identified by public health staff through review of medical, administrative, and other publicly available data as described in Section V, Table V, and Appendices 1 and 4a, and through reporting to public health agencies by healthcare providers or institutions (e.g., clinicians, hospitals, medical examiners, law enforcement) who submit basic information about cases of LEIFE that meet certain reporting requirements or criteria, as described below.

While traditional data sources for identification and classification of LEIFE cases may be the sole source(s) used by public health agencies, incorporation of non-traditional sources that include open-sourced data has been demonstrated to be able to identify additional cases (and improve sensitivity and representativeness of the population being analyzed). If using open-sourced data, further refinement and exclusion criteria may be applied (see Appendix 4c) to deduplicate incident cases.

LEIFE cases that are reported or ascertained with the following criteria include any community member who experiences fatal or nonfatal injury/ies as a result of an encounter with law enforcement personnel, as ascertained from clinical coding schema or narrative fields on medical or death records, or as indicated in open-sourced data. Community members are individuals, including persons of interest to law enforcement, suspects, and bystanders that are not acting in a law enforcement capacity at the time of the injury or fatal encounter, and do not include people who are incarcerated at the time of encounter (e.g., held in a prison, jail, or detention center; see appendices). Law enforcement involvement includes events where the community member intended to die by law enforcement intervention and includes suspects and bystanders injured by a car chase between a suspect and law enforcement as well as bystanders hit by stray bullets where the shooter is known and known to be law enforcement. The specific data sources used for the criteria for reporting may define a law enforcement encounter differently, e.g., "use of force" or "physical force" or "legal intervention" or “law enforcement encounter”. Law enforcement personnel may include police officers, sheriffs, state troopers, active military, correctional officers, federal agents, and private security guards who, whether on- or off-duty, are acting in a law enforcement capacity. Each data source may differ in the level of detail provided on the type of law enforcement personnel involved, though ICD coding does allow for this differentiation.

Events meeting the following criteria should be reported to public health agencies based on jurisdictional reporting requirements or ascertained by public health agencies through the sources referenced in each section header:

A1. Healthcare and Healthcare Record Criteria for Reporting

- A community member with a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter, OR
- A community member whose healthcare record contains a diagnosis of a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter (see Appendices 1 and 2).

A2. Laboratory Criteria for Reporting
N/A

A3. Epidemiologic Linkage Criteria for Reporting
N/A

A4. Medical Examiner/Coroner Record or Death Certificate Criteria for Reporting

- A community member whose death certificate lists an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter (see Appendices 1 and 2), OR
- A community member whose medical examiner or coroner record indicates an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter.

A5. EMS Record Criteria for Reporting

- A community member whose EMS record mentions a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter (see Appendices 1 and 2).

A6. Open-Sourced Data Record Criteria for Reporting

- A community member whose open-sourced data records reference law enforcement involvement or "legal intervention" or lists an ICD code that denotes the involvement of "legal intervention," regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter.

B. Disease-specific data elements to be included in the initial report

Along with patient demographics, the following data elements should be made available in all reports to public health agencies by providers, EMS staff, coroners or medical examiners, or other staff responsible for responding to LEIFE cases, when available and appropriate. Because both fatal and non-fatal injuries are tracked, death-related data elements may not be appropriate for all cases. Required items are denoted with an * and all other items are preferred but not required:

Contextual Information:

- Date and time of injury and/or death*
- Geographic location where injury and/or death occurred*
    - Type of location/place of occurrence (e.g., road, house, park, etc.)
    - Coordinates of incident location, or intersection
    - Urban or Rural setting identifier
- Law enforcement agency/ies involved
- Narrative text from law enforcement report, where available
- Data provided in police record
    - Weapon carrying by victim
    - Alleged threat level
    - Initial reported reason for the encounter

Demographic information:

- Age, race, ethnicity, sex, gender identity, sexual orientation, zip code of residence*
- Date of birth

Clinical Information (death):

- Manner and mechanism of death*
- Primary, secondary, etc. causes of death if present
- Disposition data from EMS pre-hospitalization reports, a.k.a. Patient Care Reports (PCR), can also be a source for:
    - Identifying those who not only were dead on arrival (DOA) at the scene but also those who were DOA at the hospital, for example, died during transport

Clinical Information (injury):

- Description of the injury
    - Part of the body where the injury was sustained
- Manner and mechanism in which the injury was sustained*
- Severity of injury
- Records should include medical procedures needed if hospitalized, type of stay (e.g., Intensive care units (ICUs)), length of stay, date of admission and date of discharge, transfer status (e.g., indicating if one was transferred to a residential facility or long-term care from an emergency department), final patient disposition (e.g., home, home with home care, rehab center), and fatality indicators
- Disposition data from EMS pre-hospitalization reports, a.k.a. Patient Care Reports (PCR), can also be a source for:
    - Identifying those who decline treatment against medically advice

VII. Case Definition for Case Classification

A. Narrative: Description of criteria to determine how a case should be classified.
This section defines criteria to be used for classifying cases of LEIFE and provides case classifications based on these criteria. Case classification occurs after reports of potential cases have been submitted to governmental public health agencies by providers (see Section VI for Case Ascertainment). Each separately labeled section below describes the criteria to be used in the case definition.

A1. Healthcare and Healthcare Record Criteria

- A community member with a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter, OR
- A community member whose healthcare record contains a diagnosis of a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter.

A2. Laboratory Criteria

N/A

A3. Epidemiologic Linkage Criteria

N/A

A4. Medical Examiner/Coroner Record or Death Certificate Criteria

- A community member whose death certificate lists an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter, OR
- A community member whose medical examiner or coroner record indicates an injury that resulted from an encounter with law enforcement personnel as a cause of death or a

significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter.

A5. EMS Record Criteria

- A community member whose EMS record mentions a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter.

A6. Open-Sourced Data Record Criteria

- A community member whose open-sourced data records reference law enforcement involvement or "legal intervention" or lists an ICD code that denotes the involvement of "legal intervention," regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter.

