

# CPWR QUARTERLY DATA REPORT HIGHLIGHTS

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CPWR Data Center



THE CENTER FOR CONSTRUCTION  
RESEARCH AND TRAINING

NORA  
Construction  
Sector  
Council  
Meeting

11/20/2019  
Washington,  
D.C.



# CPWR Quarterly Data Reports (20)

<https://www.cpwr.com/publications/research-findings-articles/cpwr-quarterly-data-reports-data-briefs>



## Topics

- Aging workforce
- Fatal & nonfatal injuries and illnesses
- Health, health insurance, & healthcare
- Safety and health disparities
- Vulnerable worker groups
- Safety management & safety culture
- Emerging issues
- Etc.

# Quarterly Data Reports in 2019

<https://www.cpwr.com/publications/research-findings-articles/cpwr-quarterly-data-reports-data-briefs>

**CPWR Quarterly Data Report**  
WWW.CPWR.COM

## Nonstandard work arrangements

CPWR Data Center: Rebecca Jackson, MPH and Xiuwen Sue Dong, DrPH\*

Employment in the construction industry is based on term contracts (Ringen et al., 2018). Therefore, few workers are under the “standard work arrangement” typically found in other industry sectors (Howard, 2017). In recent years, nontraditional or nonstandard work arrangements in the U.S. economy, such as on-call workers, day laborers by contract firms, and gig workers (GAO 2006, 2015) demonstrated a disproportionate risk for occupational and other adverse health outcomes resulting from the arrangements (Benach and Muntaner, 2004; GAO, Virtanen, 2005). The National Occupational Research Agenda for Construction has emphasized this burden and the risk worker groups including those with nonstandard work arrangements (NORA, 2018; NIOSH NORA, 2018).

Despite the importance, data sources that can be used to study among workers employed in different work arrangements and definitions of “standard” and “nonstandard” are inconsistent in existing research (BLS, 2018; GAO, Krueger, 2016). Within these constraints, CPWR conducted studies on work arrangements in construction using a household survey (CPWR, 2002, 2008, 2015, 2018). This Quarterly Data Report provides updated information on work arrangements in construction from the 2017 Contingent Worker Supplement to the Bureau of Labor Statistics (BLS). Because of the different definitions used in this report, readers are advised to read the definitions and accompanying charts, but also read the definitions and accompanying



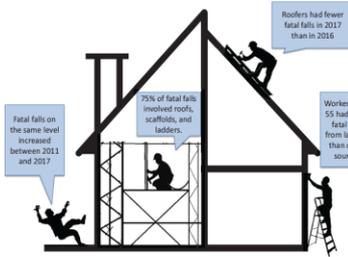
\* Correspondence to: Xiuwen Sue Dong, SDong@cpwr.com

**CPWR Quarterly Data Report**  
WWW.CPWR.COM SECOND QUARTER

## Trends of Fall Injuries and Prevention in the Construction Industry

Xiuwen Sue Dong, DrPH\*, Rebecca Jackson, MPH<sup>1</sup>, Danielle Varda, PhD<sup>2</sup>

Falls are a common cause of fatal and nonfatal injuries in the construction industry. To prevent these injuries, the National Occupational Research Agenda (NORA) Construction Sector Council, CPWR – The Center for Construction Research and Training, the National Institute for Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Administration (OSHA) launched the National Campaign to Prevent Falls in Construction (hereafter referred to as the Campaign to Prevent Falls) in 2012. This ongoing Campaign has reached more and more organizations and individuals. To continue to support national effort, this Quarterly Data Report provides updated data on characteristics of fatal and nonfatal falls among construction workers using data from the U.S. Bureau of Labor Statistics (BLS) Census of Occupational Injuries (COI) and the Survey of Occupational Injuries and Illnesses (SOI). While the report covers data back to year 2003, the analysis focuses on the data between 2011 and 2017. For some estimates, several years of data were pooled together to increase data reliability. In addition, selected findings from a social network analysis of the Campaign are also included in this report.



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**CPWR Quarterly Data Report**  
WWW.CPWR.COM THIRD QUARTER

## Trends of Musculoskeletal Disorders in the Construction Industry

Xiuwen Sue Dong, DrPH\*, Eileen Betit<sup>1</sup>, Ann Marie Dale, PhD<sup>2</sup>

Musculoskeletal disorders (MSDs) are soft-tissue injuries caused by sudden or sustained exposure to repetitive motion, force, awkward positions (NIOSH, 2018). In addition to the physical suffering for injured workers, MSDs have brought burdens to workers and their families, employers, and society through lost income and productivity, increasing medical expenses, compensation, and Social Security disability payments. It is estimated that the costs of MSDs (work- and non-work-related) in the U.S. accounted for 5.8% of GDP in 2014, exceeding defense spending (USBJI, 2018). MSDs and the hazards that cause them are common in the construction industry (CPWR, 2018). To identify high-risk groups and prioritize areas for intervention in construction, this Quarterly Data Report analyzes trends and patterns of work- and non-work-related MSDs among construction workers using employer-reported data as well as worker self-reported data. CPWR’s Ergonomics Community has developed programs and compiled information to address these issues. Due to complex definitions and measures used in this report, readers are advised to review the accompanying notes and text with the charts.



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Photos courtesy of the Mechanical Contractors Association of America

**CPWR Quarterly Data Report**  
WWW.CPWR.COM FOURTH QUARTER 2019

## Opioid/Drug Use/Misuse and Overdose Fatalities at Workplaces in the Construction Industry

Xiuwen Sue Dong, DrPH\*, Eileen Betit<sup>1</sup>, Ann Marie Dale, PhD<sup>2</sup>

Opioid and drug use, misuse, and overdose fatalities at workplaces in the construction industry have become a significant public health concern. This Quarterly Data Report provides updated information on the prevalence of opioid and drug use, misuse, and overdose fatalities at workplaces in the construction industry from 2011 to 2017. The report also discusses the challenges in data collection and analysis, and provides recommendations for future research and prevention efforts.

