



NATIONAL CENTER FOR HEALTH STATISTICS

## Upcoming Webinar

### A Look at Suicide Rates in Puerto Rico

Please join the National Center for Health Statistics (NCHS) on December 15<sup>th</sup> from 1pm – 2:00pm EST for a webinar addressing the rate of suicide in Puerto Rico in collaboration with the Puerto Rico Department of Health.

This webinar will provide statistical information on mortality rates due to suicide in Puerto Rico while engaging the audience in an informative discussion with leading experts from the Puerto Rico Preventive Commission and the NCHS Division of Vital Statistics.

For more information and to register, visit:

[https://cdc.zoomgov.com/webinar/register/WN\\_MFubIA25RM-vrVcnxiBUZA](https://cdc.zoomgov.com/webinar/register/WN_MFubIA25RM-vrVcnxiBUZA)



# **Suicide Mortality in Puerto Rico: 2001-2021— Data from the National Center for Health Statistics' National Vital Statistics System**

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*Suicide in Puerto Rico Webinar*

December 15, 2023

# Suicide as a Public Health Issue

- Suicide is a complex, multifaceted public health issue with societal, environmental, interpersonal, biological and psychological components.
- Some known risk factors for suicide **deaths** are:
  - Male
  - Depression or other mental health issue
  - Use of drugs or alcohol
  - Precipitating event (work and financial issues, recent breakup, family problems)
  - Identification with a sexual minority group
  - Social problems

# Suicide Data from the National Vital Statistics System

- Information from death certificates from 50 states and D.C. and U.S. territories, including Puerto Rico.
- Demographic information on gender, age, race and ethnicity is supplied by an informant, usually the next of kin.
- The underlying causes of death are supplied by physicians, medical examiners and coroners, and classified using the *International Classification of Diseases, 10<sup>th</sup> Edition* (ICD-10). Suicides were identified using ICD-10 underlying cause-of death codes **U03, X60–X84, and Y87.0**. The method of suicide is also reported (e.g., firearms).
- Death rates are computed as the number of deaths per 100,000 population – age-adjusted to a standard 2000 population where indicated.

# Data for Puerto Rico are released each year on our Mortality Public Use Data File and published each year in the report Deaths: Final Data

## National Vital Statistics Reports



Volume 72, Number 10

September 22, 2023

### Deaths: Final Data for 2020

by Kenneth D. Kochanek, M.A., Sherry L. Murphy, B.S., Jaquan Xu, M.D., and Elizabeth Arias, Ph.D.

#### Abstract

**Objectives**—This report presents final 2020 data on U.S. deaths, death rates, life expectancy, infant and maternal mortality, and trends by selected characteristics such as age, sex, Hispanic origin and race, state of residence, and cause of death.

**Methods**—Information reported on death certificates is presented in descriptive tabulations. The original records are filed in state registration offices. Statistical information is compiled in a national database through the Vital Statistics Cooperative Program of the National Center for Health Statistics. Causes of death are processed according to the *International Classification of Diseases, 10th Revision*. Beginning in 2018, all states and the District of Columbia were using the 2003 revised certificate of death for the entire year, which includes the 1997 Office of Management and Budget revised standards for race. Data based on these revised standards are not completely comparable to previous years.

**Results**—In 2020, a total of 3,383,729 deaths were reported in the United States. The age-adjusted death rate was 835.4 deaths per 100,000 U.S. standard population, an increase of 16.8% from the 2019 rate. Life expectancy at birth was 77.0 years, a decrease of 1.8 years from 2019. Age-specific death rates increased from 2019 to 2020 for age groups 15 years and over and decreased for age group under 1 year. Many of the 15 leading causes of death in 2020 changed from 2019. COVID-19, a new cause of death in 2020, became the third leading cause in 2020. The infant mortality rate decreased 2.9% to a historic low of 6.42 infant deaths per 1,000 live births in 2020.

**Conclusions**—In 2020, the age-adjusted death rate increased and life expectancy at birth decreased for the total, male, and female populations, primarily due to the influence of deaths from COVID-19.

**Keywords:** mortality • cause of death • life expectancy • National Vital Statistics System

#### Highlights

##### Mortality experience in 2020

- In 2020, a total of 3,383,729 resident deaths were registered in the United States, an increase of 528,891 deaths compared with 2019 (2,854,838). The 1-year increase in the number of deaths was a record high, primarily driven by the COVID-19 pandemic.
- The crude death rate was 1,027.0 deaths per 100,000 population. The age-adjusted death rate, which accounts for the aging of the population, was 835.4 deaths per 100,000 U.S. standard population.
- The age-adjusted death rate for the American Indian or Alaska Native non-Hispanic population (subsequently, American Indian or Alaska Native) (1,036.2) was 1.2 times greater than for the White non-Hispanic population (subsequently, White) (834.7).
- The age-adjusted death rate for the Black non-Hispanic population (subsequently, Black) (1,119.0) was 1.3 times greater than for the White population (834.7).
- The age-adjusted death rate for the White population (834.7) was 1.6 times greater than for the Asian non-Hispanic population (subsequently, Asian) (457.7) and 1.2 times greater than for the Hispanic population (723.6).
- Life expectancy at birth was 77.0 years.
- Life expectancy in 2020 for the Hispanic population was 0.5 year higher than for the White population.
- The 15 leading causes of death in 2020 were:
  1. Diseases of heart (heart disease)
  2. Malignant neoplasms (cancer)
  3. COVID-19
  4. Accidents (unintentional injuries)
  5. Cerebrovascular diseases (stroke)
  6. Chronic lower respiratory diseases
  7. Alzheimer disease
  8. Diabetes mellitus (diabetes)



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics  
National Vital Statistics System



NCHS reports can be downloaded from: <https://www.cdc.gov/nchs/products/index.htm>.

