



# **Characteristics and Circumstances of Male Suicide Decedents in Construction and Extraction Occupations in Maryland, 2020-2022**

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**Environmental Health Bureau/Center for Environmental, Occupational, and Injury Epidemiology**

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# Mission and Vision

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## **MISSION**

The mission of the Prevention and Health Promotion Administration is to protect, promote and improve the health and well-being of all Marylanders and their families through provision of public health leadership and through community-based public health efforts in partnership with local health departments, providers, community based organizations, and public and private sector agencies, giving special attention to at-risk and vulnerable populations.

## **VISION**

The Prevention and Health Promotion Administration envisions a future in which all Marylanders and their families enjoy optimal health and well-being.

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# Background

# Why Construction Occupations?

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- Disproportionately impacted by suicide nationally and in Maryland
  - Nationally (2021) – Highest rates among working population<sup>1</sup>
    - Males: 65.6 per 100,000 vs 32.0 for all
    - Females: 25.3 per 100,000 vs 8.0 for all
  - Maryland (2021)
    - 53.8 per 100,000<sup>2</sup> vs 12.2<sup>3</sup> for all working-age
    - 4% of civilian workforce<sup>4</sup> but 12% of suicides in Maryland Violent Death Reporting System (MVDRS) data<sup>2</sup>
- Largest proportion by occupation in MVDRS data since 2003<sup>2</sup>

## References:

<sup>1</sup> Sussell A et al. Suicide Rates by Industry and Occupation — National Vital Statistics System, United States, 2021. MMWR Morb Mortal Wkly Rep 2023;72:1346–1350. DOI: <http://dx.doi.org/10.15585/mmwr.mm7250a2>

<sup>2</sup> Maryland Violent Death Reporting System

<sup>3</sup> CDC WISQARS Explore Fatal Injury Data Visualization (Accessed 2024, April 16)

<sup>4</sup> U.S. Bureau of Labor Statistics (2022, July 5). Geographic Profile of Employment and Unemployment, 2021, Table 18

# Why Males?

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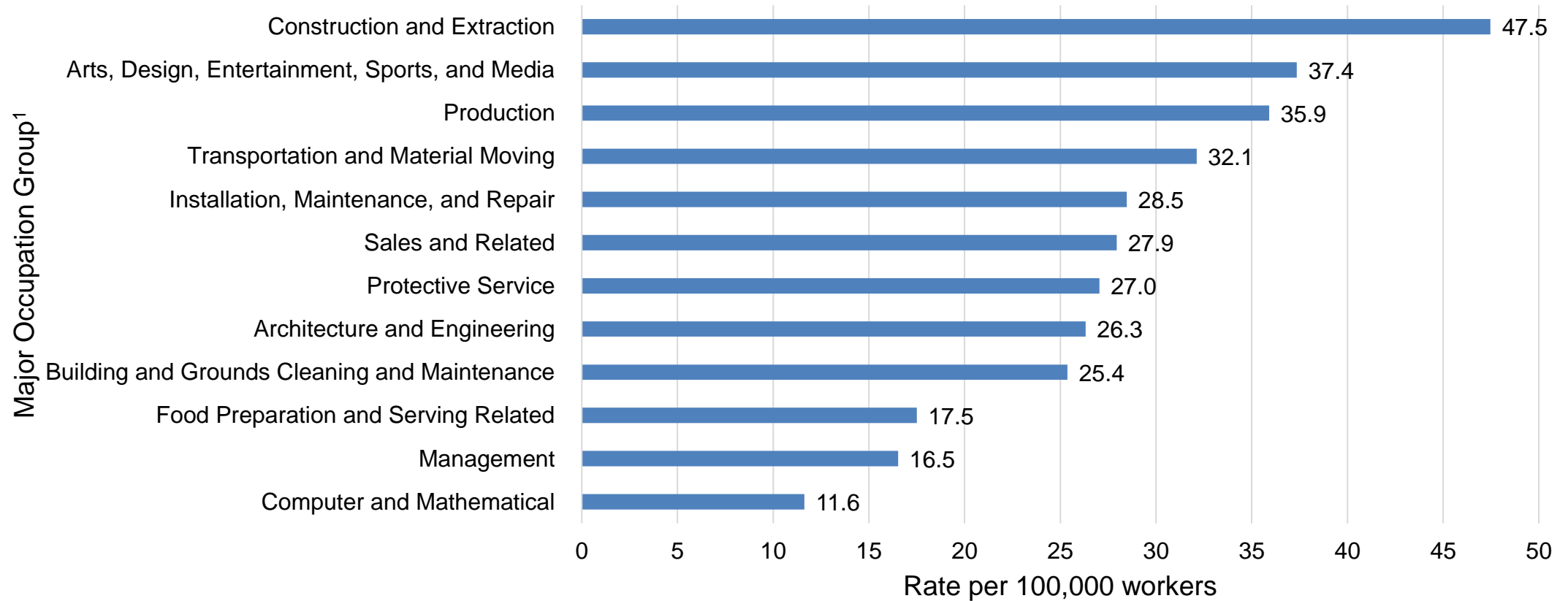
- In 2022, 95.4% of workers in Construction and Extraction (Construction) occupations in Maryland were male<sup>1</sup>
- In 2020-2022 MVDRS data, >98% suicide decedents whose usual occupation was construction were male<sup>2</sup>