A7. Case Classifications

Confirmed:

- Meets the healthcare and healthcare record criteria, OR
- Meets the medical examiner/coroner record or death certificate criteria, OR
- Meets the EMS record criteria, OR
- Meets the open-sourced data record criteria

Probable: N/A

Suspect: N/A

B. Criteria to distinguish a new case of this disease or condition from reports or notifications which should not be enumerated as a new case for surveillance

A community member should be enumerated as a new case if:

- Not previously enumerated as a case, OR
- Person was previously enumerated as a case with a non-fatal injury but experienced a different encounter with law enforcement later that resulted in a separate injury or death.

VIII. Period of Surveillance

Surveillance should be on-going.

IX. Data sharing/release and print criteria

CSTE recommends the following case statuses* be included in the 'case' count released outside of the public health agency:

☒Confirmed
☐Probable
☐Suspect
☐Unknown

* Which case statuses are included in the case counts constitute the "print criteria."

Jurisdictions (e.g., States and Territories) conducting surveillance under this case definition can voluntarily submit de-identified case information to CDC, if requested and in a mutually agreed upon format.

Production of national data summaries and national data re-release for non-NNCs:

- Prior to release of national data summaries CDC should follow the CDC/ATSDR Policy on Releasing & Sharing Data, issued on April 16, 2003, and referenced in 11-SI-01 and custodians of such data should consult the CDC-CSTE Intergovernmental Data Release Guidelines Working Group report (www.cste2.org/webpdfs/drgwgreport.pdf) which contains data release guidelines and procedures for CDC programs re-releasing state, local, or territorial-provided data.
- CDC programs have a responsibility, in collaboration with states, localities, and territories, to ensure that CDC program-specific data re-release procedures meet the needs of those responsible for protecting data in the states and territories.

X. Revision History

This section is not applicable as this is the first standardized surveillance position for LEIFE among community members.

XI. References

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Technical Supplement

Table VI. Table of criteria to determine whether a case should be reported to public health authorities.

Criterion	LEIFE			
Healthcare and Healthcare Record Criteria for Reporting				
Patient is a community member	N	N	N	N
Fatal or medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter	O			
Healthcare record contains a diagnosis of a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter	O			
Laboratory Criteria for Reporting				
N/A				
Epidemiological Linkage Criteria for Reporting				
N/A				
Medical Examiner/Coroner Record or Death Certificate Criteria for Reporting				
Death certificate lists an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter		O		
Medical examiner or coroner record indicates an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter		O		
EMS Record Criteria for Reporting				
EMS record mentions a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter			N	
Open-Sourced Data Record Criteria for Reporting				
Open-sourced data records reference law enforcement involvement or “legal intervention” or lists an ICD code that denotes the involvement of “legal intervention,” regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter				N

Notes:
N = All “N” criteria in the same column are NECESSARY to report a case.
O = At least one of these “O” (ONE OR MORE) criteria in **each category** (categories=clinical evidence, laboratory evidence, and epidemiological evidence) **in the same column**—in conjunction with all “N” criteria in the same column—is required to report a case.

Table VII. Classification Table: Criteria for defining a case of law enforcement-involved injuries and fatal encounters (LEIFE) among community members.

Criterion	Confirmed			
Healthcare and Healthcare Record Evidence				
Patient is a community member	N	N	N	N
Fatal or medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter	O			
Healthcare record contains a diagnosis of a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter	O			
Laboratory Evidence				
N/A				
Epidemiologic Linkage Evidence				
N/A				
Medical Examiner/Coroner Record or Death Certificate Evidence				
Death certificate lists an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter		O		
Medical examiner or coroner record indicates an injury that resulted from an encounter with law enforcement personnel as a cause of death or a significant condition contributing to death, regardless of circumstance or justification status and excludes those who are incarcerated at the time of encounter		O		
EMS Record Evidence				
EMS record mentions a fatal or any medically attended non-fatal injury that resulted from an encounter with law enforcement personnel, regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter			N	
Open-Sourced Data Record Evidence				
Open-sourced data records reference law enforcement involvement or “legal intervention” or lists an ICD code that denotes the involvement of “legal intervention,” regardless of severity, circumstance, or justification status and excludes those who are incarcerated at the time of encounter				N
Criteria to distinguish a new case:				
Person not previously enumerated as a case	O	O	O	O
Person previously enumerated as a case with a non-fatal injury but experienced a different encounter with law enforcement later that resulted in an injury or death	O	O	O	O

Notes:
N = All “N” criteria in the same column are NECESSARY to classify a case.
O = At least one of these “O” (ONE OR MORE) criteria in **each category** (categories=clinical evidence, laboratory evidence, and epidemiologic evidence) **in the same column**—in conjunction with all “N” criteria in the same column—is required to classify a case.

Appendix 1. Examples and further information about recommended standard data sources for case ascertainment as referenced in Section V and Table V.

The purpose of this appendix is to give public health professionals a brief description of the features of each data source so that difference between them may be understood when undertaking analyses.

- *As ICD-10/ICD-10-CM is currently in use, those codes are utilized throughout this appendix. Note that ICD-10 generally will be relevant for mortality data, while ICD-10-CM will be relevant for morbidity data.*
- *Incarcerated persons (e.g., those held in a prison, jail, or detention center) should be excluded to focus on LEIFE cases among community members.* Someone who is on parole or probation would not be considered incarcerated.
- *Keywords or combinations of keywords that may be included in narrative fields (i.e., chief complaint, triage notes) or coding schema (i.e., ICD codes, discharge codes): law enforcement, police, sheriff, officer, guard, vice, bystander, suspect, prisoner, inmate, convict, detainee, criminal, jail, prison, security, tear gas, manhandling, custody, arrest, pursuit, armed, baton, handcuff, riot, taser, excited delirium, agitated delirium. This list may not be exhaustive, and additional keywords may be included depending on jurisdictional appropriateness.*
    - *Any relevant International Classification of Diseases Clinical Modification, Ninth Revision (ICD-9-CM), Tenth Revision (ICD-10-CM), or future coding schema describing what the injury was; the relevant ICD codes are outlined in Appendix 2.*
    - *NEMSIS provides the coding scheme specific to EMS data; these codes are detailed in Appendix 2.*

This will be updated when future coding schema are introduced.