# Example of suicide data for Puerto Rico in Deaths: Final Data for 2020

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**Table 12. Number of deaths, death rate, and age-adjusted death rate for major causes of death: United States, each state, Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, and Northern Marianas, 2020—Con.**

[Rates are per 100,000 population; age-adjusted rates are per 100,000 U.S. standard population; see Technical Notes in this report. Codes in parentheses after causes of death are categories of the *International Classification of Diseases, 10th Revision (ICD-10)*. Asterisks (\*) preceding cause-of-death codes indicate they are not part of ICD-10; see Technical Notes]

Area	Motor vehicle accidents <sup>3</sup>			Drug overdose (X40–X44, X60–X64, X85, Y10–Y14)			Intentional self-harm (suicide) (*U03, X60–X84, Y87.0)			Assault (homicide) (*U01–*U02, X85–Y09, Y87.1)		
	Number	Rate	Age-adjusted rate <sup>1</sup>	Number	Rate	Age-adjusted rate <sup>1</sup>	Number	Rate	Age-adjusted rate <sup>1</sup>	Number	Rate	Age-adjusted rate <sup>1</sup>
Puerto Rico .....	256	8.1	7.5	150	4.7	5.0	183	5.8	5.2	501	15.9	17.3
U.S. Virgin Islands .....	11	*	*	2	*	*	5	*	*	43	40.5	48.8
Guam .....	11	*	*	13	*	*	38	22.6	24.0	7	*	*
American Samoa .....	---	---	---	---	---	---	---	---	---	---	---	---
Northern Marianas .....	2	*	*	—	*	*	3	*	*	2	*	*

\* Estimate does not meet National Center for Health Statistics standards of reliability; see Technical Notes.

--- Data not available.

— Quantity zero.

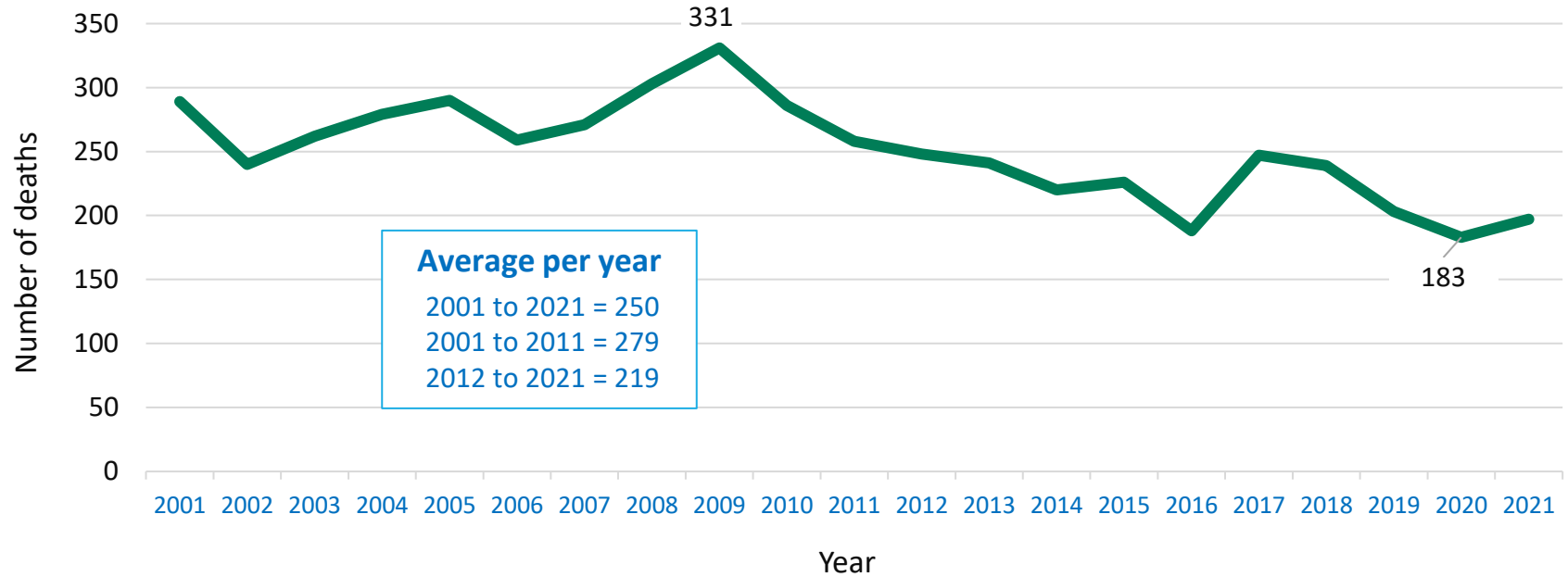
<sup>1</sup>Death rates are affected by the population composition of the area. Age-adjusted death rates should be used for comparisons between areas; for method of computation, see Technical Notes.

<sup>2</sup>Excludes data for Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, and Northern Marianas.

