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TECHNICAL REPORT

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Assessment of Coverage in the Arrest-Related Deaths Program

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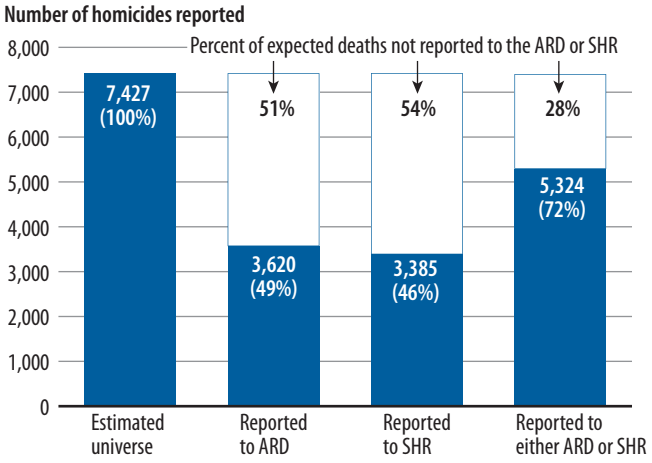
Executive summary

After the passage of the Death in Custody Reporting Act (DICRA) of 2000 (P.L. 106-297), the Bureau of Justice Statistics (BJS) began collecting data on deaths that occurred in the process of arrest. Provisions in the 2000 DICRA called for collecting all deaths occurring within the process of arrest in any state, county, or local law enforcement agency nationwide. From 2003 through 2009, BJS obtained reports on 4,813 such deaths through its Arrest-Related Deaths (ARD) program. About 3 in 5 of these deaths (2,931) were classified as homicides by law enforcement personnel. The remaining 2 in 5 deaths were attributed to other manners, including suicide (11%), intoxication deaths (11%), accidental injury (6%), and natural causes (5%).[1] In three-quarters (75%) of homicides by law enforcement personnel, the underlying offense of arrest was a violent offense. No criminal charges were intended in less than 2% of these incidents.

To assess the completeness of the ARD data that BJS received, in 2013 BJS undertook a technical review of the ARD program's methodology and an assessment of the program's coverage of all arrest-related deaths in the United States. The methodology review examined the variation in states' approaches to identifying and confirming arrest-related deaths. The assessment of coverage focused on determining whether BJS received all arrest-related deaths that occurred or only a portion of them. The primary focus of the assessment of coverage was on homicides by law enforcement officers.

The analysis showed that the ARD program obtained fewer law enforcement homicide deaths than expected, based on the methodology used to estimate the expected number of law enforcement homicides. It also showed that the data BJS used for comparison purposes—the FBI's Supplementary Homicide Reports (SHR)—also reported fewer justifiable homicides than expected.[2] In total, the BJS ARD program data and the SHR data each identified about half of the expected number of homicides by law enforcement officers during the period from 2003 through 2009 and 2011 (figure 1). The ARD program captured approximately 49% of these homicides, while the SHR captured 46%. More than a quarter (28%) of law enforcement homicides in the United States were not captured by either system. The analysis

FIGURE 1
Estimated number of law enforcement homicides and percent not reported, by data source, 2003–2009 and 2011



Source: Bureau of Justice Statistics, Arrest-Related Deaths (ARD) program, 2003–2009 and 2011; and FBI, Supplementary Homicide Reports (SHR), 2003–2009 and 2011.

[1] *Arrest-Related Deaths, 2003–2009 - Statistical Tables* (NCJ 235385, BJS web, November 2011).

[2] *Arrest-related Deaths Program Assessment: Technical Report* (NCJ 248543, BJS web, March 2015).

also showed that the ARD program obtained more arrest-related deaths in 2009 and 2011, when BJS began to use open source methods (e.g., Google searches to identify potential cases), compared with prior years when BJS did not use open source methods.[3]

Drawing from the results of this study, BJS has begun a pilot study that explores multiple methods of identifying and confirming deaths occurring in the process of arrest. The study will inform BJS efforts to implement the requirements of the reauthorized 2013 DICRA (P.L. 113-242).