Data Source: Outpatient and Inpatient Hospital Discharge Data

1. *Summary*:
   Hospital outpatient and inpatient data is also known as “hospital discharge data” or “CompData”. The outpatient database includes all patients treated in emergency rooms for less than 24 hours who were not admitted to the hospital. The inpatient database includes all patients treated for 24 hours or more for any medical reason. The dataset is an excellent resource for obtaining clinical information on patients as well as hospital utilization services in a region. Hospital outpatient and inpatient data are revised on an ongoing basis. Final counts may take more than a year after the end of a calendar year. Revised numbers typically involve only a small fraction of the overall reported numbers in any given year. Most states conform with national coding standards which provides a level of consistency across states and jurisdictions.
2. *Limitations*:
   The dataset provides only limited demographic information (age, sex and race/ethnicity), poorly identifies work relatedness of injuries, poorly describes location of injury/exposure, and has no information on course of illness after discharge. The dataset will also not capture all deaths caused by acute trauma, including police related fatalities. Depending on the jurisdiction, not all fatalities have to be brought to a hospital to complete a death certificate. The dataset also only captures hospital charges which are not entirely an accurate characterization of true medical costs. The percent of hospitals participating in a state system also varies over time. In Illinois, nearly all inpatient cases are captured in the system providing a census of annual hospitalizations, but hospital participation varies a little each year. You should check with your state manager to confirm the percent of patients/visits captured. Some instances of coding with Y35 codes can leave serious ambiguity to the nature, location, and severity of the injury in question; for example, 53% of hospital and ER visits for Y35 injuries in Minnesota during the years 2016-2019 were coded as either Y35.9 (legal intervention by unspecified means) or Y35.89 (legal intervention by other specified means, not otherwise specified).
3. *Data Source-Specific Inclusion Criteria*:
   ICD-10-CMcodes Y35.0 to Y35.9 are legal intervention codes. B When using ICD-10-CM codes the sixth digit identifies whether the person is a suspect, bystander or law enforcement official. Omit all cases where the 6th digit is 1 (Y35.XX1). An internal record abstraction confirmed that most of the cases codes as “law enforcement official” involve injuries to security guards not sworn officers.
4. *Notes*:

State and local health departments may have different policies regarding how hospital discharge data may be accessed, but the state health department will likely be stewards of the data and required to share jurisdiction level discharge data with local health departments on a regular basis.

Data Source: EMS Data

1. *Summary*:
   The EMS prehospital run data includes ambulance run reports for every emergency prehospital transport, interhospital transport or refusal of care incident for every participating vehicle service provider.
2. *Limitations*:
   Participating jurisdictions and agencies varies by State and locality. Typically, municipal fire departments participate along with volunteer and private ambulance services. However, completeness of data systems is unknown nationally and within state jurisdictions. Most states conform with national coding standards set by NEMSIS which provides a level of consistency across states and jurisdictions. However, in practice, the degree of completeness varies by EMS agency. While the dataset has many potentially useful variables, generally completeness is low to moderate for variables that are not related to the care of the patient in the field. Some demographic information and medical history data are frequently omitted. Another key limitation is that many individuals who suffer injuries are not transport by ambulance to a health care facility. Many are transported in private vehicles and delay care for hours to days.
3. *Data Source-Specific Inclusion Criteria*:
   EMS data system uses ICD coding and codes for incident location and destination type. When using ICD-10-CM codes the sixth digit identifies whether the person is a suspect, bystander or law enforcement official. Omit all cases where the 6th digit is 1 (Y35.XX1). An internal record abstraction confirmed that most of the cases codes as “law enforcement official” involve injuries to security guards not sworn officers.
   a. If eInjury.01 - Cause of Injury = Y35.0 – Y35.9 (ICD-9 then 970-979)
      OR
   b. If eDisposition.21 - Type of Destination = “4221019 Police/Jail” (Optional depending on research goals)
      OR
   c. If eOutcome.08 - Emergency Department Recorded Cause of Injury = Y35.0 – Y35.9 (ICD-9 then 970-979)
4. *Notes*:

Data Source: Death Record and Medical Examiner or Coroner Data

1. *Summary*:
   Death records use ICD-10 coding which includes codes for deaths caused while in custody or during actions by law enforcement. If the data is compiled by a medical examiner or coroner, it will typically be completed by a forensic pathologist. Death record data are often revised on an ongoing basis. Final counts are likely to take more than a year after the end of a calendar year. Revised numbers typically only involve a small fraction of the overall reported deaths in any given year. As the autopsies are finalized, the most recent year’s numbers will be revised upward. Some death record data sources include narrative fields. These fields can be mined for law enforcement related deaths.
2. *Limitations*:
   Depending on the jurisdiction and quality of information the medical examiner or coroner, physician or coroner receives, law enforcement related deaths may not be captured completely. There have been major discrepancies between the totals reported by the Centers of Disease Control and Prevention using death records and public data aggregated by the Washington Post. With the Washington Post investigative team identifying almost twice the number of fatal shooting cases each year since 2015 compared to data based on death records. In addition, the quality and the level of detail provided on vital records/death certificates will vary by state and

jurisdiction. Death certificates must conform to national standards, but the level of training of those completing the death certificates and the practices of each agency varies

3. *Data Source-Specific Inclusion Criteria*:
   Death records use ICD coding.
   Any primary cause or contributing cause of death fields = Y35.0 – Y35.9 (ICD-9 then 970-979). Omit all cases where the fourth digit is 5 (Y35.5), as these are legal executions.
   If there are narrative fields, search for the following keywords:
   a. law enforcement, police, sheriff, officer, guard, vice, bystander, suspect, prisoner, inmate, convict, detainee, criminal, jail, prison, security, tear gas, manhandling, custody, arrest, pursuit, armed, baton, handcuff, riot, taser, excited delirium, agitated delirium

   Some data systems have a unique field that flags deaths caused during a legal intervention, but the above query criteria should be checked in case a death was inadvertently missed (not flagged).
4. *Notes*:

