Indicators for Crime Estimates Using NIBRS Data

SEPTEMBER 2022

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Introduction

This document describes the crime indicators that will be estimated based on data from the National Incident-Based Reporting System (NIBRS) of the Federal Bureau of Investigation (FBI). NIBRS offers a robust set of characteristics about crime incidents reported to police, recording up to 58 data elements for each incident. The broad scope of information collected in NIBRS will greatly improve the nation's understanding of crime and public safety. This document details which indicators will be included for estimation and the rationale for their inclusion in the report on crime in the United States.

Overview of the NIBRS transition

The FBI's Uniform Crime Reporting (UCR) Program has collected data on crimes known to law enforcement for more than 90 years through the Summary Reporting System (SRS). Data submitted through SRS were aggregate counts of a limited number of offense types voluntarily contributed by law enforcement agencies throughout the United States.[1] To address the limitations of the SRS, the FBI's NIBRS, also part of the UCR Program, was developed in the late 1980s, based on recommendations from a collaborative study between the FBI and the Bureau of Justice Statistics (BJS).[2] Whereas SRS represented aggregate counts of only the most serious offense that occurred in a crime incident, NIBRS allows agencies to report information about every offense within an incident for up to 10 different offense types.

NIBRS captures detailed data about the characteristics of criminal incidents, including information on a broader array of offenses; types and amount of property lost; demographic information about victims, offenders, and persons arrested; and what type of weapon, if any, was used in the incident. Additionally, NIBRS collects information on offenses that were not part of SRS, like animal cruelty and kidnapping. Moreover, these offenses more accurately reflect additional types of crime handled by police agencies, such as destruction of property, intimidation, and identity theft.

NIBRS represented an important step forward in the measurement of crime recorded by law enforcement. However, despite providing an improved source of crime data, NIBRS has been hampered by lack of participation among law enforcement agencies. In 2012, BJS, in partnership with the FBI's Criminal Justice Information Services (CJIS) Division, launched the National Crime Statistics Exchange (NCS-X) initiative to transition a selected subset of police agencies to NIBRS, including some of the largest agencies in the United States.[3] Transitioning this subset of agencies would enable NIBRS data to serve as the basis for generating nationally representative estimates of crime known to law enforcement.

In early 2016, as recommended by its law enforcement partners, the FBI announced that SRS would be retired on January 1, 2021, and UCR crime data would be collected only through NIBRS. Over the next few years, the transition of law enforcement agencies from SRS to NIBRS increased considerably. For the 2021 data year, about 12,700 law enforcement agencies representing 66% of the U.S. population provided NIBRS data. NIBRS coverage continues to improve as additional agencies make the transition.

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[1]The FBI's SRS collected data on 10 offense types—murder and nonnegligent manslaughter, rape, robbery, aggravated assault, two types of human trafficking (commercial sex acts and involuntary servitude), burglary, larceny/theft, motor vehicle theft, and arson.
[2]Blueprint for the Future of the Uniform Crime Reporting Program, The U.S. Department of Justice. Accessible at https://www.ojp.gov/pdffiles1/bjs/98348.pdf.

[3]The NCS-X agencies were selected using statistical sampling methods that would ensure a nationally representative set of agencies.

The NIBRS transition and the impact on estimates of reported crime

Beginning with the 2021 data year, any national and state-level crime estimates derived from UCR will be produced using crime-incident data submitted through NIBRS. To develop appropriate methods for generating national crime estimates based exclusively on NIBRS data, BJS established the NIBRS Estimation Project in partnership with the FBI. The four primary goals of this project were to develop and test:

1. statistical procedures that assess the quality and completeness of NIBRS data

2. contemporary methods to adjust for agencies that have not transitioned to NIBRS

3. estimation procedures for generating reliable and accurate national indicators as new agencies report NIBRS data

4. a semi-automated system for producing national estimates of key crime indicators on an annual basis.

The first step in developing a NIBRS-based national crime estimation process was to determine which crime statistics would be estimated. The FBI's UCR Program previously produced estimates for seven of the 10 offenses for which data were collected in the SRS—murder and nonnegligent manslaughter, rape, robbery, aggravated assault, burglary, larceny-theft, and motor vehicle theft. The transition to NIBRS, and its more comprehensive source of information about crime incidents, affords the opportunity to generate estimates not only for a broader set of criminal offenses but also for more detailed characteristics of crime.