References:

<sup>1</sup> U.S. Census Bureau. American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2401, 2022 (Accessed on June 11, 2024)

<sup>2</sup> Maryland Violent Death Reporting System

# Suicide rate estimates for males age 16 and older by occupation in Maryland, 2022 MVDRS



<sup>1</sup>All other major occupation groups suppressed due to counts <11

Rate estimates (based on decedent usual occupation). Numerator: Maryland Violent Death Reporting System. Denominator: U.S. Census Bureau. American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2401, 2022

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# Objectives and Methods

# Objectives

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1. Describe demographic characteristics of male decedents in construction occupations
2. Assess circumstances of suicide among male decedents in construction occupations
3. Identify differences between male decedents in construction occupations and all other working-age males
4. Pre-pandemic vs Covid-era comparison among decedents in construction occupations



# Methods

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- Data Source: 2020, 2021, and 2022 MVDRS (+ 2018 and 2019 for pre-pandemic/covid comparison)
  - Statewide surveillance system that maintains a detailed body of information concerning violent death in MD, funded by CDC
  - Primary source documents: death certificates, medical examiner reports, law enforcement reports
  - Major content areas: demographics, death and injury, circumstances, weapons, suspects (when applicable), toxicology, and overdose (when applicable)

# Methods

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- Usual occupation obtained from death certificates
- CDC's National Institute for Occupational Safety and Health Industry and Occupation Computerized Coding System (NIOCCS) used to assign Standard Occupation Classification (SOC) codes