Data Source: National Violent Death Reporting System (NVDRS) Data

1. *Summary*:
   NVDRS is operated by the CDCs and aggregate data may be accessed through WISQARS. All deaths included are the result of fatal injuries occurring due to homicide, suicide, legal intervention deaths, unintentional firearm, and deaths of undetermined intent that may be due to violence. These data are based on death certificates, law enforcement reports, and coroner/medical examiner or coroner reports.
2. *Limitations*:
   Data included only goes up to 2019 and the state level is the lowest level of geography available if using the publicly available data via WISQARS. While most state level agencies who participate in the NVDRS may access raw data from the system, local health departments may face greater challenges accessing the system in a timely manner, though individual person level data may be requested directly from NVDRS RAD or through their state agency. NVDRS does not typically include accidental deaths unless there is a firearm involved. Different jurisdictions may have greater levels of access and state departments will need to ensure their local health departments have access
3. *Data Source-Specific Inclusion Criteria*:
   NVDRS defines a legal intervention death as follows:
   Legal intervention death is defined as a death in which the decedent was killed by or died as a result of a law enforcement officer or other peace officer (persons with specified legal authority to use deadly force), including military law enforcement, acting in the line of duty. The term legal intervention is a classification from ICD-10 codes and does not denote the lawfulness or legality of the circumstances surrounding the death.
   These deaths can occur during the course of a law enforcement officer conducting a random or targeted traffic stop, issuing a citation, arresting or in pursuit to apprehend a victim (e.g., victim fleeing or escaping arrest), responding to a call to maintain order, minimizing disturbances and/or ensuring safety (e.g., domestic disturbances, to circumvent suicide crisis) or other actions as part of law enforcement duties.

   Please note that the following scenarios fall within the definition of legal intervention deaths in NVDRS:
   1. Incidents in which the decedent was killed while fleeing from/being pursued by law enforcement, including some scenarios in which the victim was not directly injured by law enforcement officers.
   Examples include:
   Victim's death resulting from car crash while being pursued by law enforcement in a high-speed chase
   Victim's death resulting from attempting to escape law enforcement contact or arrest (e.g., victim runs away from officers, unintentionally falls off a bridge and dies)

Death resulting from a victim being killed by another person unrelated to the event, while being pursued by law enforcement (e.g., a motorist hits and kills a victim that was being pursued by law enforcement)

2. Incidents in which the decedent died as the result of force applied by law enforcement officers without clear lethal intent (e.g., restraint, use of typically nonlethal weapon such as a Taser)

3. "Justifiable" and "criminal" homicides meeting the above definition

4. Bystanders who are inadvertently killed by law enforcement acting in the line of duty by mechanisms such as firearms, explosives, blunt objects (e.g., batons), sharp objects, or personal weapons

Please note that the following scenarios are not classified as legal intervention deaths in NVDRS:

1. Legal executions and cases of justifiable homicide not involving a law enforcement or other peace officer

2. Persons who were in contact with and wounded by law enforcement, but who subsequently died from some other means (e.g., a person was shot by law enforcement but subsequently died of a drug overdose)

3. In motor vehicle crash deaths, persons who are not directly involved in a law enforcement pursuit of a suspect but are inadvertently killed by law enforcement (e.g., law enforcement hit and kill a pedestrian while in pursuit of a suspected drunk driver; law enforcement unintentionally hit an unrelated car at a stoplight while pursuing a suspect)

4. A passenger is riding in the car of the person who is being pursued by law enforcement but is clearly not involved in the perpetration of the crime (or other reason) which led to the pursuit (e.g., a baby is inadvertently killed when a carjacker being pursued by law enforcement crashes the car)" (National Center for Injury Prevention and Control, Division of Violence Prevention, 2021).

4. *Notes*: Coding manual, as of 5/10/2021, may be accessed at: https://www.cdc.gov/violenceprevention/pdf/nvdrs/nvdrsCodingManual.pdf

Data Source: Nonfatal Injury Reports Data

1. *Summary*:
   This dataset provides aggregated reports of data from the National Electronic Injury Surveillance System- All Injury Program (NEISS-AIP), based on emergency department admissions for nonfatal injuries. The intent of these data being made available is to characterize and monitor trends, identify emerging injury problems, identify at risk populations, and to provide stable surveillance data at the national level. Data are accessible via a query through WISQARS through the CDC.
2. *Limitations*:
   Data given are at the national level, aggregated and unavailable as individual person level data meaning that counts or rates by state, county, or municipality may not be derived.
3. *Data Source-Specific Inclusion Criteria*:
   Legal intervention: Injury or poisoning caused by police or other legal authorities (including security guards) during law enforcement activities. Includes injuries and poisonings (mace, pepper spray) inflicted during legal action or execution, or while attempting to enforce the law such as arrest or restraint of arrested persons
4. *Notes*:

Data Source: Syndromic Surveillance Data

1. *Summary*:
   Syndromic surveillance data provides information on pre-diagnosis health related events, and most commonly is sourced from emergency department visits. These data are most useful for the early detection of pertinent health related events, with a caveat being that specificity of the data may be limited.

2. *Limitations*:
   Syndromic data may not be accurate and will be most useful for deriving rough estimates and situational awareness, especially for specific diagnoses rather than broad syndromes. The representativeness of the data is dependent upon how often the ICD-10 codes for law enforcement involved injuries (Y35.0-Y35.9) are used by hospitals. Additionally, if case counts are low for the area under surveillance it will be difficult to estimate trends from the data. Additionally, smaller county or local health departments may face challenges in accessing syndromic surveillance systems.
3. *Data Source-Specific Inclusion Criteria*:
   ICD-10 codes Y35.0 to Y35.9 are legal intervention codes. When using ICD-10 codes the sixth digit identifies whether the person is a suspect, bystander or law enforcement official. Omit all cases where the 6th digit is 1 (Y35.XX1), as this indicates the individual injured was a law enforcement officer. Further specification of the case definition including chief complaint text and search terms would be additionally useful, following a review of the records identified using the discharge diagnosis.
4. *Notes*:
   One primary example of a Syndromic Surveillance system is ESSENCE, though it may be necessary for local or county health departments who have access to the system to seek guidance and approval from their state department to conduct this type of surveillance.
   A recommendation is to use a combination of Chief Complaint and Discharge Diagnosis (CC-DD) ICD codes into a CC-DD syndrome that can be test piloted nationwide through the NSSP program. Supplementing with chief complaint data maybe useful for filling in gaps.