The data collected in NIBRS are varied and detailed. NIBRS obtains information on 52 different offenses (see Table 1) that can occur within a crime incident and collects arrest-only information for an additional 10 offenses.[4] NIBRS enables participating law enforcement agencies to provide information on up to 58 data elements for each crime incident across six areas, where applicable:

1. incident (e.g., location type, time of day, case clearance)

2. offense (e.g., type, weapon involvement)

3. property (e.g., type, value)

4. victim (e.g., age, sex, race, injury)

5. offender (e.g., age, sex, race)

6. persons arrested (e.g., age, sex, race, arrest type).[5]

Therefore, NIBRS can provide information on crime like the prevalence of specific offenses, the location where a crime occurred (e.g., home, school), if a weapon was involved, relationships between individuals involved in each incident, and investigation outcomes, such as whether the case was cleared by arrest.

The high level of detailed data poses an interesting challenge for estimation—that is, it would be unmanageable to present estimates for each of the large number of combinations across the 58 NIBRS data elements. Consequently, the FBI and BJS selected a set of key crime indicators based on input from subject matter experts, law enforcement partners, and UCR data users.

Crime Indicators Selection Process

To produce crime estimates that are as complete as possible while remaining manageable, BJS and the FBI followed a formal process to select a set of national crime indicators. The agencies reviewed relevant data collections such as BJS's National Crime Victimization Survey, existing data analysis and visualization tools (e.g., BJS's Arrest Data Analysis Tool and FBI's Crime Data Explorer), and various reports (e.g., *Crime in the United States* and *Modernizing Crime Statistics*)[6] to generate an initial list of indicators. Other indicators were incorporated to reflect federal agencies' priorities and relevant legislative mandates. Finally, BJS and

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[4]Data reported exclusively by federal law enforcement agencies were not considered for the 2021 estimation processes being implemented. Federal agencies can report an additional 19 offense types and 3 arrest-only offense types.

[5]For more detail on each of the data elements collected in NIBRS, see https://www.fbi.gov/file-repository/ucr/ucr-2019-1-nibrs-technical-specification.pdf/view.

[6]Bureau of Justice Statistics, National Crime Victimization Survey, 1973-2020, and BJS Arrest Data Analysis Tool, 1980-2014, The U.S. Department of Justice, Office of Justice Programs. Accessible at https://bjs.ojp.gov/data-collection/ncvs#documentation-0 and https://www.bjs.gov/index.cfm?ty=datool&surl=/arrests/index.cfm. Uniform Crime Reporting Program, Crime Data Explorer, 1985-2020, and Crime in the United States, Year-2020, The U.S. Department of Justice, Federal Bureau of Investigation. Accessible at https://crime-data-explorer.fr.cloud.gov/pages/home and https://www.fbi.gov/services/cjis/ucr/publications#Crime-in%20the%20 U.S. National Academies of Sciences, Engineering, and Medicine; Modernizing Crime Statistics: Report 1: Defining and Classifying Crime, 2016, and Modernizing Crime Statistics: Report 2: New Systems for Measuring Crime. 2018, Washington, DC: Available at https://doi.org/10.17226/23492 and https://doi.org/10.17226/25035.

the FBI ensured that the final set of key indicators incorporated the seven offenses estimated from SRS data to support longitudinal examinations of crime.

After the preliminary indicator list was drafted, a review panel of NIBRS data experts was convened to provide input, suggest edits, and identify any other priority indicators for consideration. Following expert panel review and consultation, BJS and the FBI finalized the selection of indicators and passed the selection to their project partner, RTI International (RTI). RTI then assessed the quality and completeness of reporting for each NIBRS-based indicator to determine if the data can support the development of national and subnational estimates.

Selected Key Indicators of Crime Known to Law Enforcement

Overview

The selected indicators include descriptive information on crime incidents, offenses, victims, and persons arrested. They measure crimes against persons, property, and society. The FBI and BJS determined that crimes against persons—often referred to as violent crimes—should be considered a top priority for estimation because these crimes cause the greatest harm to victims and society. Accordingly, the set of indicators emphasizes characteristics specific to violent crime (e.g., injury and weapon involvement).