# Methods

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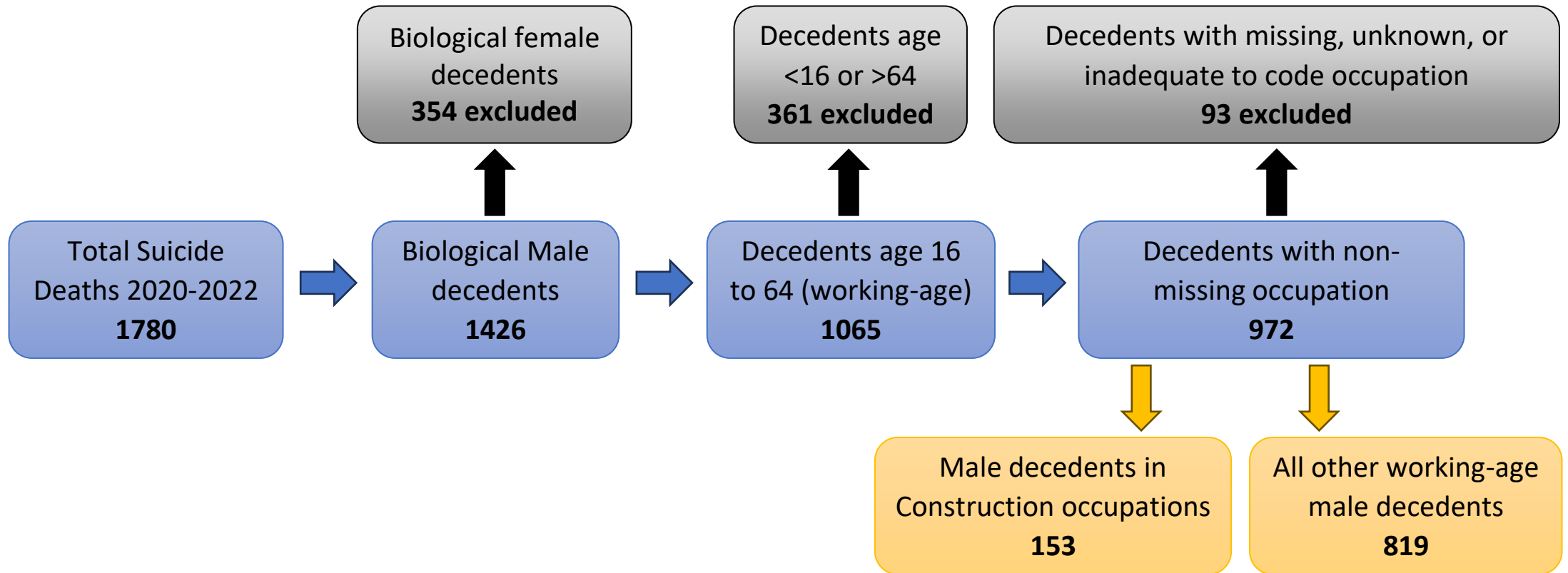
- Analysis
  - Counts and Percentages
    - Demographics
    - Injury and Death Characteristics
    - Weapons
    - Circumstances
  - Use chi square and Fisher's exact tests
    - Two-tailed
    - $p < 0.05$

# Disclaimers on MVDRS circumstance data

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- Required documents: ME report, LE report, and death certificate. EMS/hospital records are **not** required
- Mental health – one or more source document has to specifically say the decedent had a mental health diagnosis
- Substance use problem – one or more source document has to indicate the decedent used drugs prior to the incident
  - Toxicology results or drugs/paraphernalia present at scene alone cannot endorse SUD coding
  - Cannot be coded if in recovery for 5 years or longer
  - Marijuana use must be noted as chronic, abusive, or problematic to be coded
- Limitation – circumstances must be noted in one of the source documents to be coded; likely undercounted
- NVDRS coding manual  
<https://www.cdc.gov/violenceprevention/pdf/nvdrs/nvdrsCodingManual.pdf>

# Methods



# Limitations

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- Usual occupation may not accurately capture the type of work decedents were engaged in at the time of their death
- 8.7% cases with missing or inadequate to code occupation (2020-2022)

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# Results

# Demographic Characteristics of working-age<sup>1</sup> male suicide decedents in Maryland, construction vs all other, 2020-2022 MVDRS