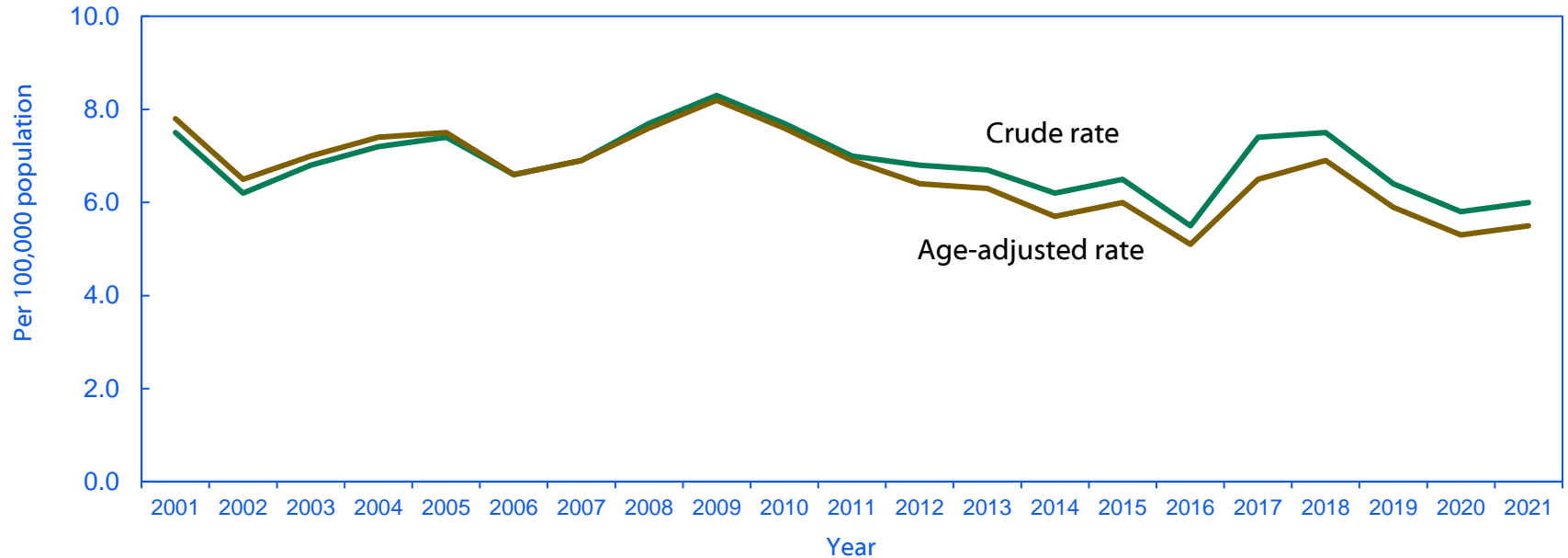
<sup>3</sup>ICD-10 codes for Motor vehicle accidents are V02–V04, V09.0, V09.2, V12–V14, V19.0–V19.2, V19.4–V19.6, V20–V79, V80.3–V80.5, V81.0–V81.1, V82.0–V82.1, V83–V86, V87.0–V87.8, V88.0–V88.8, V89.0, and V89.2; see Technical Notes.

SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

# Figure 1. Number of Suicides: Puerto Rico, 2001–2021



## Figure 2. Crude and Age-adjusted Suicide Rates: Puerto Rico, 2001–2021

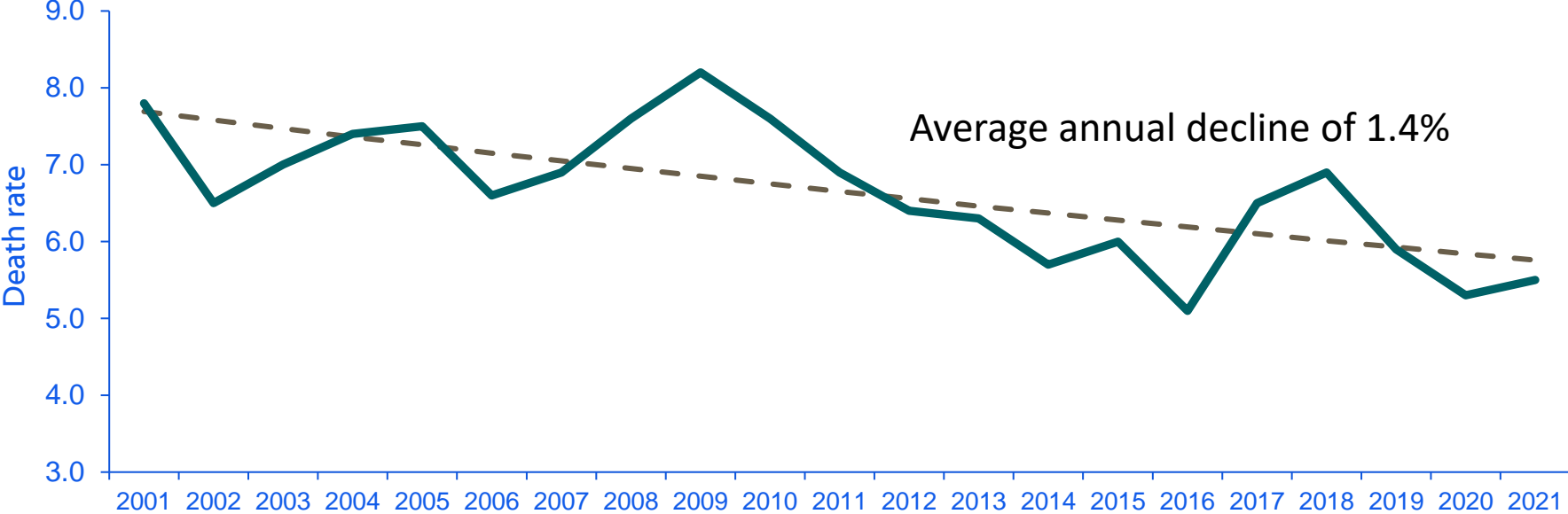


NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

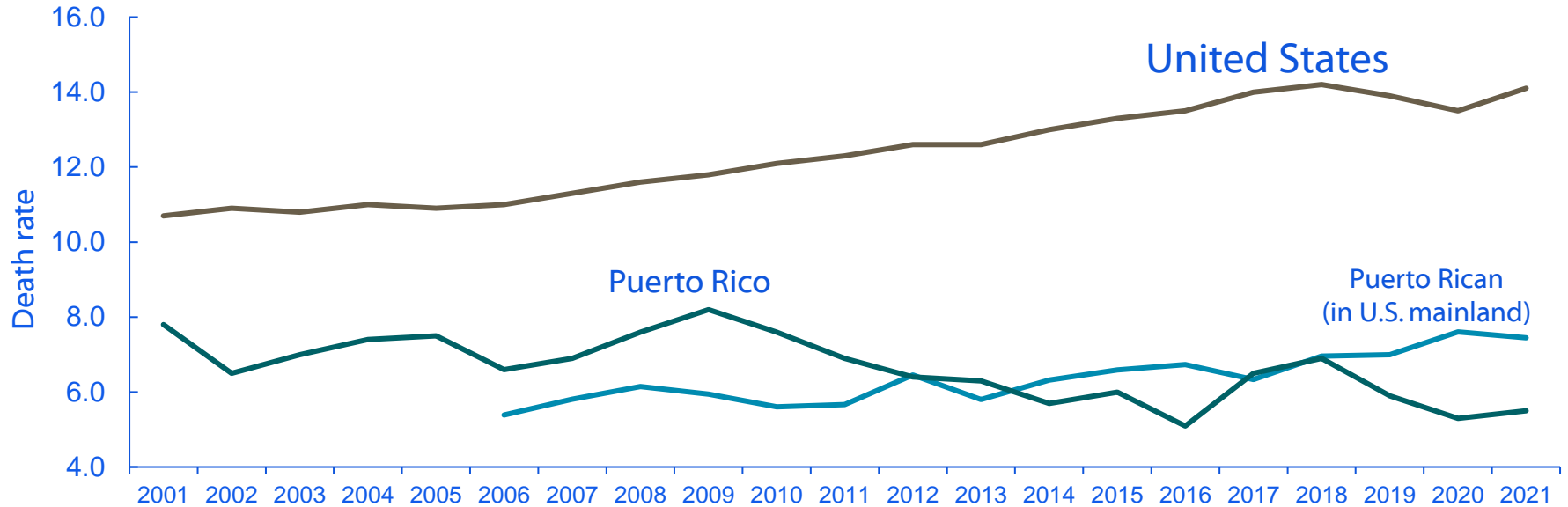


# Figure 3. Actual and Modeled Age-adjusted Suicide Rates: U.S. and Puerto Rico, 2001–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.  
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

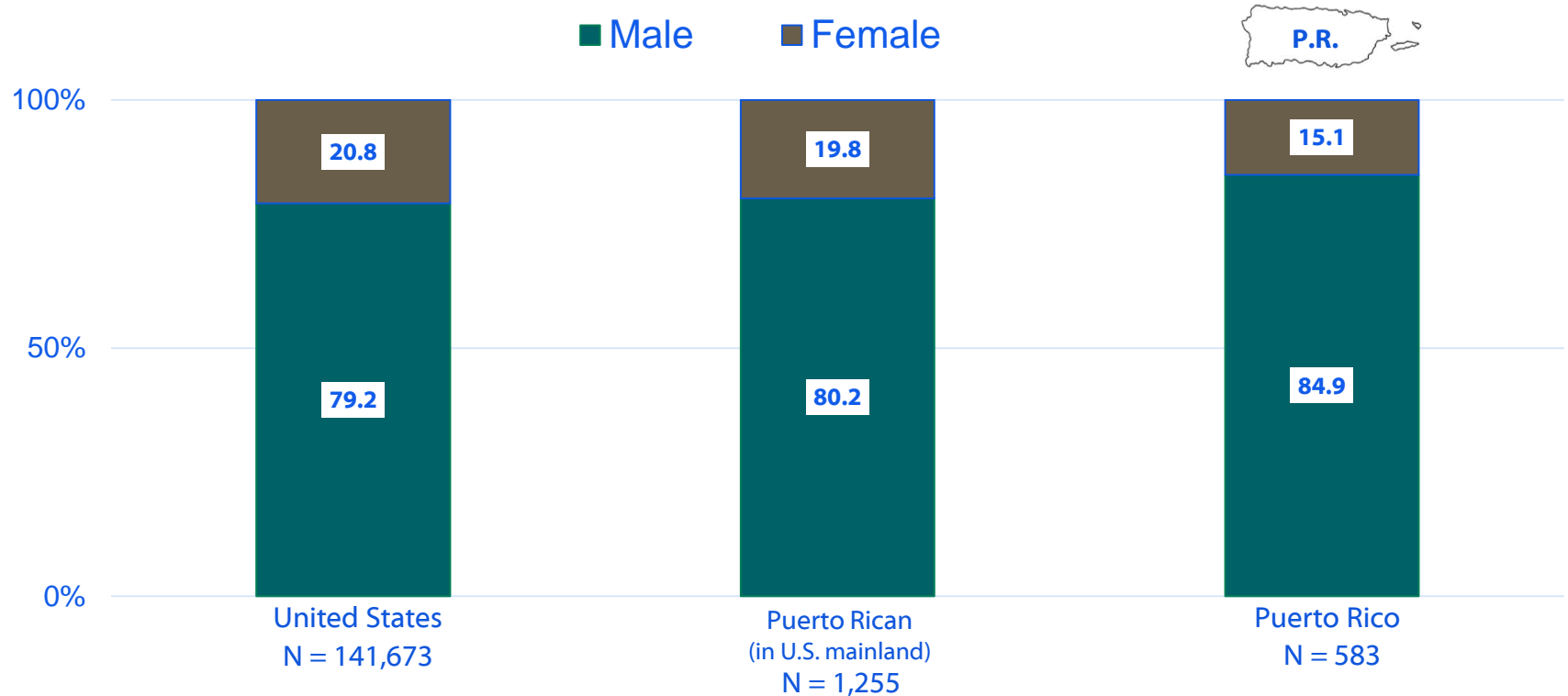
# Figure 4. Age-Adjusted Suicide Rates: U.S. Total and Puerto Rican, and Puerto Rico, 2001–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