**KEY FINDINGS**

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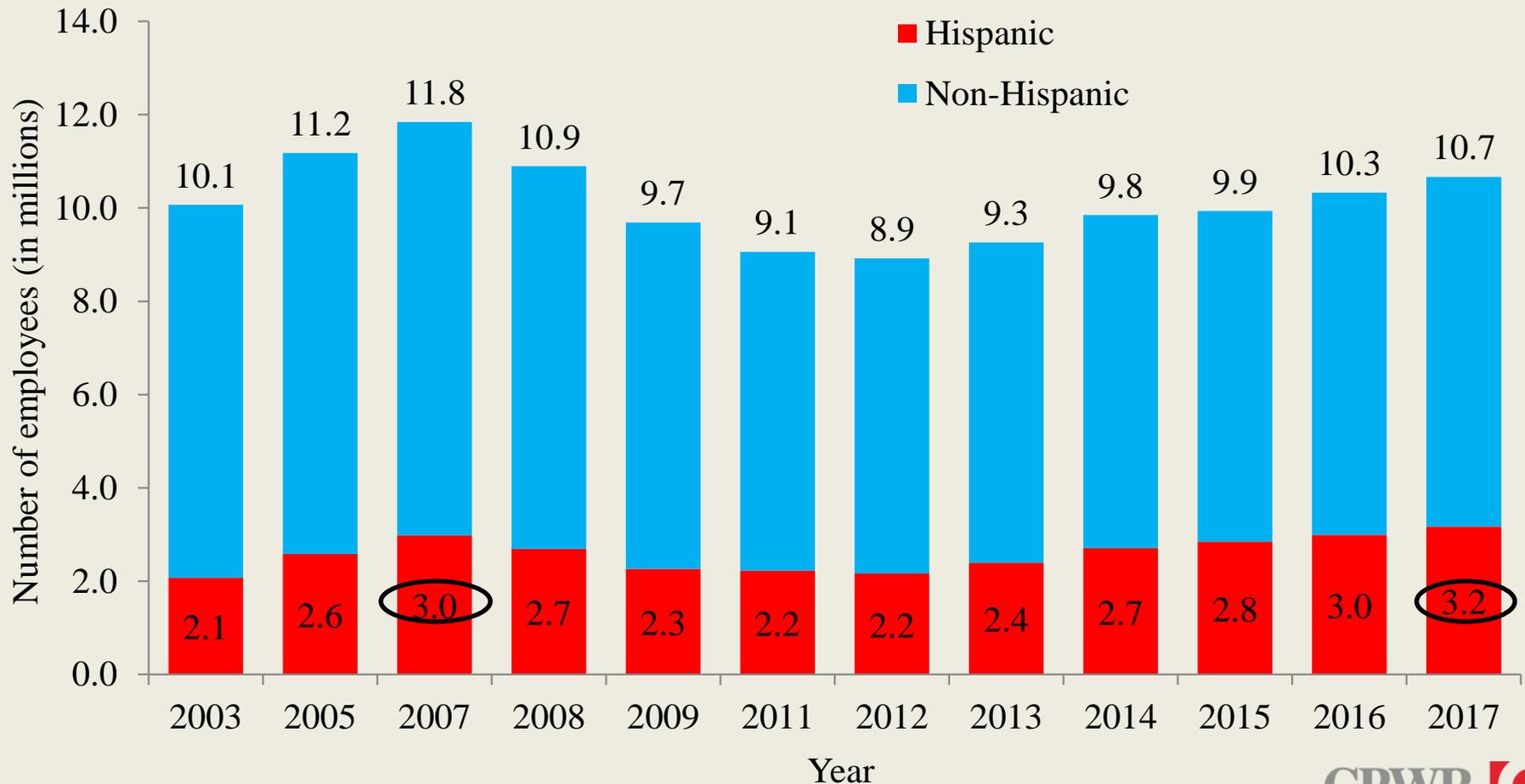
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Photos courtesy of the Mechanical Contractors Association of America



**QDR1:  
Nonstandard work  
arrangements**

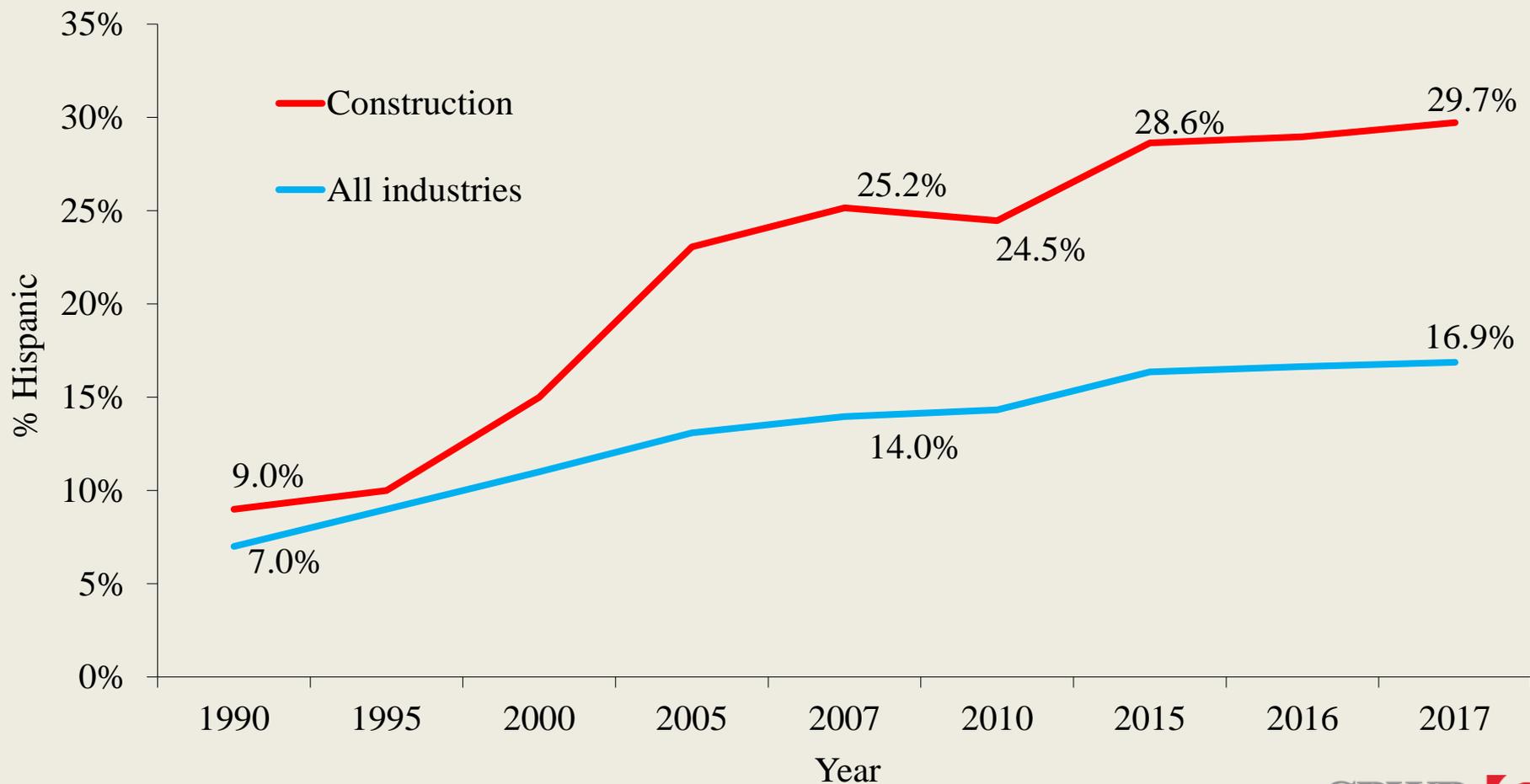
<https://www.cpwr.com/publications/nonstandard-work-arrangements-construction-industry>