	Construction and Extraction	All Other Working Age <sup>2</sup>		Construction and Extraction	All Other Working Age
Age *	<25 years: 12 (7.8%) 25-44 years: 72 (47.1%) 45-64 years: 69 (45.1%) mean = 42.8 years	<25 years: 140 (17.1%) 25-44 years: 347 (42.4%) 45-64 years: 332 (40.5%) mean = 40.1 years	Military Experience <sup>3</sup> *	Ever served: - - Never served: 142 (94.0%)	Ever served: 119 (14.6%) Never served: 696 (85.4%)
Race and Ethnicity *	White, NH: 116 (75.8%) Black, NH: 12 (7.8%) Other, NH: - - Hispanic: 23 (15.0%)	White, NH: 530 (64.7%) Black, NH: 195 (23.8%) Other, NH: 49 (6.0%) Hispanic: 45 (5.5%)	Place of Birth <sup>3</sup>	United States: 127 (84.1%) US Territory: 0 (0%) Other Country: 24 (15.9%)	United States: 722 (88.7%) US Territory: - - Other Country: 89 (10.9%)
Marital Status <sup>3</sup>	Married: 35 (23.0%) Never Married: 75 (49.3%) Widowed: - - Divorced: 32 (21.1%) Married, Separated: - -	Married: 217 (26.5%) Never Married: 425 (52.0%) Widowed: 18 (2.2%) Divorced: 116 (14.2%) Married, Separated: 42 (5.1%)	Highest Level of Education Earned <sup>3</sup> *	<12 <sup>th</sup> Grade: 31 (20.4%) HS Diploma/GED: 91 (59.9%) ≥Some College: 30 (19.7%)	<12 <sup>th</sup> Grade: 76 (9.3%) HS Diploma/GED: 343 (42.1%) ≥Some College: 395 (48.5%)

<sup>1</sup>Working age defined as 16 to 64 years old

<sup>2</sup>All Other Working Age includes all major occupation groups (other than Construction and Extraction), Not in workforce, and Military

<sup>3</sup>Cases with values of Unknown and Not Applicable were considered to be missing  
- - Suppressed due to case counts <11

\*Differences are statistically significant at the p<0.05 level



# Injury and Death Characteristics of working-age<sup>1</sup> male suicide decedents in Maryland, construction vs all other, 2020-2022 MVDRS

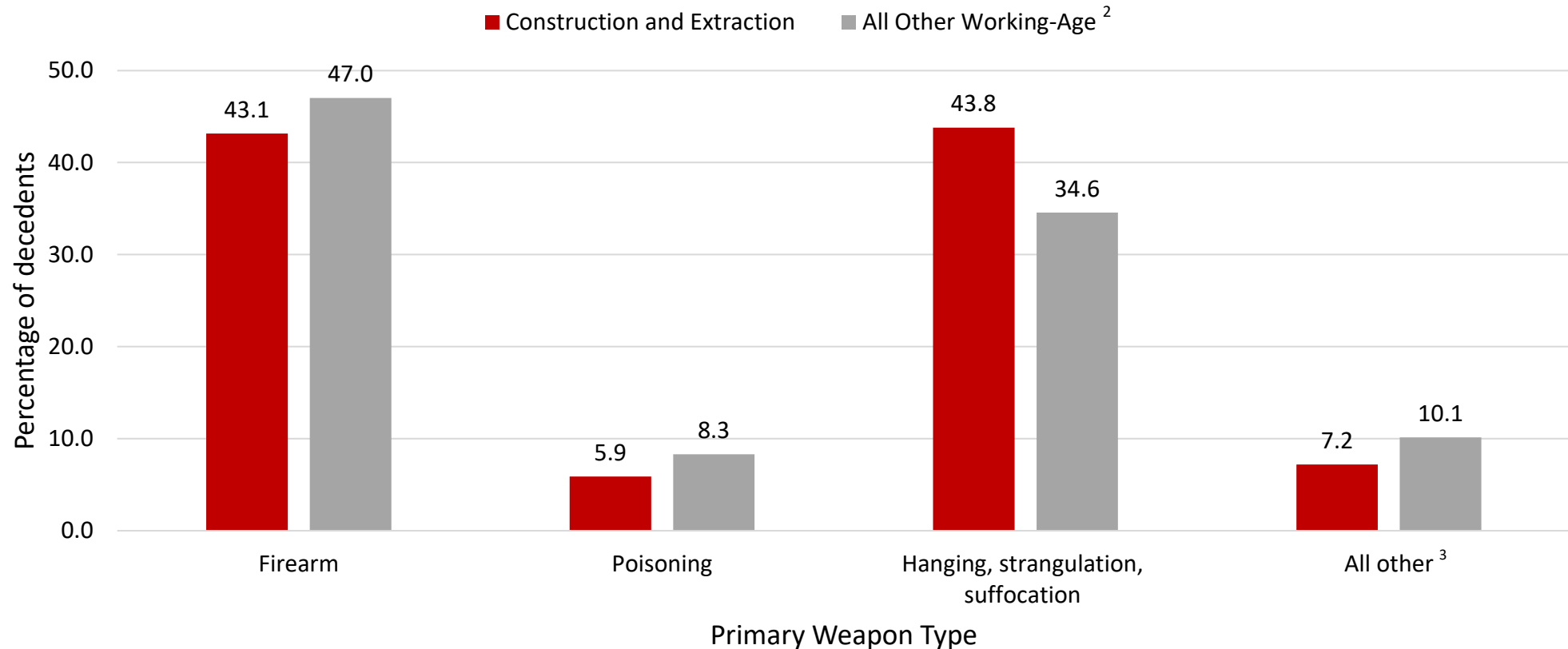
	Construction and Extraction		All Other Working Age <sup>2</sup>	
	n	%	n	%
Large Metropolitan County of Injury Occurrence	129	84.3	691	84.6
Injury Occurred at Victim's Residence <sup>3</sup>	99	64.7	523	63.9
Suspected of Alcohol Use in Hours Preceding Incident <sup>3</sup>	29	19.0	152	18.7
Alcohol Present in Toxicology <sup>3</sup>	56	40.0	256	34.3