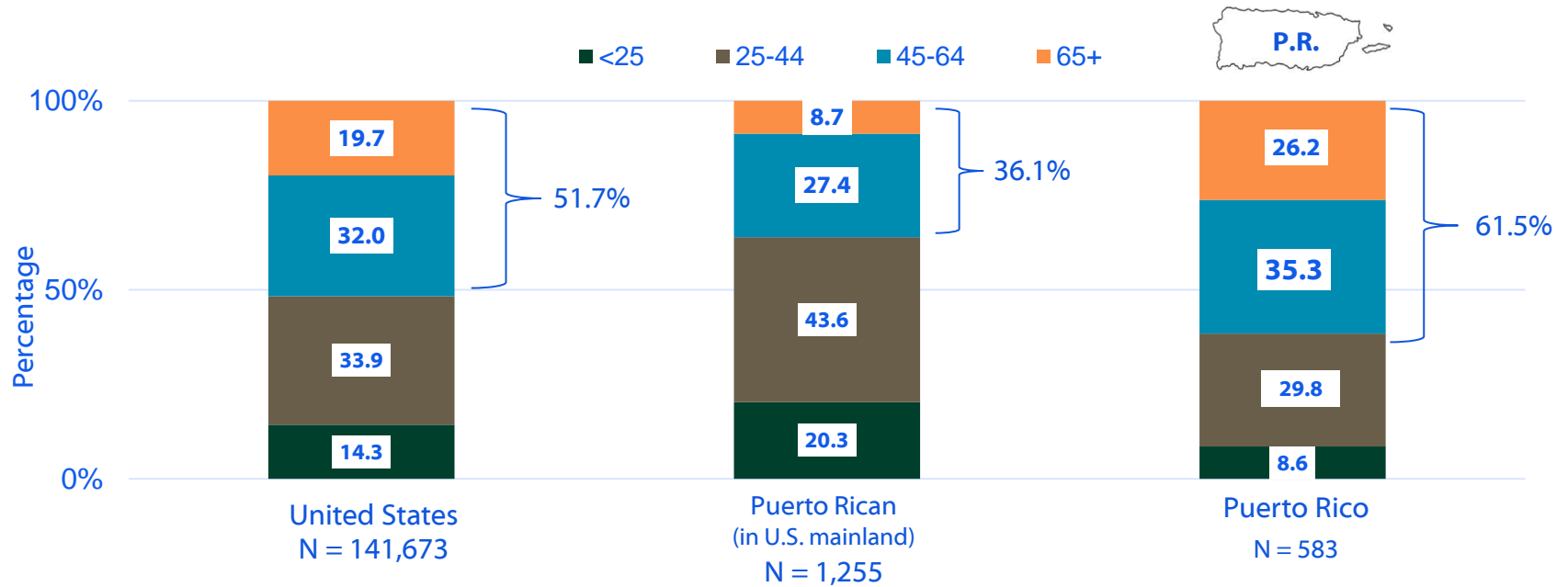
# Figure 5. Percent Distribution of Suicides by Sex: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

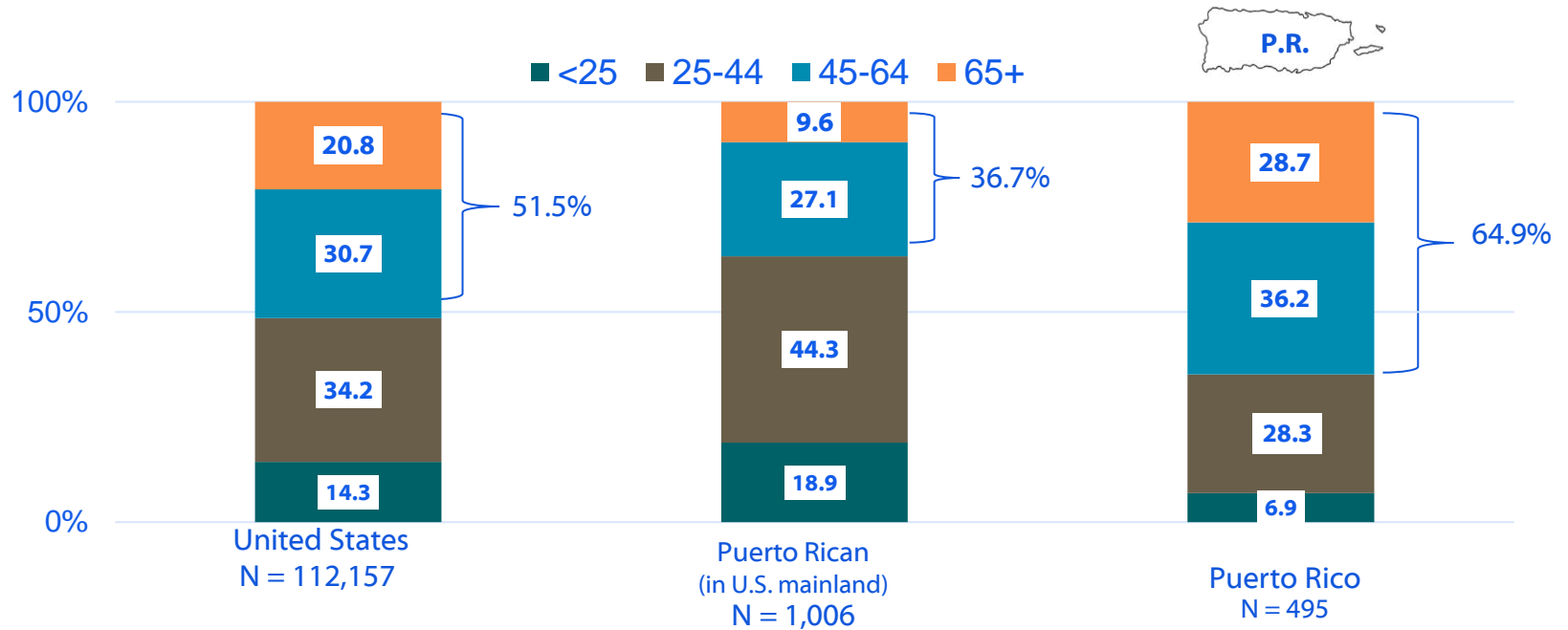
# Figure 6. Percent Distribution of Suicides by Age: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