Each year, BJS and the FBI will conduct a comprehensive data quality review of all the indicators to identify if any estimates fall short of the statistical rigor required for publication by the FBI and if any additional indicators have sufficient data to produce estimates.[7]

Offense types

Table 1 displays the 30 offense categories and 52 offense types recorded within incidents or arrests in NIBRS by state, local, and tribal law enforcement agencies that were considered for the current set of estimation processes being implemented. The list greatly expands upon the more limited set of offenses recorded in SRS. The additional offenses and arrests recorded in NIBRS were not available through the SRS, and national estimates for these "new" offenses have not been previously produced. Counts and rates will be calculated for each offense type listed in Table 1.

[7]A description of the data quality review process and any publication criteria applied to the estimates will be provided in conjunction with the release of the data.

NIBRS segments

For most crime offenses, NIBRS data elements are collected in one of the following six segments: administrative, offense, property, victim, offender, or arrested persons. For a smaller set of offenses, NIBRS data elements are collected only on the arrest. Most NIBRS data elements are specific to one segment. For example, all information on property involved in the incident is included in the property segment and linked to the incident. Additionally, information on any weapons used in an offense is recorded in the offense segment. Therefore, in the case of a multiple-offense and multiple-victim incident, it may not be possible to link property to a specific offense type or weapon use to a specific victim. Other data elements, like the offense type, are recorded in multiple segments. These relational complexities informed the selection of crime indicators and are used to produce estimates with different units of analysis (e.g., incident, victim, persons arrested, etc.), as shown in Table 2.

Characteristics of individuals

Table 2 presents information for 10 indicators related to characteristics of individuals—crime victims, offenders, and persons arrested—and describes the unit of analysis or segment for which the characteristics will be reported. The characteristic of whether an individual is Hispanic was excluded from the indicators list because this information is missing at a high rate, due to the field not being mandatory for law enforcement to record in NIBRS. For the 2021 data-collection year, data elements in the offender segment are not well known by law enforcement, especially among cases that did not result in an arrest or other case clearance. Due to the amount of missing data, the FBI will not produce estimates at that unit of analysis.

Characteristics of incidents

Table 3 presents characteristics of incidents and displays information for 14 indicators including their relevant categories (i.e., the range of possible values). For instance, for the Victim-Offender Relationship indicator, six aggregate-response categories were created from the 26 relationship categories in NIBRS: Intimate partner, Other family, Outside family but known to victim, Stranger, Victim was offender, and Unknown relationship. Aggregate categories like those for Victim-Offender Relationship were occasionally required to ensure an adequate number of incidents for valid estimates in each published category. Table 3

also displays the unit of analysis at which each indicator is reported (Incident, Offense, Victim, and Arrested Person).

Other Indicators

For decades, the FBI's UCR Program has been a leading source for data on officer assaults and bias-motivated crimes through the Law Enforcement Officers Killed and Assaulted (LEOKA) Program and Hate Crime Statistics Data Collection. With the emerging capability to estimate national levels for other aspects of crime, hate crime and officer assaults are two indicators of great interest. Although NIBRS implemented data elements for the submission of these data, much of it was submitted via the SRS prior to its retirement on January 1, 2021. As a result, the FBI and BJS gave serious consideration to the unique challenges these indicators pose and whether the data submitted for them through NIBRS are ready to support national estimates. In addition to LEOKA and bias crimes, NIBRS offers the potential to provide a deeper level of information on specific offense types (e.g., drug offenses) or characteristics of an offense (e.g., weapons use).

Assaults on Law Enforcement Officers. Although law enforcement submitted data about officer assaults through SRS and NIBRS, the sunset of SRS left a potential gap in the assault reports. In determining whether estimates will initially be made with NIBRS data about assaults on officers, experts evaluated how many LEOKA-reporting police agencies have transitioned to NIBRS. In addition, they examined the characteristics of these assault incidents and the quality and completeness of the data. Based on supportive findings from this feasibility study, NIBRS data will serve as a source for estimating assaults against officers. Table 4 presents the characteristics of incidents involving an assault against a law enforcement officer selected for estimation.