<sup>1</sup>Working age defined as 16 to 64 years old

<sup>2</sup>All Other Working Age includes all major occupation groups (other than Construction and Extraction), Not in workforce, and Military

<sup>3</sup>Cases with values of Unknown and Not Applicable were considered to be missing

# Primary Mechanism of death for working-age<sup>1</sup> male suicide decedents in Maryland, construction (n=153) vs all other (n=819), 2020-2022 MVDRS

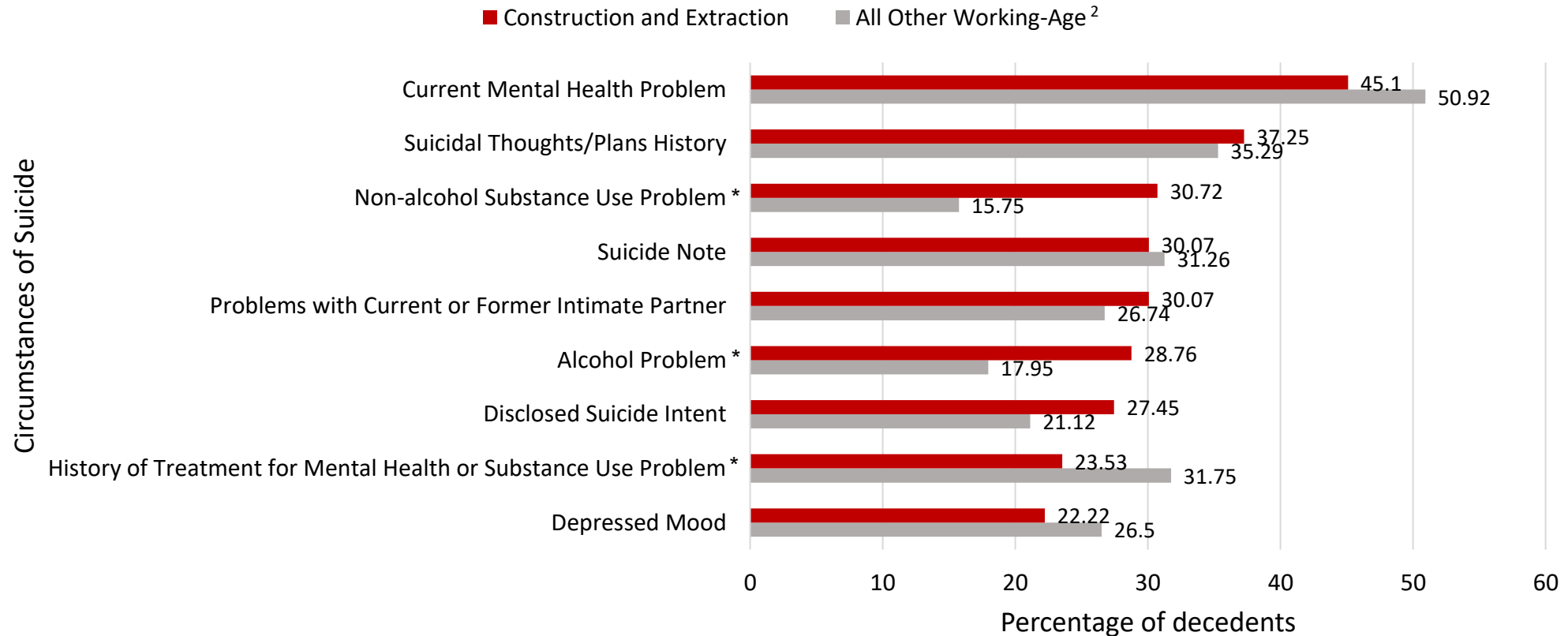


<sup>1</sup>Working age defined as 16-64 years old