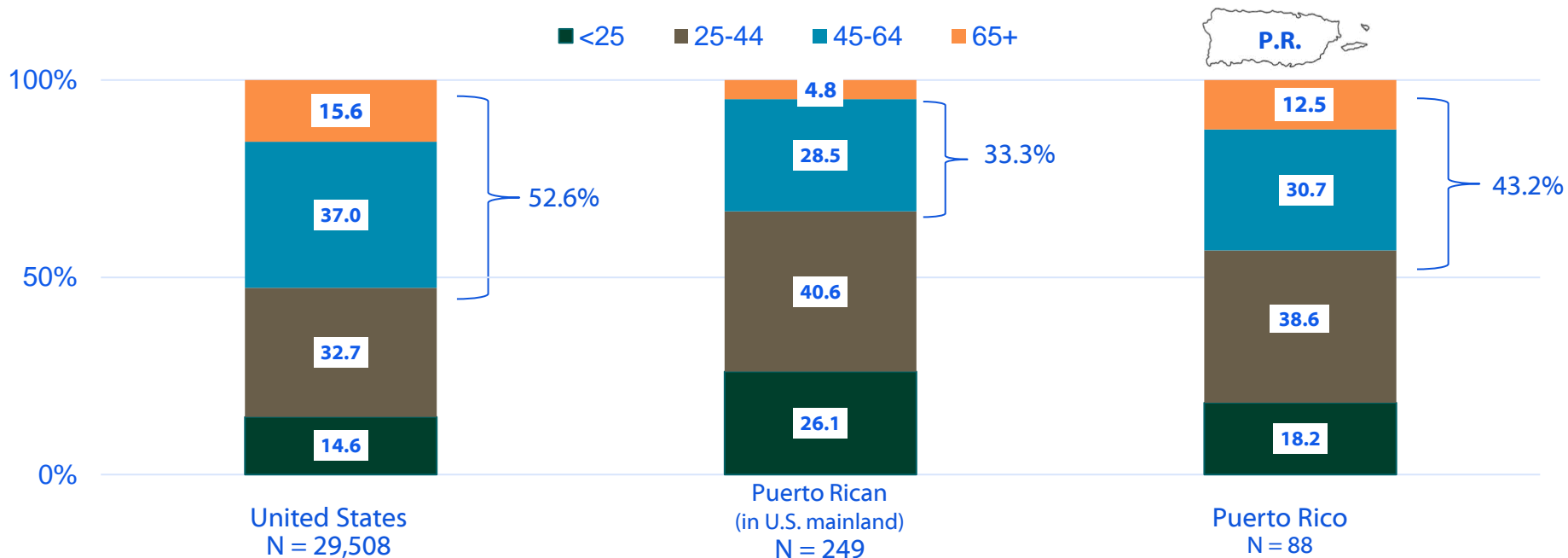
# Figure 7. Percent Distribution of Male Suicides by Age: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.

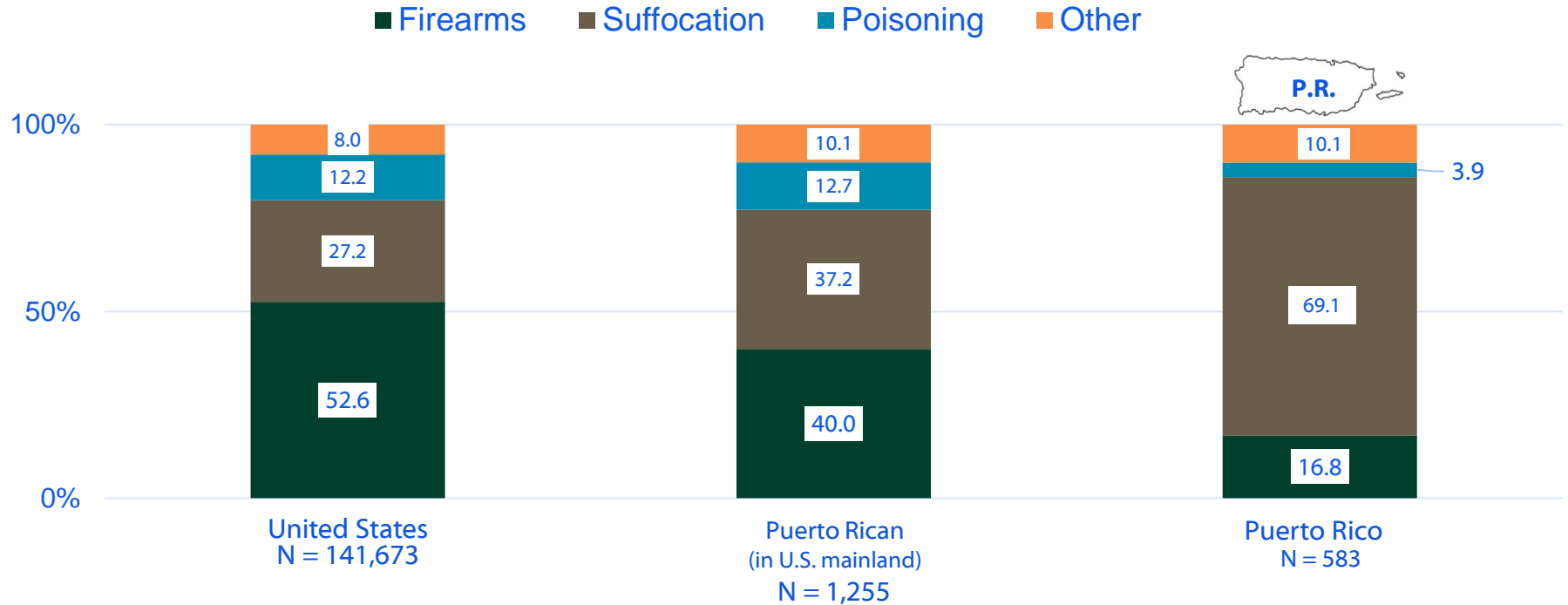
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