# Hispanic employment reached 3.2 million in 2017, exceeding its level in 2007



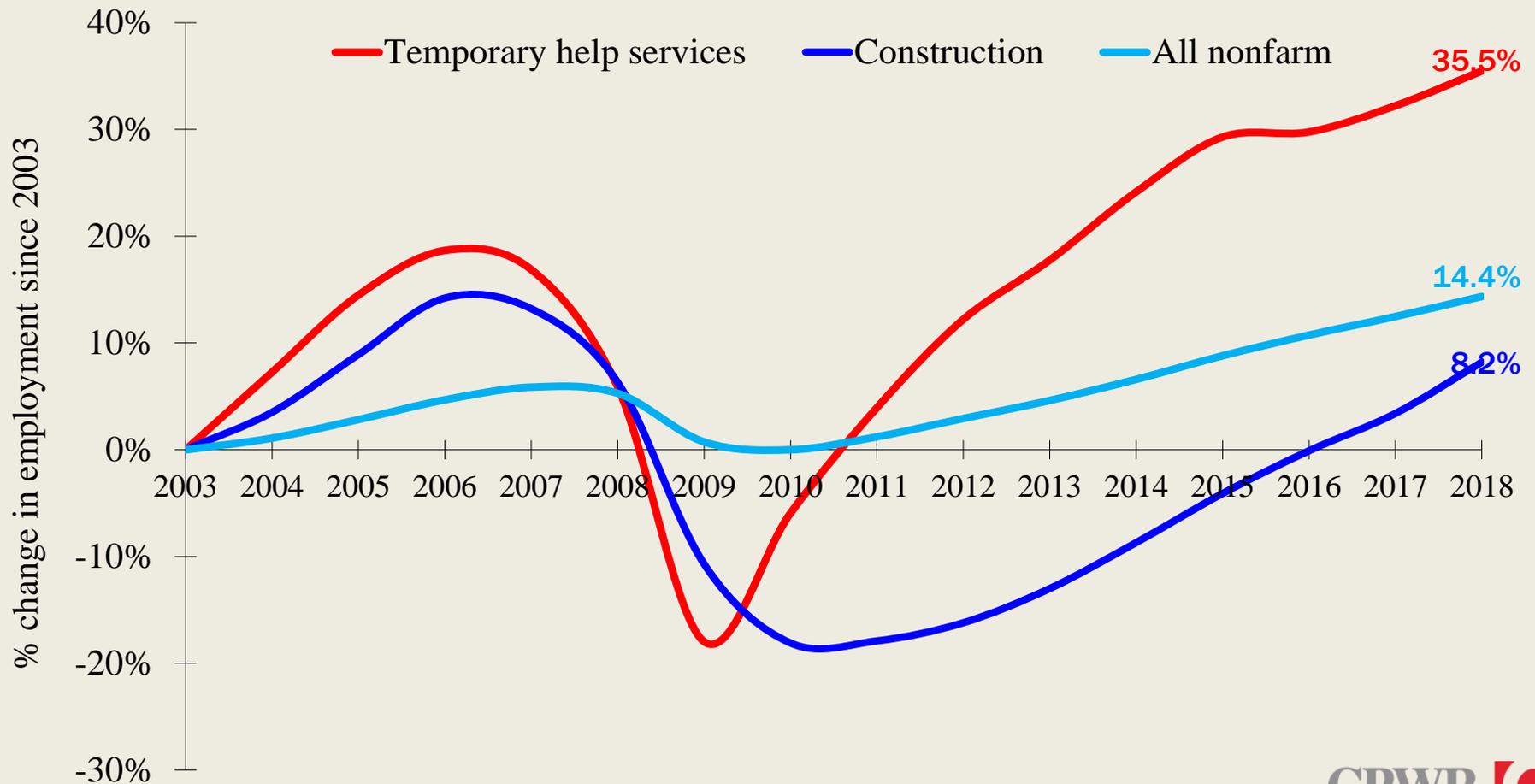
Source: U.S. Bureau of Labor Statistics. 2017 and previous years Current Population Survey. The numbers before 2005 were adjusted by the parameters provided by the U.S. Bureau of Labor Statistics. Calculations by the CPWR Data Center.

# Hispanic workers accounted for 30% of construction employment, the highest level since 1990



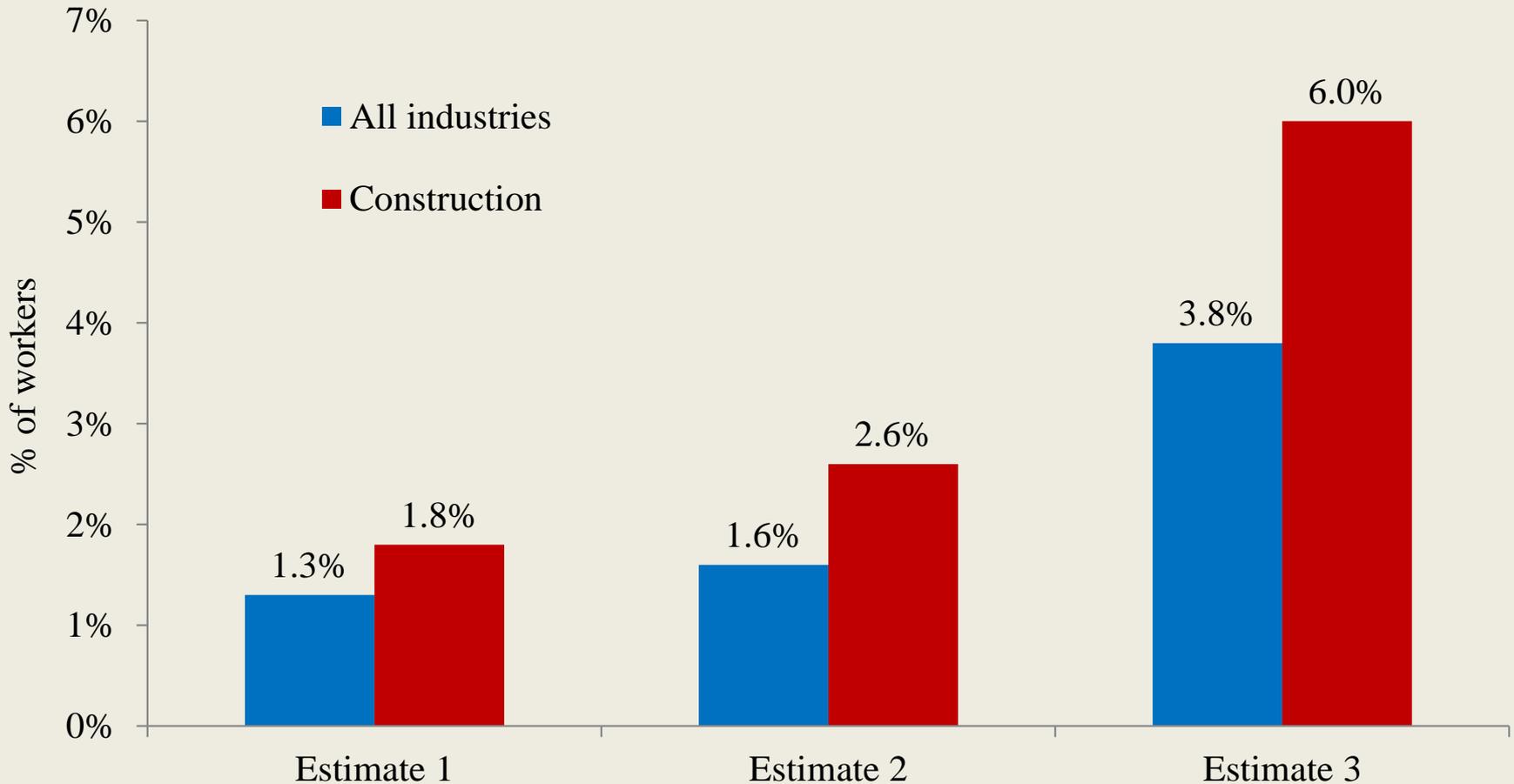
Source: U.S. Bureau of Labor Statistics. 2017 and previous years Current Population Survey. The numbers of Hispanics before 2005 were adjusted by the parameters provided by the U.S. Bureau of Labor Statistics. Calculations by the CPWR Data Center.