Bias Crime. To date, the FBI has only published the reported counts of bias crimes and has not generated estimates based on the reported data. The FBI and BJS are researching how hate crimes are defined, tracked, measured, and coded across states to determine if reporting is consistent from place to place. For these reasons, producing national estimates may be challenging initially. As more agencies submit their crime data through NIBRS, BJS and the FBI will continue to explore when it will be feasible to produce such estimates and, if so, what estimates should be produced.

Drug Offenses. In addition to these crime characteristics, BJS and the FBI determined it was feasible to produce estimates for more detailed indicators of drug or narcotic violations based on the additional data available on these offenses in NIBRS. NIBRS collects information on 8 types of criminal activity and 16 drug types. Because NIBRS records this information for offenses as well as arrests, the data can be used to produce estimates across the full list of NIBRS indicators.

Summary

Following a thorough review, the FBI, BJS, and RTI—along with the input of the NIBRS expert panel—selected a comprehensive set of indicators for estimation. Currently, they are considering additional indicators covering bias crimes and assaults against law enforcement officers. Collectively, selected indicators cover critical characteristics of crimes against persons, crimes against property, and crimes against society. Additionally, estimates will be produced for up to 52 offense types across 30 offense categories, and there will be a separate module with estimates for drug/narcotic violations.

Importantly, as the number of NIBRS reporting agencies approaches the full set of law enforcement agencies that are eligible to report crime data to UCR, additional indicators may be estimated and reported by BJS and the FBI. However, as described, the ability to produce estimates from any indicator will depend on the quality of the data. Numerous benefits will result from crime estimates based on NIBRS data. The estimation methodology will allow for national and state-level estimates[8] and provide incident-based estimates that have been previously unavailable. Moreover, any indicator in NIBRS that is not being estimated will still be available in the reported NIBRS dataset, as has been the case in previous years. These raw data files, however, will not account for missing or incomplete reporting by law enforcement agencies. Along with the methodology, documentation will be provided to help users understand the quality of the estimates and allow for the expansion of the set of indicators from which estimates are produced as more agencies transition to NIBRS.

[8]Initially, not all states will have sufficient data to produce state-level estimates; however, over time, estimates will be produced for all states and the District of Columbia.

Table 1. Offenses that can be estimated with NIBRS data, by category and type

Offenses involving crimes against—			Arrest-only offenses
Persons	**Property**	**Society**	
Assault offenses 　Aggravated assault[a] 　Simple assault 　Intimidation **Homicide offenses** 　Murder/non-negligent 　　manslaughter[a] 　Negligent manslaughter **Human trafficking offenses** 　Commercial sex acts[a] 　Involuntary servitude[a] **Kidnapping/abduction** **Sex offenses** 　Rape[a,b] 　Sodomy[b] 　Sexual assault with an 　　object[b] 　Fondling 　Incest 　Statutory Rape	**Arson**[a] **Bribery** **Burglary/breaking and 　entering**[a] **Counterfeiting/forgery** **Destruction/damage/ 　vandalism of property** **Embezzlement** **Extortion/blackmail** **Fraud offenses** 　False pretenses/swindle/ 　　confidence game 　Credit card/automated teller 　　machine fraud 　Impersonation 　Welfare fraud 　Wire fraud 　Identity theft 　Hacking/computer invasion **Larceny/theft offenses**[a] 　Pocket-picking 　Purse-snatching 　Shoplifting 　Theft from building 　Theft from coin-operated 　　machine or device 　Theft from motor vehicle 　Theft of motor vehicle parts 　　or accessories 　All other larceny **Motor vehicle theft**[a] **Robbery**[a] **Stolen property offenses**	**Animal cruelty** **Drug/narcotic offenses** 　Drug/narcotic violations 　Drug equipment violations **Gambling offenses** 　Betting/wagering 　Operating/promoting/ 　　assisting gambling 　Gambling equipment 　　violations 　Sports tampering **Pornography/obscene 　material**[d] **Prostitution offenses** 　Prostitution 　Assisting or promoting 　　prostitution 　Purchasing prostitution **Weapons law violations**	**Curfew/loitering/vagrancy 　violations**[c] **Disorderly conduct**[c] **Driving under the 　influence**[c] **Nonviolent family 　offenses**[c] **Liquor law violations**[c] **Trespass of real property**[c] **All other offenses**[c]

Note: NIBRS offense categories are bolded; offense types are displayed with their associated category.