Arrest-Related Deaths program assessment

BJS designed the ARD program to be a census of all deaths that occurred in the process of arrest or during an attempt to obtain custody by a state or local law enforcement agency. BJS collected ARD data from 2003 through 2013, covering deaths occurring in calendar years 2003 through 2012.[4] BJS implemented the ARD program as part of its Deaths in Custody Reporting Program (DCRP), which it developed in response to the 2000 DICRA and includes collections that measure deaths occurring in jails and state prisons, in addition to deaths occurring during the process of arrest.[5, 6]

The ARD program identified the manner of arrest-related death, including law enforcement homicides, other homicides, accidents, suicides, and deaths due to natural causes. Law enforcement homicides included all deaths attributed to weapons or restraint tactics used by state or local law enforcement officers. From 2003 through 2009, about 61% of all deaths reported to the ARD program were law enforcement homicides.[7]

[3]ARD program data for 2010 were unavailable due to a shift in data collection methodology between 2009 and 2011.

[4]BJS only published statistics from calendar years 2003 through 2009.

[5]The 2000 DICRA expired in 2006, although BJS continued to maintain its DCRP data collections. The 2013 DICRA was passed by Congress and became law in December 2014. The 2013 DICRA requires any state receiving funds from the Department of Justice to report on a quarterly basis information regarding the death of any person who is detained, under arrest, or in the process of being arrested; is en route to be incarcerated; or is incarcerated.

[6]For more information on the Deaths in Custody Reporting Program, see the BJS website.

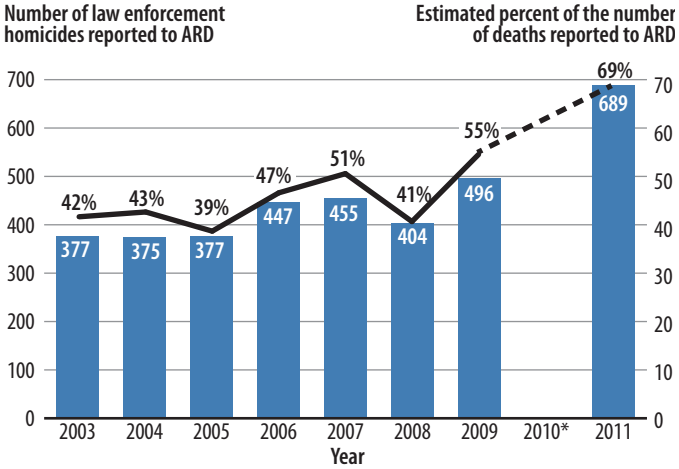
[7]See *Arrest-Related Deaths, 2003–2009 - Statistical Tables* (NCJ 235385, BJS web, November 2011).

As part of its ongoing efforts to evaluate the quality of its statistical programs, BJS began to assess the quality of ARD program data in 2013. This assessment focused on the methodology used to obtain the data and on the completeness of the arrest-related deaths reported to the program. In part, BJS began this assessment in response to an unexpected increase in the number of law enforcement homicides reported to the ARD program in 2009 and 2011. In these years, BJS began to use open sources (e.g., web searches and Google Alerts) and other methods to independently identify potential cases of deaths in the process of arrest. These cases were then sent to BJS's state data collection agents for review and verification. The implementation of this new methodology led to an increase in the number of homicides by law enforcement reported to the ARD that was more than the average number (406) for previous years. For example, BJS obtained 689 reports of law enforcement homicides in 2011, which represented a 39% increase from the 496 reported in 2009 **(figure 2)**.

Given the increase in the number of deaths identified by the ARD program after changes in methodology, along with concerns about overall program coverage, BJS temporarily suspended ARD data collection while it undertook the ARD program assessment and technical review. A primary focus of this BJS study was to estimate the coverage error (i.e., the percentage of the expected number of ARD deaths that the program missed).

FIGURE 2

Number of law enforcement homicides reported to the ARD program and estimated, lower bound, 2003–2009 and 2011



*2010 data not released.

Source: Bureau of Justice Statistics, Arrest-Related Deaths (ARD) program, 2003–2009 and 2011.