# CES: *Temporary Help Services* (NAICS Code 561320): Supplying workers to clients' businesses for limited periods of time to supplement the working force of the client



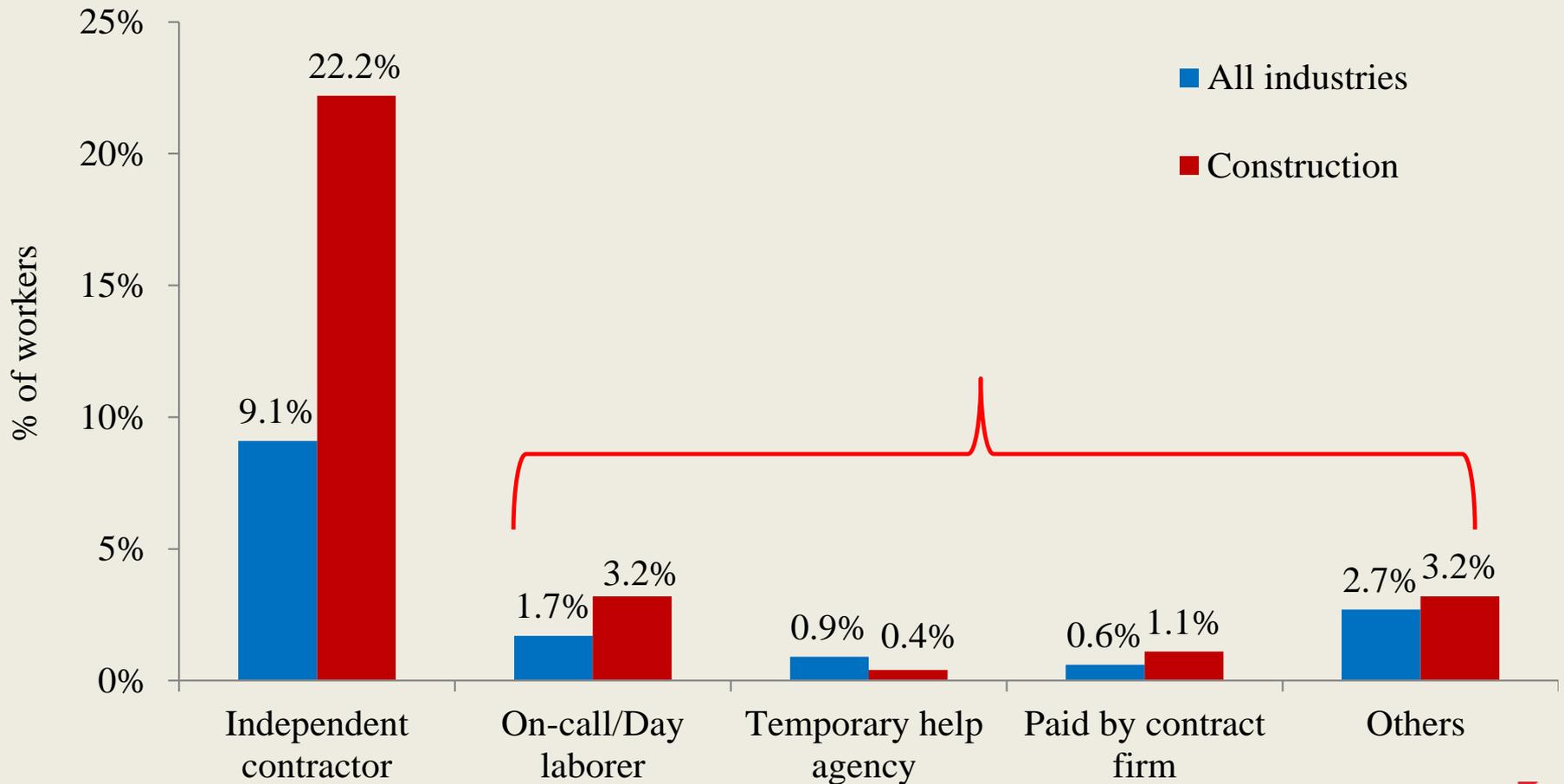
Source: U.S. Bureau of Labor Statistics, 2003-2018 Current Employment Statistics.