<sup>2</sup>All Other Working Age includes all major occupation groups (other than Construction and Extraction), Not in workforce, and Military

<sup>3</sup>All other primary weapon type includes non-powder gun, sharp instrument, blunt instrument, personal weapons, fall, explosive, drowning, fire or burns, shaking, motor vehicle, other transport vehicle, intentional neglect, biological weapons, and other

# Circumstances of suicide for working-age<sup>1</sup> male decedents in Maryland, construction (n=153) vs all other (n=819), 2020-2022 MVDRS



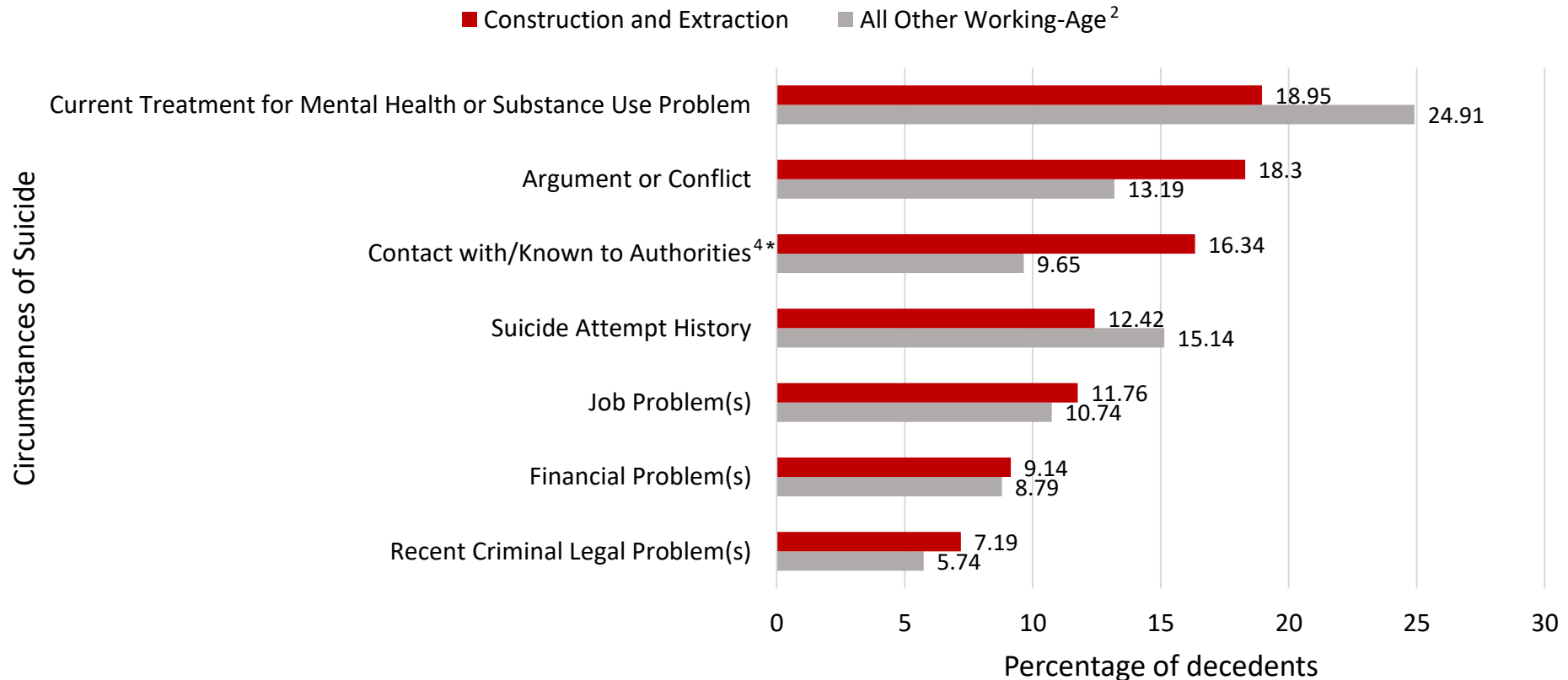
<sup>1</sup>Working age defined as 16 to 64 years old