# Figure 8. Percent Distribution of Female Suicides by Age: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



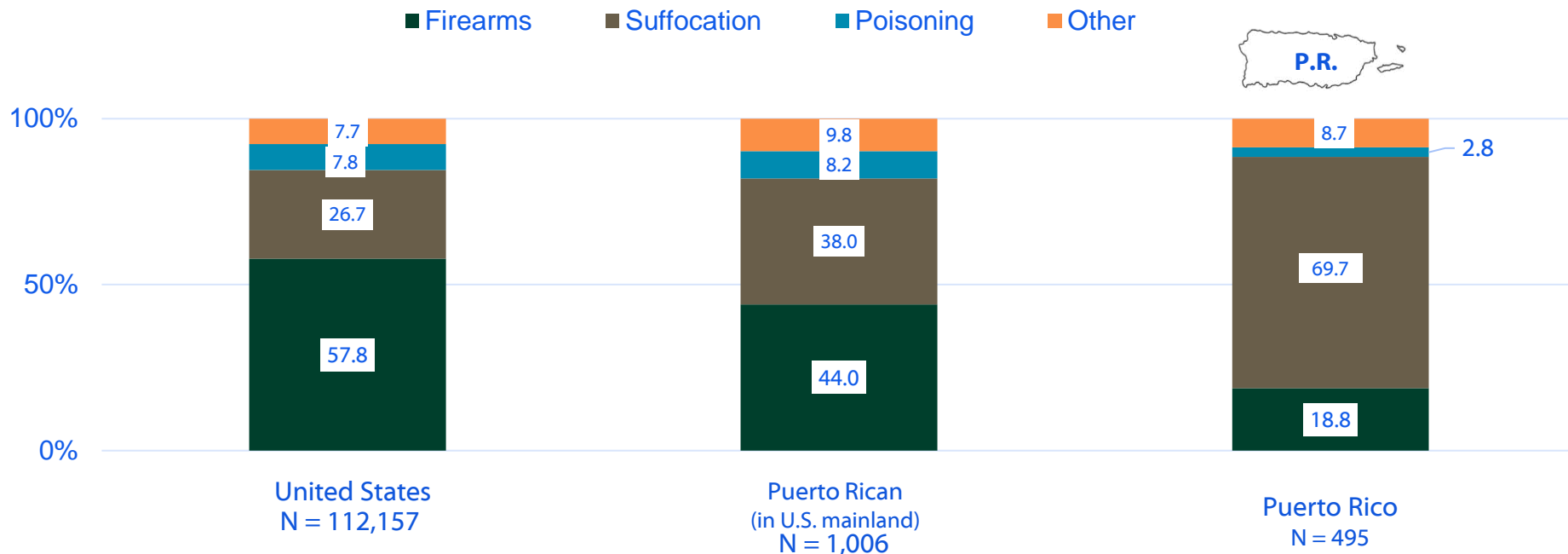
NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.  
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

# Figure 9. Percent Distribution of Suicides by Method: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.  
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