Open-Sourced Data Sources Aggregated by Independent Researchers:

Data Source: Fatal Encounters

1. *Summary*:
   Fatal Encounters (FE) was established in 2013 but includes retrospective data back to the year 2000 and is updated weekly by a team of researchers. This is a core data source that most other public datasets pull from. Process for case ascertainment: In order of number of records reported: i) paid researchers; ii) public records requests; iii) open-sourced data. Fatal encounters personnel research all publicly-available records to verify the event and surrounding circumstances and avoid duplication.
2. *Limitations*:
   Broadly sensitive case definition. Data often include cases that are excluded when carried into other databases. Because many of the cases are identified through media reporting, this source can be less sensitive to suicides that occur during law enforcement encounters, as these are less likely to be publicized than other law enforcement-involved deaths.
3. *Data Source-Specific Inclusion Criteria*:
   Fatal Encounters includes people killed through interactions with law enforcement identified through means outlined above.
4. *Notes*:
   One of the most robust and validated of the open-sourced data sources.

Data Source: Mapping Police Violence

1. *Summary*:
   Mapping Police Violence provides reports of community member fatalities following encounters with law enforcement, including sheriffs, police officials, and FBI agents. Data are updated on a near weekly basis, social media monitoring by Meltwater, and Google News Alerts to detect media reports of law enforcement-involved fatalities and have been found to be more representative than federal databases like the NVSS. Further, the database includes information on the officer involved in the instance of deadly force, including other reports of administrative discipline, civil suits, and misconduct settlements as available.

2. *Limitations*:
   Some data may be missing and will be updated periodically as new sources are identified to help fill in missing data. Date of last update is listed in the dataset, but it may be necessary to re-access data to ensure the dataset being used for analysis is complete. The data available on the dashboard are available only at the state level, but the full dataset may be downloaded and filtered to the county or city level. Additionally, census tract and latitude and longitude is given, though missing for many cases.
3. *Data Source-Specific Inclusion Criteria*:
   Individuals who died due to use of force by law enforcement are included in this dataset. Cases are identified by scoping media sources and social media, where persons injured through encounters with police are described. Incidences included in the database are regularly validated and matched with Fatal Encounters, The Washington Post, and official government sources like NVSS or DOJ records.
4. *Notes*:

Data Source: Washington Post – Fatal Force

1. *Summary*:
   Fatal Force utilizes data from the Washington Post's database of fatal shootings by on-duty police, beginning 1/1/2015 and continuously updated. All analyses are available for download through the Databricks GitHub. Data from the post are sourced from local news reports, law enforcement websites, social media, and through monitoring of other databases like Killed by Police and Fatal Encounters, accented by additional reporting by The Post.
2. *Limitations*:
   Only fatal encounters involving a shooting by an on-duty police officer are included, meaning that fatalities where other means contribute to the death of the community member will not be included in the dataset. Deaths that occur while in police custody and involving off-duty officers are not included.
3. *Data Source-Specific Inclusion Criteria*:
   Individuals will be captured in this data set if they meet the following criteria:
   a. If the decedent is a community member, rather than being an officer or other law enforcement personnel
   b. If the decedent was shot by an on-duty police officer
   c. If the decedent was killed through a fatal shooting, rather than other means
4. *Notes*:

Data Source: The Guardian – The Counted

1. *Summary*:
   This system is based on police reports and witness statements, monitoring of regional news outlets, and work from independent research groups and open-source reporting projects (e.g., Fatal Encounters and Killed by Police).
2. *Limitations*:
   This database only includes cases from 2015-2016, and data are aggregated to the state level. Additionally, individual person level data is not available.
3. *Data Source-Specific Inclusion Criteria*:
   Any deaths arising directly from encounters with law enforcement. Including, but not limited to people who were shot, tasered and struck by police vehicles as well those who died in police custody. Excludes suicide.
4. *Notes*:

Appendix 2 – Description of relevant clinical codes that may be found on clinical, EMS, death certificates, or medical examiner/coroner reports.

Clinical coding schema, including ICD codes and coding schema specific to NEMSIS classification codes, for the ascertainment and classification of LEIFE cases from relevant clinical and vital records (hospital discharge records, emergency department admissions, death records, and EMS runs). ICD codes may be found in hospital administrative or discharge records, records of EMS runs, or on death certificates or medical examiner/coroner data, and NEMSIS based codes are found in records of EMS runs. ICD-9-CM codes will be most relevant for records dating prior to 2016 and for historical analyses. After 2016, all clinical settings were required to transition to the use of the 10th version of the ICD schema and so ICD-10 or ICD-10-CM codes will be most relevant to records dating 2016 and beyond. ICD-10 codes are used in relation to death certificate records since 1999, and ICD-10-CM codes are used in relation to morbidity data. The WHO has additionally developed the 11th version of the ICD schema, though it is not yet adopted in the US context. ICD-11 codes are given but are unlikely to be in use at this time.

ICD Codes

ICD-9/ICD-9-CM: Regardless of fatality, any case including one of the following diagnosis codes anywhere on their medical record.

Legal Intervention, identified through external injury codes (ECODEs):

E970-E977

E978, denoting a legal execution, should be excluded

ICD-10/ICD-10-CM: Regardless of fatality, any case including one of the following diagnosis codes anywhere on their medical record.

Legal Intervention Codes:

Y35.0 – Y35.9

Y89.0*

When using ICD-10 or ICD-10-CM codes, the sixth digit identifies whether the person is a suspect, bystander, or law enforcement official. Any case where the 6th digit is 1 (e.g., Y35.xx1) should be omitted, as this indicates the patient is a law enforcement official.

*Code Y89.0 may be used to investigate long term sequelae of conditions related to legal intervention.

ICD-11: Regardless of fatality, any case including one of the following diagnosis codes anywhere on their medical record.

