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Brief Original Report

# Variations in mortality from legal intervention in the United States—1999 to 2013

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ABSTRACT

*Background.* In the United States (US) between 279 and 507 people were killed yearly by legal intervention/law enforcement other than by legal execution (1999–2013). Methods. Results. Among 5551 deaths by legal intervention, rates increased from 0.11/100,000 (95% Confidence Interval (CI) 0.10, 0.12) in 1999 to 0.16/100,000 (0.14, 0.17) in 2012–2103. Further, for 1999–2013, 71% (3912) occurred at ages 20–44 with the highest rates at ages 20–24 (0.30 (0.28, 0.32)) and 25–34 (0.0.27 (0.26, 0.28)) per 100,000. In addition, 96% (5335) occurred among males, 78% at ages 15–44 years. Among men ages 15–44, rates were highest among American Indian or Alaska Natives (1.04 (95% CI 0.83, 1.29)), who comprise 2.06% of deaths and non-Hispanic Black or African American men (0.97 (0.92, 1.03)), who comprise 29.60%. Rates among men ages 15 to 44 were also higher among Hispanic whites (0.58(0.54, 0.61)), than among non-Hispanic Whites (0.3(0.28, 0.31)), or non-Hispanic or Latino Asian and Pacific Islanders (0.18 (0.15, 0.23)). Among places with reliable rates, the highest State rate for non-Hispanic Black males occurred in Nevada (1.27/100,000 (95% CI 0.77, 1.96) while the highest county was Riverside, CA (2.40(1.52, 3.61)). Corresponding values for Hispanic whites were New Mexico (1.07 (0.83,1.37) and Denver, CO (1.76(1.11, 2.67)) and for non-Hispanic whites, New Mexico (0.54 (0.36, 078) and San Bernardino, CA (0.73 (0.52, 1.00). Conclusions and relevance. Community-based programs, with collaboration from policy makers and community members, may reduce these potentially avoidable premature deaths from legal intervention by targeting high risk sub-populations.



## Introduction

Mortality from legal intervention is defined as death caused by law enforcement officials other than legal execution. In 2013 in the United States (US), an estimated 11,302,102 arrests (U.S. Department of Justice-Federal Bureau of Investigation: Crime in the United States, 2013) resulted in approximately 480 deaths from legal intervention (Centers for Disease Control and Prevention and National Center for Health Statistics, 2015).

Between 1979 and 1997 (Sikora and Mulvihill, 2002) in the US: (a) legal intervention other than legal execution accounted for about 1% to 2% of all homicides, meaning that it was not only a relatively infrequent cause of homicide, but also a rare cause of all deaths for which the underlying cause was determined to be external (transport accidents; other external sources of accidental injury, such as falls, drowning, electrocution etc.; intentional self-harm (suicide); events of undetermined intent; legal intervention and operations of war; complications of medical and surgical care; and sequelae of external causes of mortality and morbidity); (Centers for Disease Control and Prevention and National Center for Health Statistics, 2015; Anon., 2015a); (b) absolute numbers and rates of death from legal intervention other than legal execution decreased significantly from 1979 to 1988 and remained stable thereafter; and (c) young adult men (ages <35 years) accounted for most such deaths, with rates for black men being three to five times higher than those for white men. It was not, however, possible to classify deaths according to Hispanic or Latino ethnicity. In addition, the rates may have been underestimated due to failure to attribute cause of death to legal intervention, particularly when death was not simultaneous with the intervention (Sikora and Mulvihill, 2002). In this report we were able to describe mortality from legal intervention other than legal execution in the US from 1999 to 2013 by time, person and place while overcoming the limitation due to misclassification.

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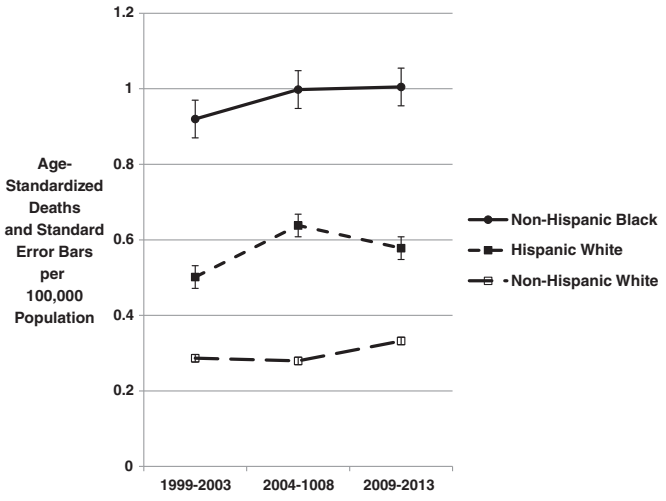


**Fig. 1.** Mortality from legal intervention other than legal execution among men ages 15 to 44 years according to race and ethnicity. United States of America. 1999–2013.