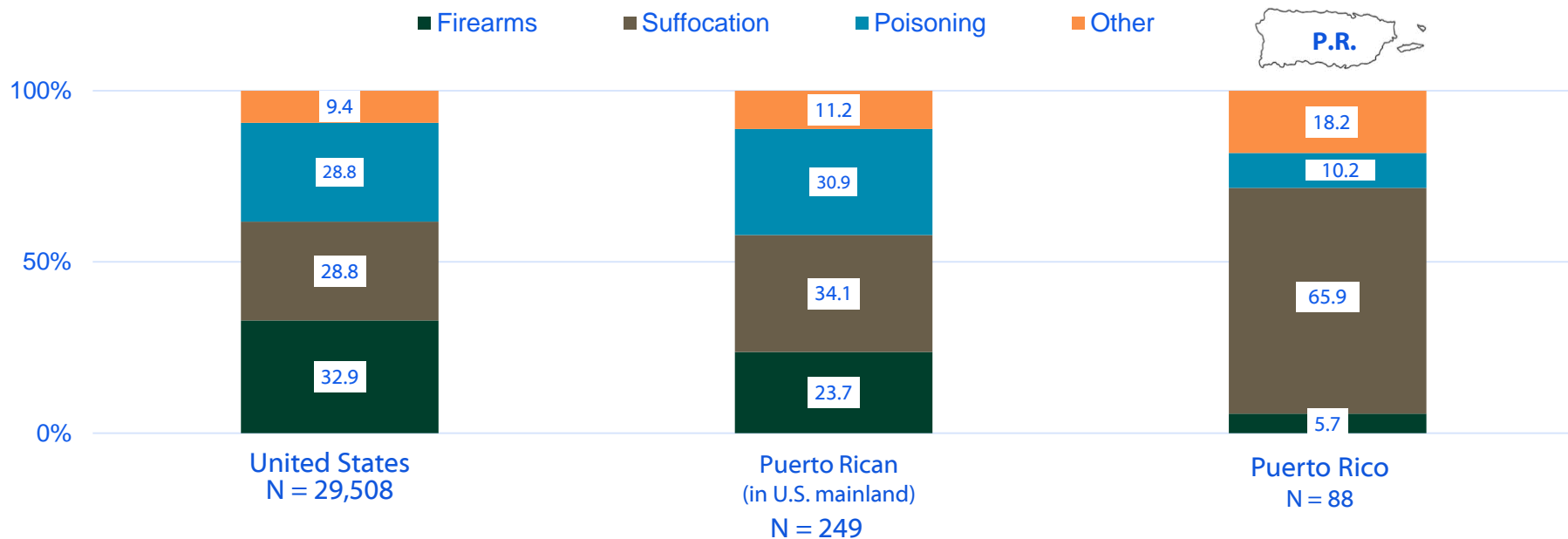
# Figure 10. Percent Distribution of Male Suicides by Method: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.  
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.



# Figure 11. Percent Distribution of Female Suicides by Method: U.S. Total and Puerto Rican, and Puerto Rico, 2019–2021



NOTE: Suicides are identified with ICD-10 codes U03, X60-X84, and Y87.0.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

# Summary of Findings

## **Suicides in Puerto Rico declined over the 2001-to-2021 period.**

- Age adjusted rate declined by an average of 1.4% annually.
- Different from U.S. total and Puerto Rican populations who generally experienced increases over the period.

## **Compared with Puerto Rican people residing in the 50 states and D.C., suicides in Puerto Rico tended to be:**

- Slightly higher percentage male – 85% versus 80%
- More likely to be aged 45 years and over –62% versus 36%
  - Even more pronounced for males—65% versus 37%
- More like to involve suffocation (e.g., hangings) –69% versus 37%
- Less likely to involved firearms – 17% versus 40%

# Limitations

**Suicide numbers from the NVSS are consistently lower than those published by the Puerto Rico Department of Health.**

- Unclear whether this is typical underreporting of suicides in NVSS or if specific to Puerto Rico.

**For Puerto Rican people living in the 50 states and D.C. (the comparison group)**

- Studies have found misclassification of deaths of the overall Hispanic population of about 3%, resulting in underreporting

# Final thoughts: Making death data for Puerto Rico more accessible

- NCHS is planning to include death data for Puerto Rico on CDC WONDER
- WONDER (Wide-ranging Online Data for Epidemiologic Research)

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[Multiple Cause of Death Data](#)    [Dataset Documentation](#)    [Other Data Access](#)    [Data Use Restrictions](#)    [How to Use WONDER](#)

**Note:** Any use of these data implies consent to abide by the terms of the data use restrictions.

The Puerto Rico Multiple Cause of Death database contains underlying and multiple mortality causes and population counts for all municipalities. Data are based on death certificates for U.S. residents. Each death certificate contains a single underlying cause of death, up to twenty additional multiple causes, and demographic data. The number of deaths, crude death rates, age-adjusted death rates and 95% confidence intervals for death rates can be obtained by cause of death (4 digit ICD-10 codes, 113 selected causes of death, 130 selected causes of infant death, drug and alcohol related causes of death, injury intent and injury mechanism categories), place of residence or place of death's occurrence (national, region and municipio), age (single-year-of-age, 5-year age groups, 10-year age groups and infant age groups), gender and year. Data are also available by urbanization categories municipio, place of death, year, month, week and weekday of death, and whether an autopsy was performed.

**Data Use Restrictions:**

The Public Health Service Act (42 U.S.C. 242m(d)) provides that the data collected by the National Center for Health Statistics (NCHS) may be used only for the purpose for which they were obtained; any effort to determine the identity of any reported cases, or to use the information for any purpose other than for health statistical reporting and analysis, is against the law. Therefore users will:

- Use these data for health statistical reporting and analysis only.
- Do not present or publish death counts of 9 or fewer or death rates based on counts of nine or fewer (in figures, graphs, maps, tables, etc.).
- Make no attempt to learn the identity of any person or establishment included in these data.
- Make no disclosure or other use of the identity of any person or establishment discovered inadvertently and advise the NCHS Confidentiality Officer of any such discovery.

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**Sanctions for Violating Rules:**

Researchers who violate the terms of the data use restrictions will lose access to WONDER and their sponsors and institutions will be notified. Researchers who are suspected of violating the rules may be prevented from using WONDER until an investigation can be completed. Deliberately making a false statement in any matter within the jurisdiction of any department or agency of the Federal government violates 18 USC 1001 and is punishable by a fine of up to \$10,000 or up to 5 years in prison, or both.

*By clicking the "I Agree" button I signify that I will abide by the terms of data use stated above and understand the sanctions and legal penalties for violation of these terms of use.*

## Links to NVSS data for Puerto Rico

**For annual death data files: Vital Statistics Online Data Portal: Data Access - Vital Statistics Online (cdc.gov)**

**For “Death: Final Data” reports: National Vital Statistics Reports: Products - National Vital Statistics Reports - Homepage (cdc.gov)**

# Thank you!

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