Legal Intervention Codes:

Parent category: 23

Codes: PJ40-PJ47, PJ4Y, PJ4Z

NEMSIS Codes

eDisposition Codes:

Type of destination:

eDisposition.21: Y92.14, denoting police/jail

eInjury Codes:

Cause of injury:

eInjury.01: Y35.0 – Y35.9, ICD-10

eInjury.01: 970 – 979, ICD-9

eOutcome Codes:

Emergency department recorded cause of injury:

eOutcome.08: Y35.0 – Y35.9, ICD-10-CM

eOutcome.08: 970 – 979, ICD-9

eScene Codes:

Incident location type:

eScene.09: Y92.14, prison

Appendix 3 – Recommendations for future efforts

- Advocating for the use of validated questions assessing frequency of police encounters on surveys like YBRS, BRFSS, and others
- Development of a unified syndromic surveillance definition
- Future incorporation of LEIFE into the NNC list
- Recommendation that CSTE develop a centralized database where linkage is completed to improve feasibility for smaller health departments
- Determine methodology for surveillance of remote or long-term effects
- Coordinate regional and national workgroups to further develop surveillance systems and share data
- Develop training of large municipal and county public health department staff on the background of the issue, data issues, and community programs in collaboration with law enforcement and other stakeholders.
- Health departments should invest in funding full-time injury epidemiologists to maintain and analyze relevant surveillance data and generate annual reports
- Advocating for the use of validated questions assessing frequency of police encounters on surveys like YBRS, BRFSS, and others
- Expand NVDRS and other workgroups to conduct follow back interviews
- Train medical examiners and coroners on coding related injuries under contributing causes, including deaths that do not occur immediately following interactions with law enforcement.

Appendix 4 – Guidance Documents

Appendix 4a – How to use open-sourced data sources for public health agencies

Overview
This section contains information on four open-sourced data sources such as news outlets, independent researchers, and other institutions that can be used for public health surveillance of law-enforcement involved fatalities and injuries. These sources include Fatal Encounters, Mapping Police Violence, the Washington Post's Fatal Force, and the Guardian's The Counted, all of which contain individual-level data. For each source, we have included instructions for downloading the data and a list of available variables.

Fatal Encounters
Fatal Encounters (FE) was established in 2013 but includes retrospective data back to the year 2000. It is updated weekly by a team of paid researchers. Cases are identified through a combination of , public records requests for law enforcement and court documents, and publicly available information from media reports. FE collects public record data from large sets compiled by KilledByPolice, the Los Angeles Times' The Homicide Report, and independent researchers. FE also gets data from public records requests of state, federal and local law enforcement agencies for case ascertainment, verification, to add to missing elements of data, and used for accuracy in reporting All records are researched to avoid duplication and investigated to verify the event and surrounding circumstances.
This is a core data source that most other public datasets pull from. It has a broadly sensitive case definition that includes any deaths taking place during an interaction with law enforcement. Because of this, Fatal Encounters is a particularly robust data source that includes many cases that would be excluded from other databases.

To access data from this source:

- Navigate to www.fatalencounters.org.
- Click the rectangular button labelled "Download the FE Database." Doing so will open a Google Sheets workbook.
- Download the dataset by selecting "File > Make a Copy" on the top menu and selecting an appropriate file location.
- Filter the data sheet by state (column L) or another variable to narrow records down to those relevant to your jurisdiction and research question(s).

Variables from this data source include:

- Unique ID
- Name of victim
- Gender of victim
- Race of victim
- Race of victim from imputation
- Imputation probability
- URL of image of victim
- Date of injury resulting in death
- Location of injury (address)
- Location of injury (city)
- State
- Location of injury (ZIP)
- Location of injury (county)
- Full location address
- Latitude

- Longitude
- Agency or agencies involved
- Highest level of force used
- Temporary UID
- Temporary Name
- Armed/unarmed status
- Alleged weapon
- Aggressive physical movement?
- Fleeing?
- Temporary description of incident
- Temporary URL
- Brief description of incident
- Disposition (Not for use in analysis)
- Intended use of force (In Development)
- Supporting documents link
- Foreknowledge of mental illness? (Not for use in analysis)

Mapping Police Violence

Mapping Police Violence provides reports of community member fatalities following encounters with law enforcement, including sheriffs, police officials, and FBI agents. Cases where the decedent died by suicide are not included. Data are updated on a near weekly basis, using social media monitoring by Meltwater and Google News Alerts to detect media reports of law enforcement-involved fatalities. According to the Lancet's article "Fatal police violence by race and state in the USA, 1980-2019: a network meta-regression," this data source has been found to be more sensitive to LEIFE death cases than federal databases like the NVSS*. In addition to information about the victims of deadly force, the database includes information on the officer(s) involved in the instance of deadly force, including other reports of administrative discipline, civil suits, and misconduct settlements as available. Data may be missing for some variables but is updated periodically.

To access this data:

- Go to the MPV homepage at: www.mappingpoliceviolence.org. Note the date of the last update in the top right corner.
- Click "View the data" on the top menu. This will open a Google Sheets workbook in read-only mode.
- Download the dataset by selecting "File > Make a Copy" on the top menu and selecting an appropriate file location.
- Filter the data sheet by state (column I) or another variable to narrow records down to those relevant to your jurisdiction and research question(s).

Variables in this source include:

- Incident and Victim characteristics
    - Victim's name
    - Victim's age
    - Victim's gender
    - Victim's race
    - URL of image of victim
    - Date of incident
    - Street Address of Incident
    - City
    - State

  - Zip code
  - County
  - Agency responsible for the death
  - ORI Agency Identifier
  - Cause of Death
  - A brief description of circumstances surrounding the death
  - Official disposition of death (Justified or other)
  - Criminal charges?
  - Link to news article or photo of official document
  - Symptoms of mental illness?
  - Armed/unarmed status
  - Alleged weapon
  - Alleged threat level
  - Fleeing?
  - Body camera
  - WaPo ID (if applicable)
  - Off-Duty killing?
  - Geography (Urban, suburban, rural)
  - MPV ID
  - Fatal Encounters ID
  - Encounter Type (Draft)
  - Initial Reported Reason for Encounter (Draft)
  - Names of Officers Involved (Draft)
  - Race of officers involved (Draft)
  - Known past shootings of officers (Draft)
  - Call for service? (Draft)
- Census tract characteristics
  - Census Tract
  - HUD UPSAI Geography
  - NCHS Urban-Rural Classification Scheme Codes
  - Median household income ACS census tract
  - Latitude
  - Longitude
  - Total population of Census Tract ACS 5-Year Estimates
  - White Non-Hispanic Percent of Population ACS
  - Black Non-Hispanic Percent of Population ACS
  - Native American Percent of Population ACS
  - Asian Percent of Population ACS
  - Pacific Islander Percent of Population ACS
  - Other/Two or More Race Percent of Population ACS
  - Hispanic Percent of Population ACS
- Local political characteristics
  - Congressional District
  - Current representative last name
  - Current representative first name
  - Officer prosecuted by (Chief prosecutor)
  - Chief Prosecutor race
  - Chief Prosecutor gender
  - Chief Prosecutor political party

  - Chief Prosecutor term
  - Officer Prosecuted by (Prosecutor in court)
  - Special Prosecutor?
  - Independent investigation?
  - Prosecutor source link
- Killed by Police 2013-2021?