## Methods

Data were obtained from the Compressed Mortality File (CMF) administered by the Office of Analysis, Epidemiology, and Health Promotion of the National Center for Health Statistics, Centers for Disease Control and Prevention (CDC), Hyattsville, MD. The Internet-based CDC WONDER (Wide Ranging ONline Data for Epidemiologic Research) system (Centers for Disease Control and Prevention and National Center for Health Statistics, 2015; Anon., 2015b) was used to search the database. The CMF is public domain mortality and population database with annual national, regional, state, and county-level information on the underlying cause of death as stated on the death certificate according to age, gender, race, and cause, for all legal residents. All rates presented meet the National Center for Health Statistics standards of reliability in that they include at least 20 deaths (Centers for Disease Control and Prevention and National Center for Health Statistics, 2015; Anon., 2015a). The CMF Coding for cause of death is according to the 10th revision of the International Classification of Diseases (ICD-10) (World Health Organization, 2004). Codes used for these analyses include legal intervention (Y35.1 through Y35.7 and Y89.0, except for Y35.5). Code Y35.5 (legal execution) was excluded, in part, because penitentiaries may be listed as the decedent's place of residence on the death certificate (Anon., 2015c), thereby producing inflated rates for counties where legal executions are performed. The CDC WONDER site provides crude, age-specific, and age-adjusted mortality rates as well as their 95% confidence intervals (CI) and standard errors using the year 2000 as the standard population. Levels of urbanization were classified according to the National Center for Health Statistics 2013 Urban-Rural Classification Scheme for Counties. Full dataset documentation and methodology are available at the site (Centers for Disease Control and Prevention and National Center for Health Statistics, 2015; Anon., 2015b).

## Results

Between 1999 and 2013 in the US, there were 5,551 deaths by legal intervention recorded by the CMF. Overall, age-standardized rates increased from 0.11 per 100,000 (95% Confidence Interval (CI) 0.10, 0.12) in 1999 to 0.16 (0.14, 0.17) in 2013. Deaths occurred throughout the life span (from less than 1 year to over 850.23, 0.54 years). Overall rates were highest among Blacks or African Americans (0.24/100,000 (95% CI 0.23, 0.25)), followed by American Indian and Alaska Natives (0.20 (0.16, 0.23)), Whites (0.11 (0.10, 0.11)) and Asian and Pacific Islanders (0.05,(0.04, 0.06)). Reliable rates (those with at least 20 deaths) according to Hispanic origin were only available for whites. Overall mortality for Hispanic whites was 0.17 (0.16, 0.18) while that for non-Hispanic whites was 0.09 (0.09, 0.10). Ninety-six percent of deaths (5335) occurred among men, of which 78% (4138, including 10 for which ethnicity was unstated) occurred between ages 15 and 44 years. Among men 15 to 44, age-standardized, race–ethnicity-specific rates were highest among non-Hispanic American Indian/Alaska Natives (1.04 (95% CI 0.83, 1.29)) who comprised 2.05% of the deaths of

**Table 1a**
Average age-adjusted overall male mortality per 100,000 population from legal intervention (excluding legal execution) according to race, Hispanic origin and magnitude of rate in US states with reliable rates (at least 20 deaths). USA. 1999 to 2013.