Methodology review and coverage assessment

The ARD program had methodological limitations that prevented BJS from obtaining a full enumeration of all arrest-related deaths in the United States. The program relied on voluntary reporting from state and local agencies to compile information about arrest-related deaths, including law enforcement homicides. It also relied on centralized reporting mechanisms to compile and submit information about these deaths. These state reporting coordinators (SRC) in each of the 50 states and the District of Columbia were responsible for understanding the scope and definition of the ARD program, identifying eligible cases in their respective states, and working with available resources to collect and report information about those cases. Not all states had an SRC. In those states, BJS relied on its contractor to take on the SRC role. As of 2009, several jurisdictions (i.e., Arkansas, the District of Columbia, Georgia, Maryland, Montana, Nevada, Wisconsin, and Wyoming) had yet to participate in the program.

BJS studied the completeness of all law enforcement homicides reported to the ARD program by using both ARD data and a separate source of data on law enforcement homicides—the FBI's SHR data.[8] BJS compared the number of law enforcement homicides reported by the ARD program from 2003 through 2009 and 2011, representing all of the ARD program years for which data were available, with the number of justifiable homicides captured by the SHR over the same period.[9]

Applying a commonly used technique known as capture-recapture to estimate the size of populations, the BJS assessment produced an estimate of the expected number of law enforcement homicides in the United States. This estimate was based on the extent to which the ARD and SHR data on law enforcement homicides overlapped (i.e., reported on the same cases).[10] As the amount of overlap between the data sources increased, the estimated underlying population size got closer to the number of cases in the data sources.

[8]SHR data are voluntarily provided by law enforcement agencies to the FBI's Uniform Crime Reports (UCR) Program. For more information about the UCR program, see https://www.fbi.gov/about-us/cjis/ucr/ucr.

[9]The UCR Program handbook defines justifiable homicides as (1) the killing of a felon by a police officer in the line of duty or (2) the killing of a felon, during the commission of a felony, by a private citizen.

[10]See Palusci, V.J., Wirtz, S.J. & Convington, T.M. (2010). Using capture-recapture methods to better ascertain the incidence of fatal child maltreatment. *Child Abuse & Neglect, 24*, 396–402. See also Wolter, K.M. (1986). Some coverage error models for census data. *Journal of the American Statistical Association, 81*, 338–346.

Capture-recapture analysis relies on a number of assumptions, including that cases can be matched across lists, that the lists are limited to cases that meet the definition of law enforcement homicides, and that inclusion on one list is independent from inclusion on the other. Many of these assumptions were met, but the nature of the ARD program and SHR necessitated the violation of other assumptions (including independence across lists, as some ARD SRCs relied on the same reporting mechanisms as those that inform the SHR). RTI International implemented a number of adjustments to account for these violations.[11]

In the assessment, BJS generated estimates based on differing assumptions about missing data. This resulted in an upper- and a lower-bound estimate of the expected number of law enforcement homicides that should have been reported to the ARD program, if the ARD data were 100% complete.

Across the 8 years of data used in the analysis from 2003 through 2009 and 2011, the lower-bound estimate of the expected number of law enforcement homicides that should have been reported to the ARD program was 7,427, or an average of 928 per year **(table 1)**. The ARD program captured approximately half (49%) or 3,620 of these homicides (an average of 453 a year), whereas the SHR captured 46% or 3,385 of these homicides (423 per year). More than a quarter (28%) or 2,103 of the estimated homicides in the United States during those 8 years were not captured by either system. The lower-bound estimate assumed that any agencies that did not report to the ARD or SHR programs did not have an arrest-related death during the study period. The upper-bound estimate assumed the number of arrest-related deaths in law enforcement agencies that did not report to the ARD or the SHR were comparable to those of the agencies that did report. This yielded an estimated 9,937 law enforcement homicides in the United States, an average of 1,242 per year, of which the ARD program captured more than a third (36%).

[11]For descriptions of the violations, see *Arrest-Related Deaths Program Assessment: Technical Report* (NCJ 248543, BJS web, March 2015).