[a]Indicates offense categories and types that were reported through the Summary Reporting System.
Source: U.S. Department of Justice, Federal Bureau of Investigation. 2021.1 National Incident-Based Reporting System User Manual. April, 15, 2021. Accessed: https://le.fbi.gov/informational-tools/ucr/ucr-technical-specifications-user-manuals-and-data-tools#NIBRS

[b]The NIBRS offense types of rape, sodomy, and sexual assault with an object are all reported under the offense of "rape" in the Summary Reporting System.
Source: U.S. Department of Justice, Federal Bureau of Investigation, Crime in the United States, 2013. Rape addendum: Uniform Crime Reporting Program changes definition of rape. Fall, 2014. Accessed: https://ucr.fbi.gov/crime-in-the-u.s/2013/crime-in-the-u.s.-2013/rape-addendum/rape_addendum_final

[c]Indicates that only counts of arrested persons are estimated.
[d]Estimates will not be produced for the offense of pornography due to inconsistent reporting across law enforcement agencies.
Source: Finkelhor, D., and Ormrod, R. 2004. Child Pornography: Patterns from NIBRS. Bulletin. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. Accessed: https://ojjdp.ojp.gov/library/publications/child-pornography-patterns-nibrs

Table 2. Characteristics of individuals, including victims and persons who were arrested, to be estimated, by NIBRS reporting unit of analysis

Indicator	Categories	Reporting Unit of Analysis			
		Incident	**Offense**	**Victim**	**Arrested Person**
Age[a]	Under 5			■	■
	5-14				
	15-17				
	18-24				
	25-34				
	35-64				
	65 or older				
Sex[a]	Male			■	■
	Female				
	Unknown				
Race[a]	White			■	■
	Black				
	American Indian or Alaskan Native				
	Asian				
	Native Hawaiian or Other Pacific Islander				
Sex and race[b]	Same sex, race categories as above			■	■
Victim age category by offender age category[b]	Same age categories as above			■	
Victim sex by offender sex[b]	Same sex categories as above			■	
Victim race by offender race[b]	Same race categories as above			■	
Juvenile disposition[b]	Handled within department				■
	Referred to other authorities				
	Not applicable				
Multiple-arrest indicator[b]	Multiple				■
	Count				
	Not applicable				
Arrested person was armed (yes/no)[b]	Firearm				■
	Lethal cutting instrument				
	Club/blackjack/brass knuckles				

Note: For more detailed information on the types of offenses and characteristics reported through NIBRS, see https://le.fbi.gov/informational-tools/ucr/ucr-technical-specifications-user-manuals-and-data-tools#NIBRS.

[a]Counts, rates, and percentages will be estimated.

[b]Counts and percentages will be estimated.

Table 3. Crime incident characteristics to be estimated, by NIBRS reporting unit of analysis

| Indicator | Categories | Reporting Unit of Analysis | | | |
		Incident	Offense	Victim	Arrested Person
Weapon involved[a]	Personal	■	■	■	■
	Firearms				
	Knives/cutting instruments				
	Blunt instruments				
	Other non-persona[a]				
	Unknown				
Injury[a]	Yes	■	■	■	
	No				
Multiple victims[a]	1 victim	■	■		
	2 or more victims				
Multiple offenders[a]	1 offender	■	■		
	2 or more offenders				
	Unknown offenders				
Multiple-offense incident[a]	1 offense	■			
	2 offenses				
	3 or more offenses				
Victim-offender relationship[a]	Intimate partner	■	■	■	
	Other family				
	Outside family but known to victim				
	Stranger				
	Victim was offender				
	Unknown relationship				
Location type[a]	Residence/hotel	■	■		
	Transportation hub/outdoor public locations				
	Schools/daycares/universities				
	Retail/financial/other commercial establishment				
	Restaurant/bar/sports or entertainment venue				
	Religious buildings				
	Government/public buildings				
	Jail/prison				
	Shelter-mission/homeless				
	Other/unknown location				