<sup>2</sup>All Other Working Age includes all major occupation groups (other than Construction and Extraction), Not in workforce, and Military

<sup>3</sup> Circumstances with <11 observations in one or more stratification group not included

\*Differences are statistically significant at the p<0.05 level

# Circumstances of suicide for working-age<sup>1</sup> male decedents in Maryland, construction (n=153) vs all other (n=819), 2020-2022 MVDRS (continued)



<sup>1</sup>Working age defined as 16 to 64 years old

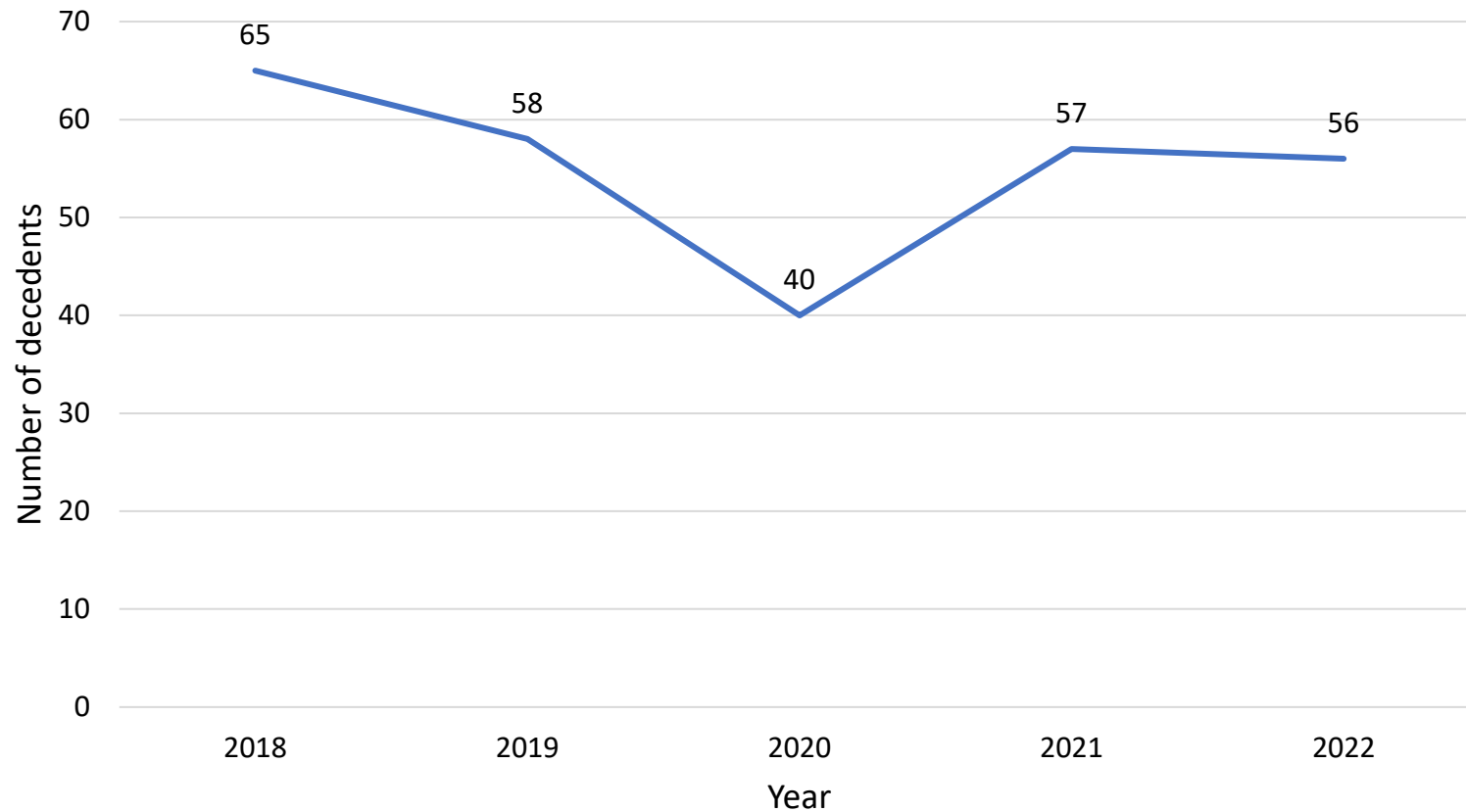
<sup>2</sup>All Other Working Age includes all major occupation groups (other than Construction and Extraction), Not in workforce, and Military