TABLE 1
Number and percent of law enforcement homicides captured, by source and estimation approach, 2003–2009 and 2011

	Lower-bound estimate		Upper-bound estimate	
Law enforcement homicides	Number	Percent of universe	Number	Percent of universe
Estimated universe	7,427	100%	9,937	100%
Observed deaths	5,324	72%	5,324	54%
ARD	3,620	49	3,620	36
SHR	3,385	46	3,385	34
Unobserved deaths	2,103	28%	4,613	46%

Source: Bureau of Justice Statistics, Arrest-Related Deaths (ARD) program, 2003–2009 and 2011; and FBI, Supplementary Homicide Reports (SHR), 2003–2009 and 2011.

As BJS implemented changes to improve the ARD collection methodology, the program's coverage of arrest-related deaths improved. Analysis indicated that the ARD program included a greater proportion of the estimated law enforcement homicides in 2009 and 2011 than it did from 2003 through 2008. In 2011, the ARD program captured 69% of the estimated 1,000 law enforcement homicides in the United States (figure 3).

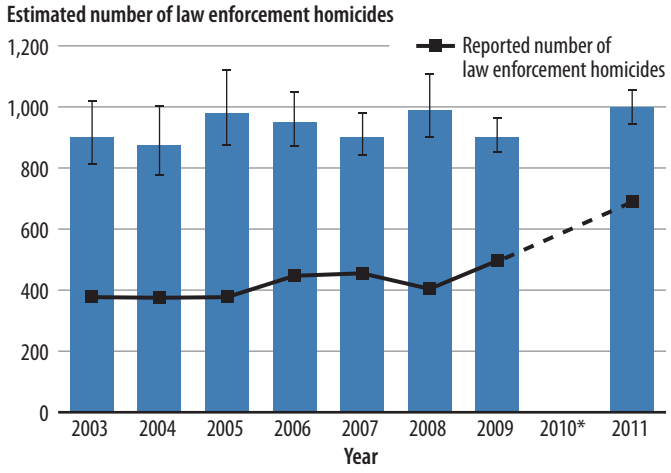
Conclusions

BJS's analysis of the ARD program's coverage found that for the study period from 2003 through 2009 and 2011, both the ARD program and the SHR obtained reports for only about half of the expected number of law enforcement homicides in the United States. Examining the data on deaths that were reported to either or both systems, BJS found that, combined, the systems obtained reports on at best 72% of all law enforcement homicides in the United States across all years observed. The ARD program showed improvements in coverage in the most recent years studied (i.e., 2009 and 2011), and these improvements coincided with the increased use of open-source data to identify potential cases of arrest-related deaths. Despite demonstrated improvements over time, the ARD program missed reports for more than a quarter of the expected number of law enforcement homicides in 2011.

The ARD program coverage may be improved by providing a more centralized method for identifying arrest-related deaths and providing incentives for law enforcement agencies to confirm or identify deaths that occur during the process of arrest and to provide information about them. Therefore, BJS has begun to explore the use of open-source data to identify arrest-related deaths in conjunction with a direct survey of law enforcement and other agencies responsible for investigating deaths in the process of arrest. The study will inform BJS efforts to implement the requirements of the reauthorized DICRA of 2013 (P.L. 113-242).

FIGURE 3

Number of law enforcement homicides reported to the ARD program and estimated, unadjusted coverage, 2003–2009 and 2011



*2010 data not released.

Source: Bureau of Justice Statistics, Arrest-Related Deaths (ARD) program, 2003–2009 and 2011.

The Bureau of Justice Statistics of the U.S. Department of Justice is the principal federal agency responsible for measuring crime, criminal victimization, criminal offenders, victims of crime, correlates of crime, and the operation of criminal and civil justice systems at the federal, state, tribal, and local levels. BJS collects, analyzes, and disseminates reliable and valid statistics on crime and justice systems in the United States, supports improvements to state and local criminal justice information systems, and participates with national and international organizations to develop and recommend national standards for justice statistics. William J. Sabol is director.

This report was written by Duren Banks and Lance Couzens, RTI International, and Michael Planty, Bureau of Justice Statistics. Lynn Langton provided verification of the report.

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