Table 3. Crime incident characteristics to be estimated, by NIBRS reporting unit of analysis (continued)

Indicator	Categories	Incident	Offense	Victim	Arrested Person
		Reporting Unit of Analysis			
Time of day[a]	Midnight-4am	■	■		
	4-8am				
	8am-noon				
	Noon-4pm				
	4-8pm				
	8pm-midnight				
	Unknown				
Population group[a]	100,000 and over	■	■		
	25,000-99,999				
	10,000-24,999				
	Under 10,000				
	State police				
	Possessions				
Agency indicator[a]	City	■	■		
	County				
	University or college				
	State police				
	Other state agencies				
	Tribal agencies				
	Federal agencies				
Cleared through arrest[a]	Yes	■	■		
	No				
Exceptional clearance[a]	Death of offender	■			
	Prosecution declined				
	In custody of other jurisdiction				
	Victim refused to cooperate				
	Juvenile/no custody				
Property loss[a]	None	■			
	Burned				
	Counterfeited/forged				
	Destroyed/damaged/vandalized				
	Recovered				
	Seized				
	Stolen				
	Unknown				
Gang involvement[a]	None/unknown			■	
	Juvenile				
	Other gang involvement				

Note: For more detailed information on the types of offenses and characteristics reported through NIBRS see https://le.fbi.gov/informational-tools/ucr/ucr-technical-specifications-user-manuals-and-data-tools#NIBRS

[a]Counts and percentages will be estimated for all indicators.

Table 4. Characteristics of assaults against law enforcement officers to be estimated with NIBRS data

Indicator	Categories	Indicator	Categories
Population group	Cities 250,000 or over	**Multiple offenders**	1 offender
	Cities 100,000-249,999		2 or more offenders
	Cities 50,000-99,999		Unknown offenders
	Cities 25,000-49,999	**Multiple offense incident**	1 offense
	Cities 10,000-24,999		2 offenses
	Cities under 10,000		3 or more offenses
	Metropolitan counties	**Victim-offender relationship**	Intimate partner
	Nonmetropolitan counties		Other family
Agency indicator	City		Outside family but known to victim
	County		Stranger
	University or college		Unknown relationship
	State police	**Location type**	Residence/hotel
	Other state agencies		Transportation hub/outdoor public locations
	Tribal agencies		Schools/daycares/universities
	Federal agencies		Retail/financial/other commercial establishment
Type of activity	Responding to disturbance call		Restaurant/bar/sports or entertainment venue
	Burglary		Religious buildings
	Robbery in progress		Government/public buildings
	Attempting other arrest		Jail/prison
	Civil disorder		Shelter-mission/homeless
	Handling/transporting/custody of prisoners		Other/unknown location
	Investigating suspicious persons	**Time of day: Incident time**	Midnight-4am
	Ambush		4-8am
	Mentally challenged		8am-noon
	Traffic pursuits		Noon-4pm
	All other		4-8pm
Type of assignment	Two-officer vehicle		8pm-midnight
	One-officer vehicle alone		Unknown
	One-officer vehicle assisted	**Time of day: Report time**	Midnight-4am
	Detective or special assignment alone		4-8am
	Detective or special assignment assisted		8am-noon
	Other		Noon-4pm
Weapon involved	Personal		4-8pm
	Firearms		8pm-midnight
	Knives/cutting instruments		Unknown
	Blunt instruments	**Cleared through arrest**	Yes
	Other non-personal		No
	Unknown	**Exceptional clearance**	Death of offender
Injury	Yes		Prosecution declined
	No		In custody of other jurisdiction
Multiple victims	1 victim		Victim refused to cooperate
	2 or more victims		Juvenile/no custody

Note: For more detailed information on the data elements reported through NIBRS for assaults and killings of sworn law enforcement officers see https://le.fbi.gov/informational-tools/ucr/ucr-technical-specifications-user-manuals-and-data-tools#NIBRS