| State | Deaths(1999–2013) | Population (1999–2013) | Age adjustedrate (95%confidenceinterval) |
|---|---|---|---|
| *Non-Hispanic or Latino Black* | | | |
| Nevada | 20 | 1,488,756 | 1.27 (0.77, 1.96) |
| Maryland | 121 | 11,488,947 | 1.04 (0.85, 1.23) |
| California | 185 | 17,387,225 | 1.01 (0.86, 1.16) |
| Washington | 22 | 2,058,798 | 0.98 (0.62, 1.49) |
| Pennsylvania | 80 | 9,515,702 | 0.80 (0.63, 1.00) |
| Ohio | 78 | 10,166,143 | 0.77 (0.60, 0.96) |
| Indiana | 31 | 4,199,186 | 0.74 (0.50, 1.06) |
| Virginia | 62 | 10,865,324 | 0.54 (0.41, 0.69) |
| Illinois | 66 | 13,295,916 | 0.48 (0.37, 0.61) |
| Mississippi | 37 | 7,577,800 | 0.48 (0.33, 0.67) |
| Michigan | 50 | 10,365,776 | 0.47 (0.35, 0.62) |
| Georgia | 90 | 19,246,265 | 0.44 (0.35, 0.54) |
| New Jersey | 38 | 8,181,709 | 0.44 (0.31, 0.60) |
| Florida | 86 | 19,741,828 | 0.41 (0.32, 0.51) |
| New York | 81 | 20,310,086 | 0.38 (0.30, 0.47) |
| South Carolina | 32 | 8,848,266 | 0.35 (0.24, 0.50) |
| Texas | 72 | 19,870,572 | 0.34 (0.27, 0.43) |
| Louisiana | 21 | 10,379,408 | 0.20 (0.13, 0.31) |
| North Carolina | 27 | 13,673,958 | 0.19 (0.13, 0.28) |
| *Hispanic or Latino White* | | | |
| New Mexico | 66 | 6,145,394 | 1.07 (0.83, 1.37) |
| Colorado | 46 | 6,553,623 | 0.62 (0.45, 0.84) |
| California | 525 | 90,710,081 | 0.52 (0.47, 0.56) |
| Arizona | 56 | 11,767,224 | 0.47 (0.35, 0.61) |
| Nevada | 22 | 4,245,644 | 0.47 (0.29, 0.72) |
| Texas | 122 | 60,787,736 | 0.20 (0.16, 0.23) |
| Florida | 37 | 25,272,031 | 0.14 (0.10, 0.19) |
| New York | 26 | 18,594,931 | 0.13 (0.09, 0.20) |
| *Non-Hispanic or Latino White* | | | |
| New Mexico | 30 | 6,187,238 | 0.54 (0.36, 0.78) |
| Oregon | 114 | 22,180,177 | 0.52 (0.42, 0.62) |
| Nevada | 54 | 11,051,149 | 0.50 (0.37, 0.65) |
| Idaho | 33 | 9,430,868 | 0.36 (0.25, 0.51) |
| Arizona | 89 | 26,657,917 | 0.35 (0.28, 0.43) |
| Montana | 22 | 6,409,273 | 0.35 (0.21, 0.53) |
| Utah | 52 | 15,840,507 | 0.34 (0.25, 0.45) |
| Washington | 124 | 36,519,534 | 0.33 (0.27, 0.39) |
| West Virginia | 42 | 12,680,238 | 0.33 (0.24, 0.45) |
| California | 384 | 118,240,007 | 0.32 (0.29, 0.36) |
| Oklahoma | 60 | 19,540,994 | 0.32 (0.24, 0.41) |
| Maine | 28 | 9,231,364 | 0.31 (0.20, 0.44) |
| Maryland | 70 | 2,3975,390 | 0.29 (0.23, 0.37) |
| Arkansas | 39 | 15,921,948 | 0.27 (0.19, 0.37) |
| Colorado | 63 | 25,821,732 | 0.23 (0.18, 0.30) |
| Texas | 177 | 84,278,012 | 0.21 (0.18, 0.24) |
| South Carolina | 43 | 21,007,131 | 0.21 (0.15, 0.28) |
| Virginia | 78 | 38,344,787 | 0.20 (0.16, 0.25) |
| Indiana | 77 | 39,046,359 | 0.20 (0.16, 0.25) |
| Kentucky | 49 | 27,296,312 | 0.18 (0.13, 0.24) |
| Kansas | 29 | 16,638,584 | 0.17 (0.11, 0.25) |
| Florida | 121 | 80,503,732 | 0.16 (0.13, 0.18) |
| Wisconsin | 55 | 35,278,242 | 0.16 (0.12, 0.21) |
| Louisiana | 32 | 20,506,330 | 0.16 (0.11, 0.23) |
| Georgia | 61 | 39,699,507 | 0.15 (0.11, 0.19) |
| Iowa | 27 | 20,019,491 | 0.14 (0.09, 0.21) |
| Michigan | 74 | 57,626,113 | 0.13 (0.10, 0.17) |
| Ohio | 79 | 69,796,695 | 0.12 (0.09, 0.14) |
| Missouri | 41 | 35,508,264 | 0.12 (0.09, 0.16) |
| Minnesota | 39 | 32,843,255 | 0.12 (0.09, 0.16) |
| Tennessee | 41 | 34,571,192 | 0.11 (0.08, 0.15) |
| Pennsylvania | 69 | 74,730,327 | 0.10 (0.07, 0.12) |
| Massachusetts | 31 | 37,350,624 | 0.08 (0.06, 0.12) |
| Illinois | 43 | 61,268,029 | 0.07 (0.05, 0.09) |
| North Carolina | 32 | 44,321,395 | 0.07 (0.05, 0.10) |
| New York | 49 | 85,033,855 | 0.06 (0.04, 0.08) |