** Fatal police violence by race and state in the USA, 1980–2019: a network meta-regression GBD 2019 Police Violence US Subnational Collaborators* October 02, 2021 DOI:https://doi.org/10.1016/S0140-6736(21)01609-3*

Washington Post: Fatal Force
Fatal Force is the Washington Post's database of fatal shootings by on-duty police from 1/1/2015 to present. Data are sourced from local news reports, law enforcement websites, social media, and other databases like Killed by Police and Fatal Encounters. Only incidents involving a fatal shooting by an on-duty police officer are included, meaning that fatalities where other means contribute to the death of the community member will not be included in the dataset. Deaths that occur while the victim is in police custody and deaths involving off-duty officers are not included.

To access this data source:
- Navigate to https://github.com/washingtonpost/data-police-shootings.
- Click the hyperlink closest to the top, labelled “Download the Data”
- Save the file fatal-police-shootings-data.csv to the appropriate file location.
- Filter the data sheet by state (column J) or another variable to narrow records down to those relevant to your jurisdiction and research question(s).

Variables for this source include:
- Unique identifier
- Name of victim
- Date of shooting
- Manner of death (shot or shot and Tasered)
- Armed?
- Age of victim
- Gender of victim
- Race of victim
- City where shooting took place
- State where shooting took place
- Signs of mental illness
- Alleged threat level of victim
- Fleeing?
- Presence of a body camera
- Latitude where shooting took place
- Longitude where shooting took place
- Exactness of geocoding data

The Guardian: The Counted
The Counted, a database created by UK-based publication the Guardian, houses information on all deaths arising from encounters with law enforcement, excluding suicides. Cases were identified using police reports, witness statements, regional news reports, and other open-source reporting projects. Data from the Counted is only available for the years 2015 and 2016.

To access data from this source:

- Navigate to https://www.theguardian.com/us-news/ng-interactive/2015/jun/01/about-the-counted.
- Click the orange-colored hyperlink labelled “Download the data” near the top of the page. This will automatically start downloading the folder thecounted-data.zip to your computer.
- Save the downloaded folder to the appropriate file location and double click to open. Inside are two separate Excel spreadsheets representing deaths from 2015 and 2016, respectively.
- Filter the data sheet by state (column K) or another variable to narrow records down to those relevant to your jurisdiction and research question(s).

Variables from this source include:

- Unique ID number
- Name of victim
- Age of victim
- Gender of victim
- Race/ethnicity of victim
- Month of incident
- Day of incident
- Year of incident
- Street address of incident
- City of incident
- State of incident
- Classification/type of death
- Law enforcement agency
- Armed/unarmed status

Appendix 4b – Syndromic surveillance guide - *in development*
Appendix 4b was developed with former members of Washington State’s RHINO team, pending further review from NSSP and the CDC. This appendix will provide guidance and an example query that may be implemented in the absence of a unified syndromic surveillance definition.

Appendix 4c – LEIFE Data Linkage and De-duplication Considerations for Using Open-Source Datasets

Background: No single source of data on LEIFE is truly considered a “gold standard” for timely, reliable, and robust surveillance. Each data system has its own strengths and its pitfalls, so leveraging them together allows for enriched surveillance with maximized sensitivity and specificity. While a single data source may be sufficient if the system’s methodology and case definition align with the specific use case, most frequently identifying all cases through multiple datasets and refining later for specific purposes is the most effective approach. .
This Appendix reviews linkage and deduplication considerations when using open-source datasets to examine community fatalities resulting from encounters with law enforcement. Once non-fatal law enforcement related

injuries are more readily surveilled in the U.S., similar methodologies can be adapted to support deduplication across multiple systems that capture non-fatal encounters.

Methodology:

General Considerations
Each data system can have its own case definition, exclusion criteria, dates of operation, and variables collected. A single case identified by multiple systems could vary in a number of ways. Take for example:

	System 1	**System 2**
Name	William Shakespear	William “Bill” Shakespeare
Date of Death	12/12/2022	12/13/2022
Race	White	Caucasian
Zip Code	63141	63141
County	St. Louis County	Saint Louis
Armed	Yes	*(not captured)*

In this example, the slight differences make a simple linkage based on perfect matches a poor choice. Data missingness and errors are not uncommon, made more complex by systems that rely on slightly different methods of case classification, ascertainment, and coding. The nature of LEIFE data are also important to recognize. People of color are overrepresented in LEIFE data and therefore, ensuring that linkage processes are accommodating of non-European names, nicknames, and spellings is critical.

However, particularly for larger jurisdictions, manually reviewing every case across all data systems to see if they are the same can simply take too long. Therefore, constructing a data linkage procedure that relies on a deterministic linkage (perfect matching) step followed by a probabilistic linkage (fuzzy matching) step is both efficient and effective.

Using Single Data Source
Each data source has inherent limitations, outlined in Appendix 1, that should be noted prior to selection of just one source for the ascertainment of LEIFE cases.

Using Two Data Sources
Relying on two data sources will likely yield more individual LEIFE cases than one system alone, but it does introduce the need for data linkage and de-duplication. Many statistical programs commonly used by public health agencies, like R and SAS, have packages which may be used to support the linkage of two data sources and the requisite de-duplication. For example, The Link King function operates within the SAS environment and allows a user to identify two datasets, select matching variables, and select a variety of settings for the linkage procedure.