# CWS: Percentage of *Contingent Employment*, 2017



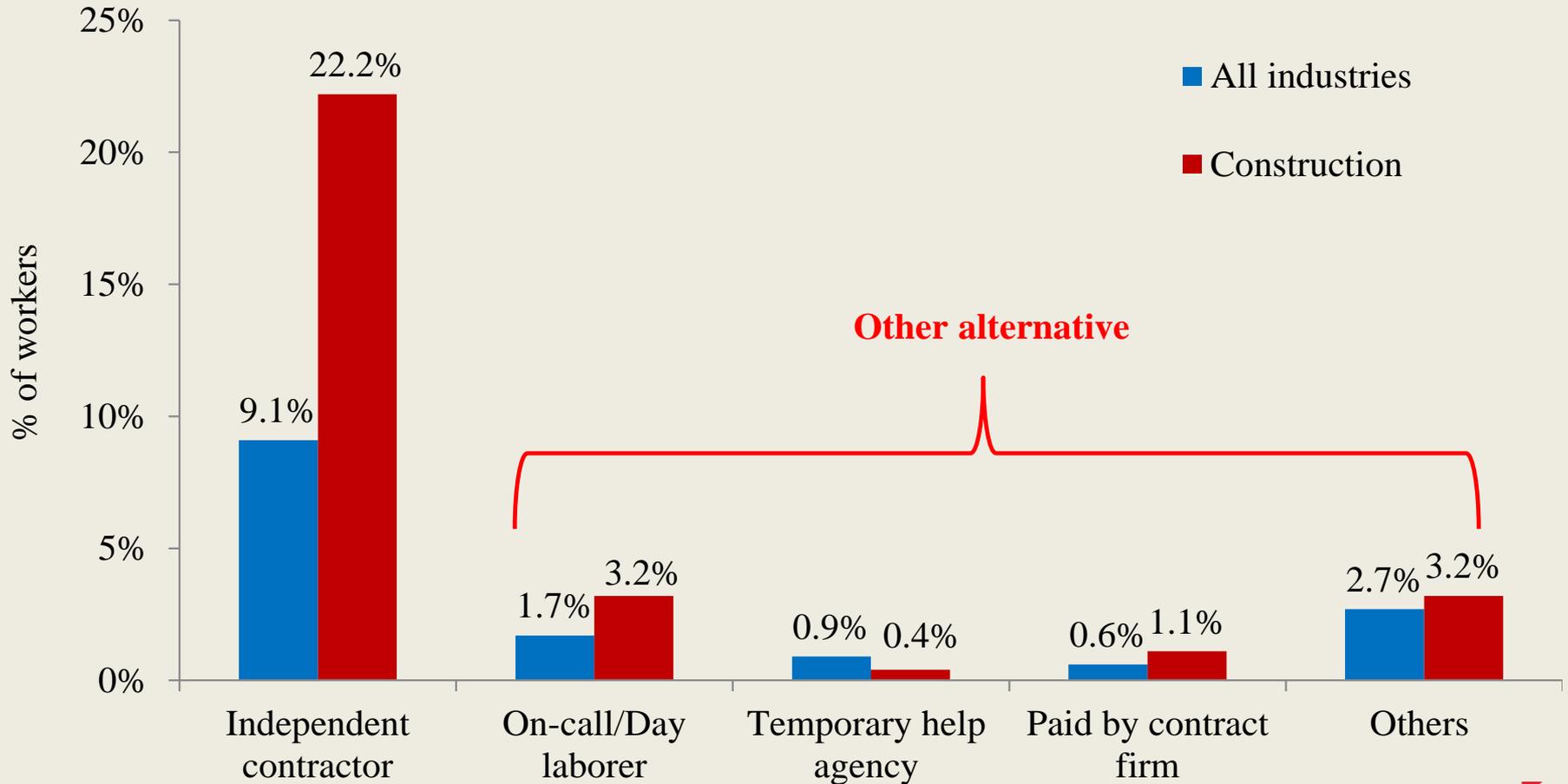
Source: BLS, May 2017 Contingent Worker Supplement to the Current Population Survey.

# CES: Percentage of **Alternative Work Arrangements**, 2017



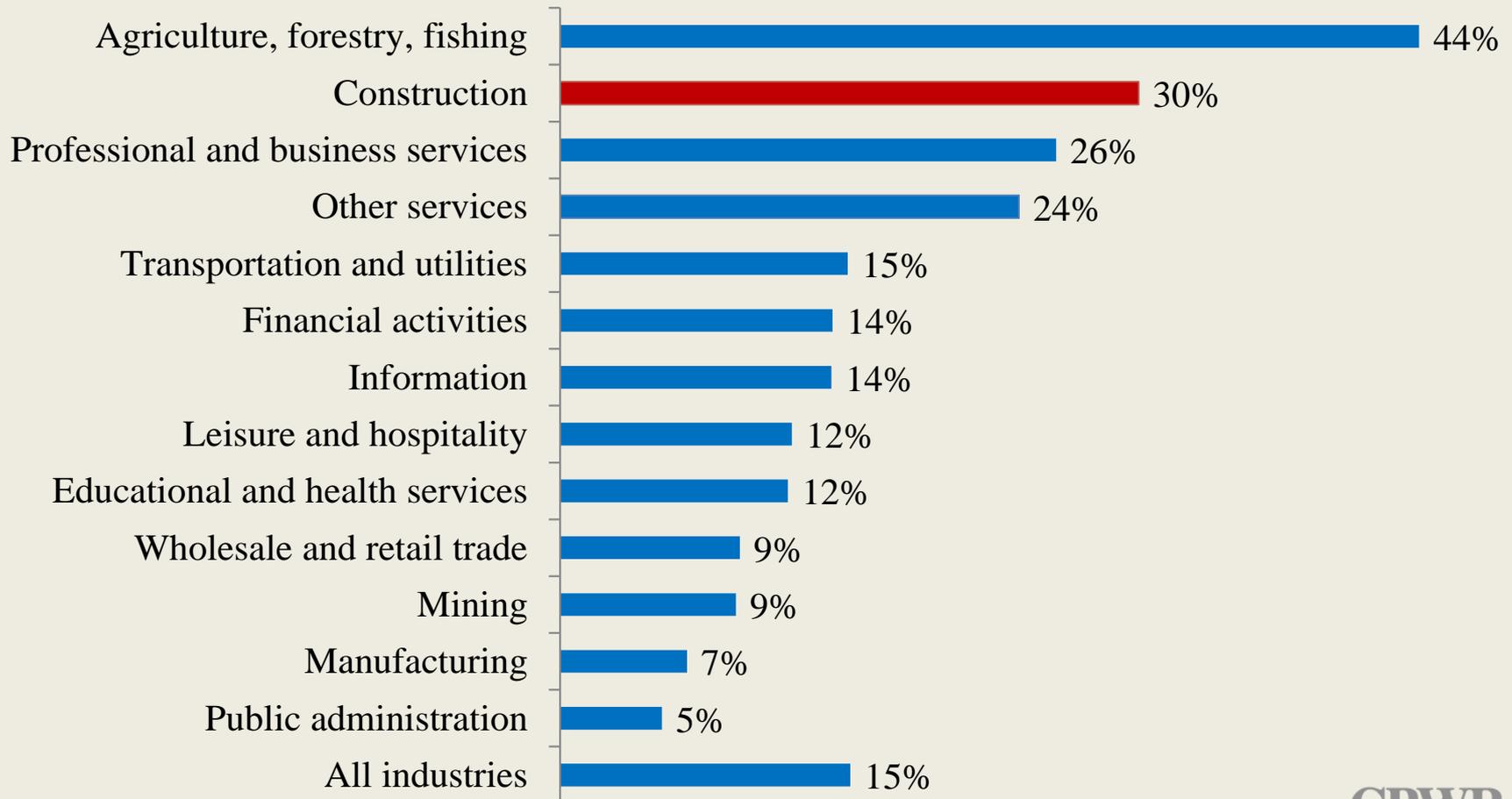
Source: BLS, 2017 Contingent Worker Supplement to the Current Population Survey.