<sup>3</sup> Circumstances with <11 observations in one or more stratification group not included

<sup>4</sup>Circumstance added in August 2021

\*Differences are statistically significant at the  $p < 0.05$  level

# Estimated number of suicides by year among working-age<sup>1</sup> males in construction occupations in Maryland, 2018-2022 MVDRS



<sup>1</sup>Working age defined as 16-64 years old

# Characteristics<sup>1</sup> of working-age<sup>2</sup> male suicide decedents in construction occupations, Pre-pandemic (2018-2019) vs Covid-19 pandemic (2020-2022), MVDRS

	Pre-pandemic (n=123)		Covid-19 pandemic (n=153)	
	n	%	n	%
Suicide Attempt History*	30	24.4	19	12.4

<sup>1</sup>Only variables with statistically significant differences are shown

<sup>2</sup>Working age defined as 16 to 64 years old

\*Differences are statistically significant at the  $p < 0.05$  level

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# Summary

# Summary: Male Suicide Decedents in Construction Occupations

Result/Finding	Public Health Implication
Larger % of decedents of Hispanic origin & born outside of US	Multilingual and culturally competent services and resources
Hanging/suffocation/strangulation was the most common means; firearm suicides are increasing	Firearm-centered interventions + messaging to reach those at risk of dying by hanging/suffocation
Mental health problems, suicidal ideation, and SUD are common <b>but</b> history/current behavioral health treatment are less common	Interventions to connect construction workers with resources & increase access to care



# Summary: Male Suicide Decedents in Construction Occupations

Result/Finding	Public Health Implication
More likely to have contact with/known to authorities	Potential opportunities for intervention via healthcare & criminal justice systems
Lower % had history of suicide attempt during the pandemic → more first-time attempts, increase of more lethal means, decrease in disclosure of prior attempts	Targeted suicide prevention communication & outreach to prevent isolation and encourage help-seeking behavior during public health emergencies

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**Prevention and Health Promotion Administration**  
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