More than Two Data Sources
Integrating more than two data sources will increase the sensitivity of the final dataset, ensuring a broader net has been case over potential LEIFE cases. However, many data linkage and de-duplication packages only allow for linkage between a maximum of two datasets at a time. As a result, public health agencies may have to conduct their linkage in stages, starting with two datasets, linking and de-duplicating them, and then using the new combined dataset to link to a third dataset, and so on. While this is a more difficult process to fully automate and does leave room for some error, the final product will have improved sensitivity over efforts drawing from fewer data sources.

Data Linkage and Deduplication

When combining 2 or more data sources, specific steps will help to maximize the success of the linkage.

I. Begin with the most sensitive data source and another data source of your choosing.
II. Depending on the package you are using, you will need to conduct a deterministic linkage followed by a probabilistic linkage. Some do this as separate steps and others combine them and do it in sequence for you. Probabilistic linkage supports "fuzzy" matching, based on matching closely related phrases or sentences between databases, to increase the ability to identify de-duplicate cases that may have variable identifiable information listed in the different datasets. Data linkage packages vary in this functionality and the settings you can select.
    1. Linkage can be based on first and last name, date of incident, race, and/or sex. Beyond this, there are few, if any, variables that multiple open-source datasets have in common and are likely to code using similar methods.
        i. These data systems all approach names of victims differently. Some combine first and last names into a single variable while others split them. For those with more than two names, it is not consistent how they will be entered into each system.
        ii. Choose one coding strategy before you begin and ensure all of your datasets align. You can either combine name variables in the dataset split them. It can sometimes be easier to use a combined name variable.
        iii. It is good to glance over the dataset briefly to note if there are a lot of nicknames listed in the format First "Nickname" Last. This is relatively common in LEIFE surveillance datasets and it will likely differ between datasets.
            1. Consider removing quotation marks from string text along with hyphenations as a way to increase matching likelihood.
            2. If your package has a nickname file to which it compares linkages, then you should use that functionality. For example, The Link King will recognize "Bill" as a relevant nickname when you have a first name of "William."
III. Keep all original versions of each variable in the newly linked dataset. For example, if you are linking Washington Post and Fatal Encounters, you would have two First Name variables and could label them "First_WP" and "First_FE."
IV. Take the newly linked dataset and put it back into your linkage package. Add a third dataset and select the variables you wish to use for matching. You will be forced to select variables in the newly linked dataset from only one of the source datasets. So, you would choose "race" for only Fatal Encounters and not Washington Post, for example.
    1. Ideally, you should select the variable with the least missingness which in many cases will be Fatal Encounters due to the broadness of its case definition.
V. Repeat the above steps for as many data sources as you need to link.
VI. Once you link all datasets together, you should have all of the original variables from the data sources in your new deduplicated dataset. You will notice that there are some differences across them, which is normal and expected. It can be helpful to maintain these source variables for comparison later on.
    1. If you need to establish a process for selecting a "final" value for reporting on variables with versions for each dataset, you have some options.
        i. You could set up a tiered process such that if a variable value is available in Washington Post then that value is used. If it is not, then Fatal Encounters' value is used. If no value is available in Fatal Encounters, you could defer to MappingPoliceViolence, and so on. You might select this order based on the specificity of the data system. Those that apply more stringent exclusion criteria may also, therefore, put each potential case through additional scrutiny.
        ii. You could instead look for similarity across systems. If multiple systems agree, you use that value. If none agree, then you select the data system whose methodology you most trust.
        iii. Documenting your decisions for later justification and reference is critical.

Cause of Death and other Exclusions

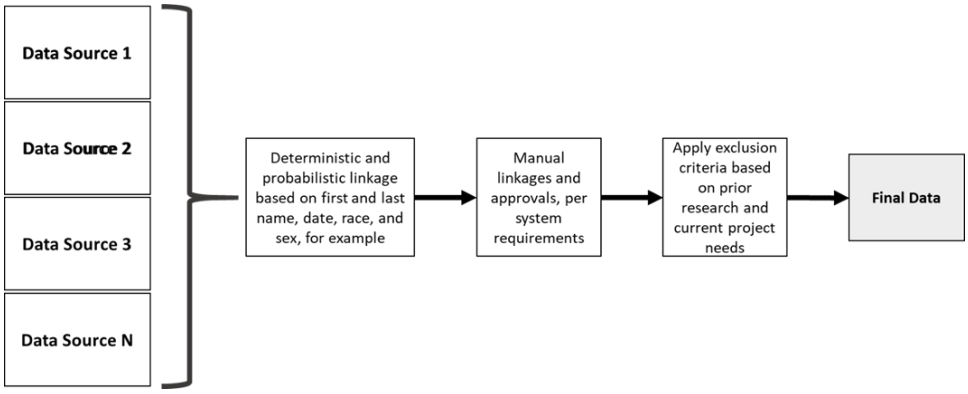
While many of the data sources on LEIFE reference each other, there remains disagreement in fatal encounter estimates. One explanation is the differing case definitions each system applies. Some systems exclude cases where the law enforcement officer involved was off duty while others include these cases. Some only include firearm-related deaths, while others include deaths due to all causes. Some data systems include cases where suicide may be indicated, and others exclude them.

Note that because you kept all of the original data source variables, you can do a text-based search for multiple variables or choose just one source variable. For example, code can be written to scan all cause of death and narrative variables and flag appearance of the words/phrases that might indicate suicide. Others may wish to exclude any death involving vehicular accidents and a similar search can be written to flag and remove those events.

If desired, during the analysis phase, an additional restrictions may be applied to cases where certain variables are available. For example, some jurisdictions may only be interested in identifying cases where the name of the law enforcement agency involved is available. This would be important when working specifically with law enforcement agencies to review cases involved with their organization, or to conduct linkage with law enforcement administrative data systems. When other agencies are concluding analyses, they may not wish to include cases that occur among those who are currently residents in correctional facilities, which can then be removed from the final dataset.

CSTE's Injury Epidemiology Subcommittee has developed a straightforward, general toolkit for data linkage and de-duplication that may be a helpful reference: https://www.cste.org/members/group.aspx?id=100174

Process Diagram



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