# CES: Percentage of **Alternative Work Arrangements**, 2017



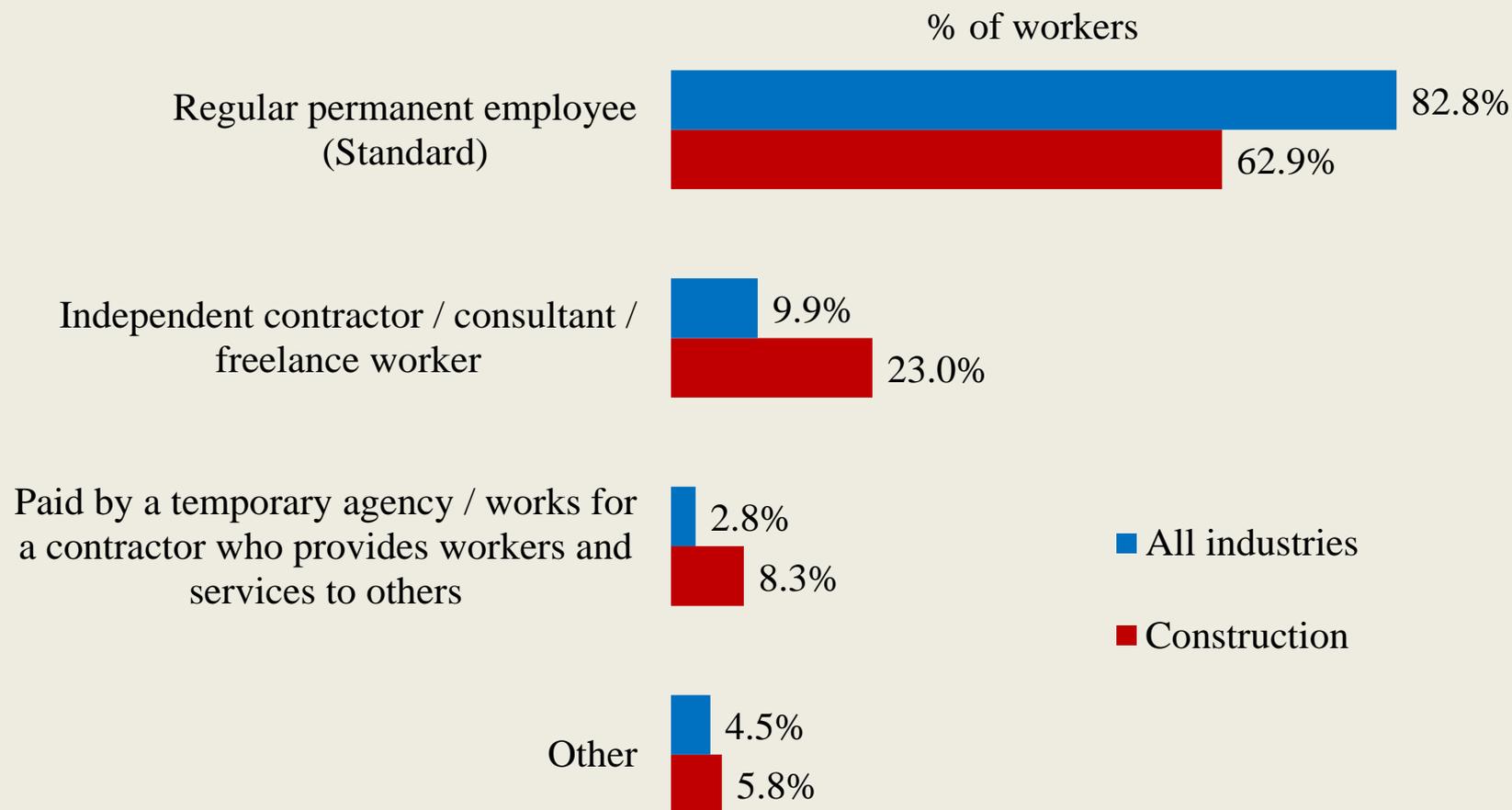
Source: BLS, 2017 Contingent Worker Supplement to the Current Population Survey.

# Estimates based on the BLS definitions: **Alternative Work Arrangements, 2017**

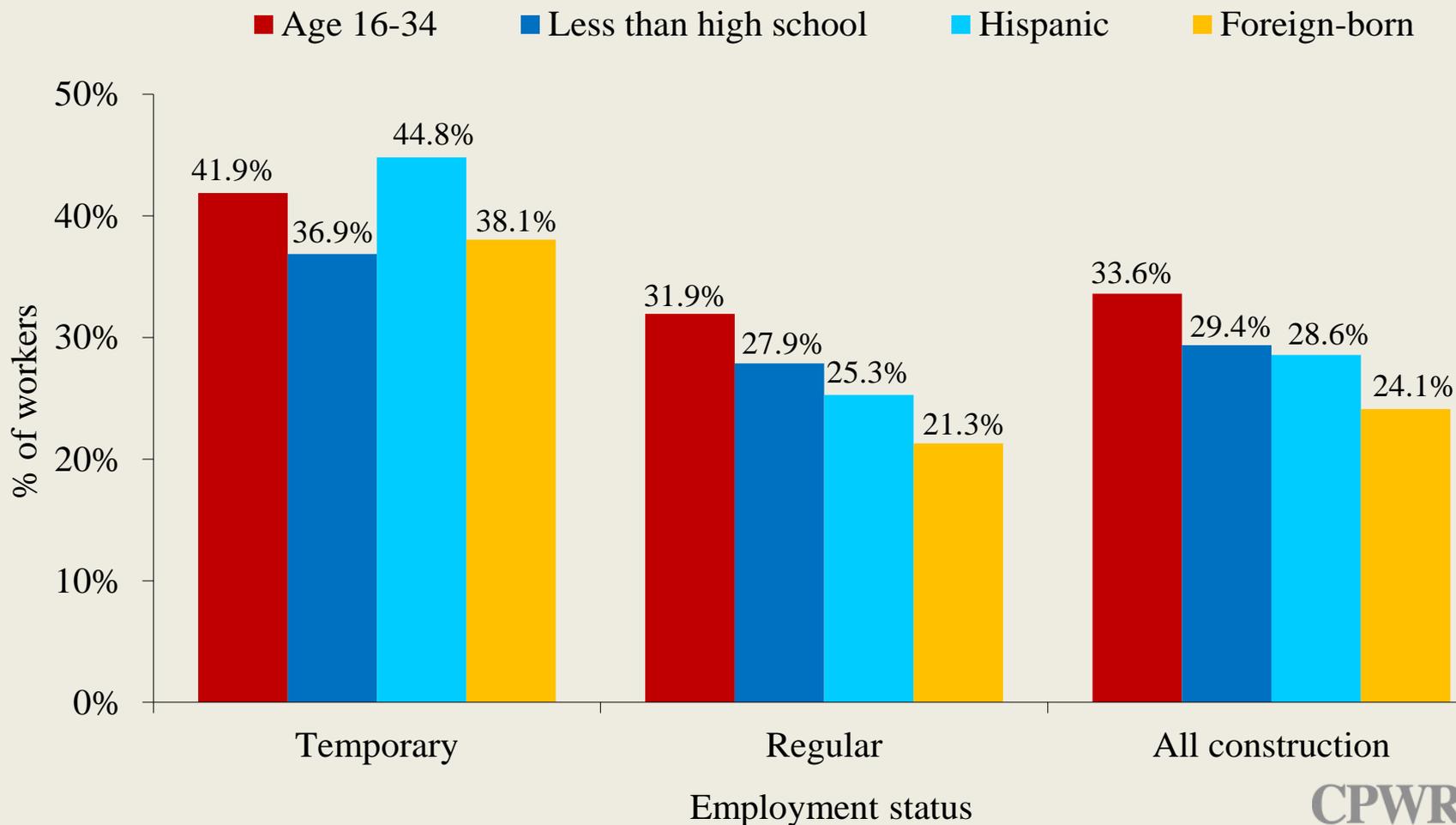


Source: BLS, 2017 Contingent Worker Supplement to the Current Population Survey.

# OHS-NHIS: *Work Arrangements*



# Demographics of construction workers, *temporary* versus regular employment

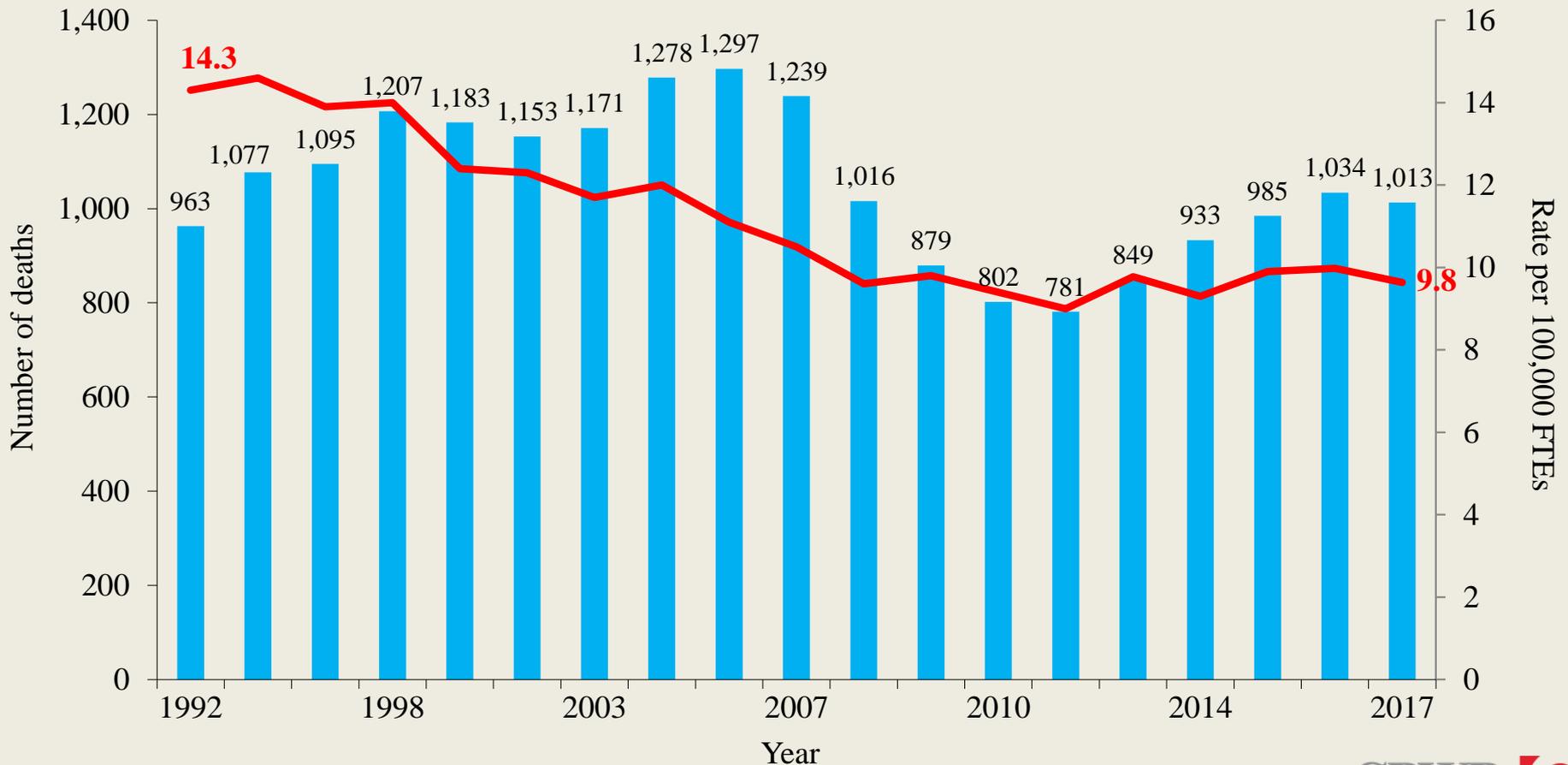


Source: Medical Expenditure Panel Survey, 2015-2017 three-year average.

# QDR2: Trends of Fall Injuries & Prevention

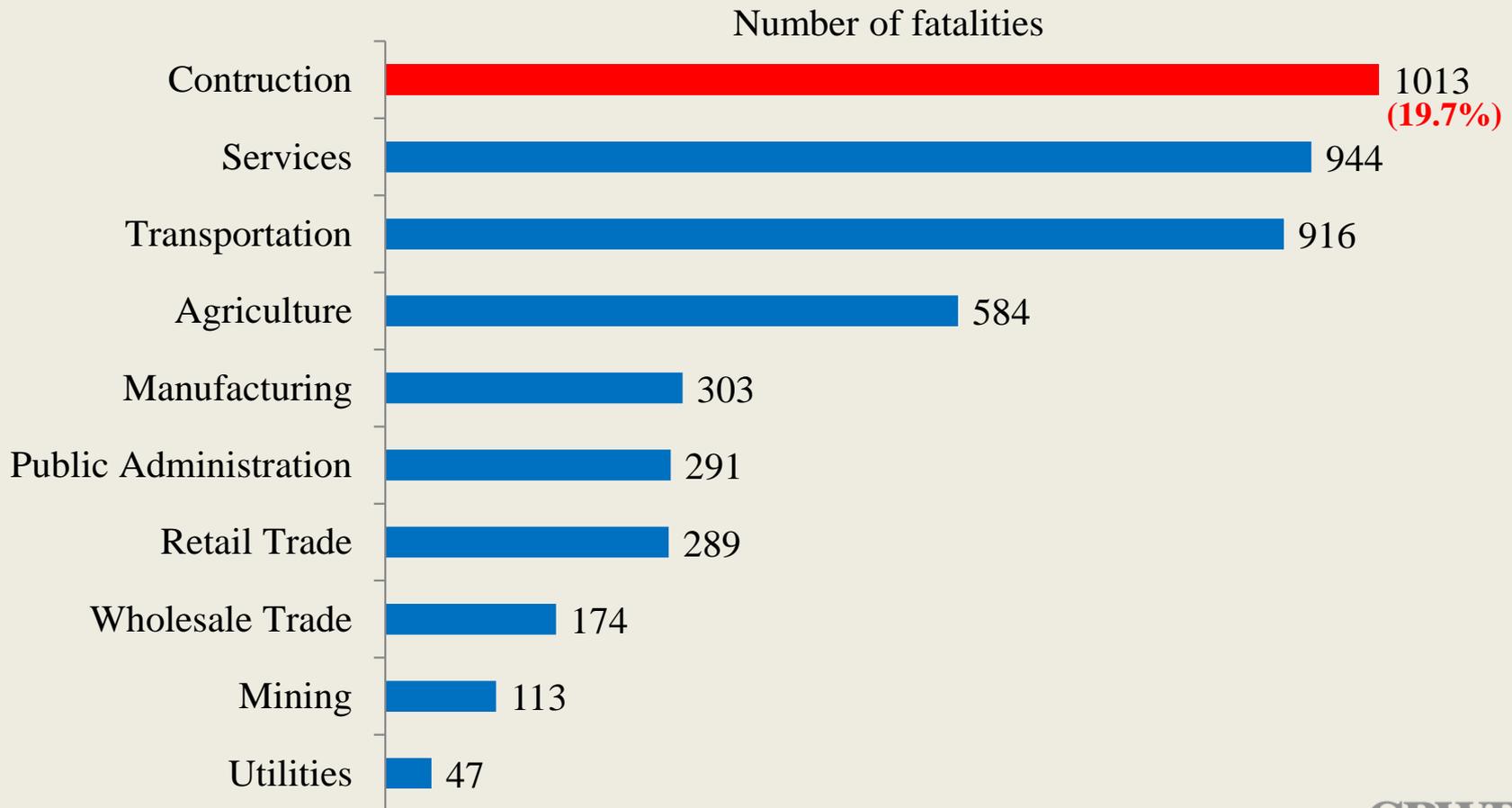
<https://www.cpwr.com/publications/trends-fall-injuries-and-prevention-construction-industry>

# Number of fatalities increased after the economic recovery, but the fatality rate remained flat (All employment)



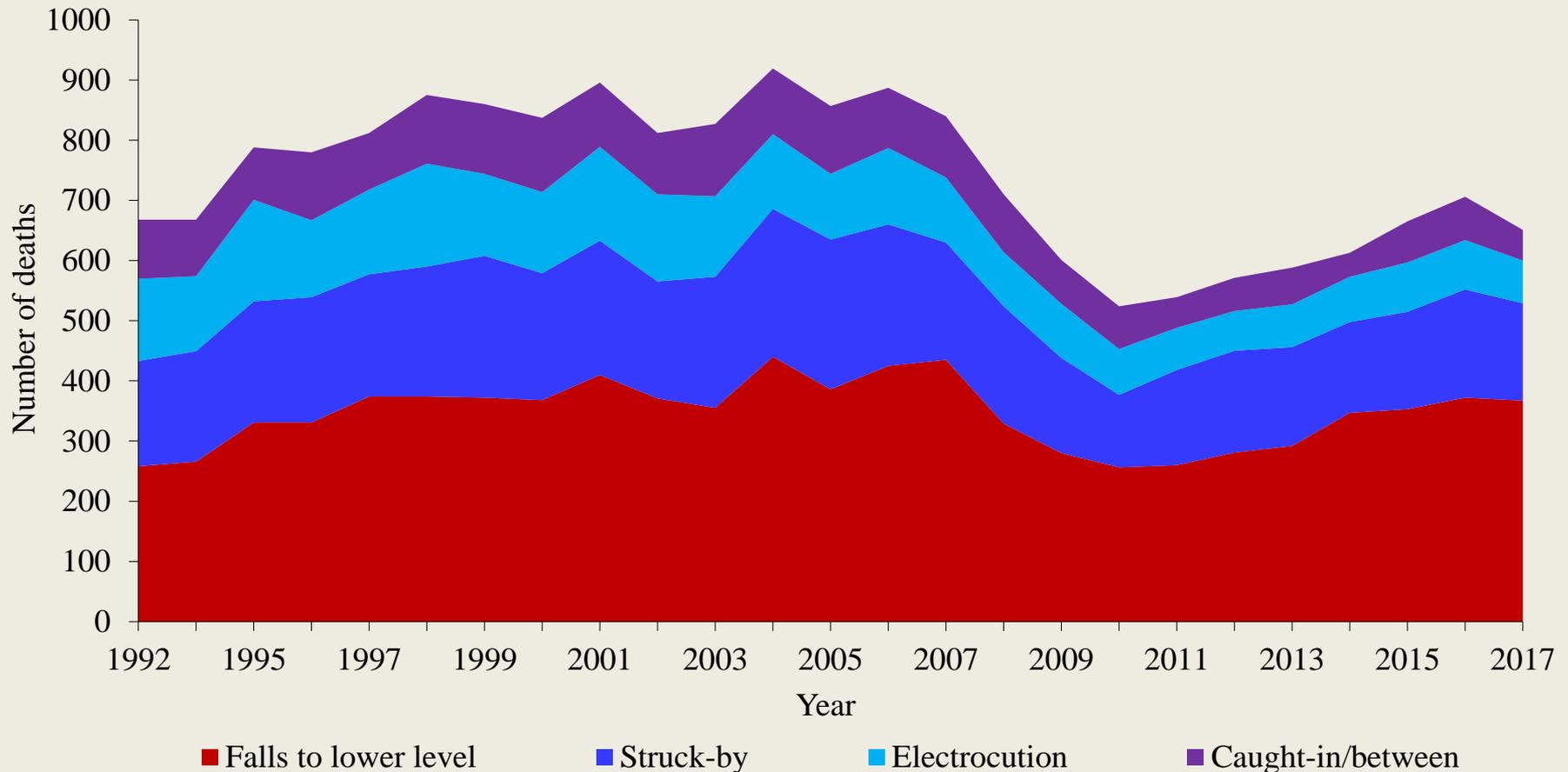
Source: U.S. Bureau of Labor Statistics, 1992-2017 Census of Fatal Occupational Injuries (death numbers were from BLS online database), and Current Population Survey. Calculations by the CPWR Data Center.

# Construction accounted for nearly 20% of all fatal occupational injuries in the U.S.



Source: U.S. Bureau of Labor Statistics, 2017 Census of Fatal Occupational Injuries (death numbers were from BLS online database).

# Falls to a lower level remained the leading cause of fatalities in construction



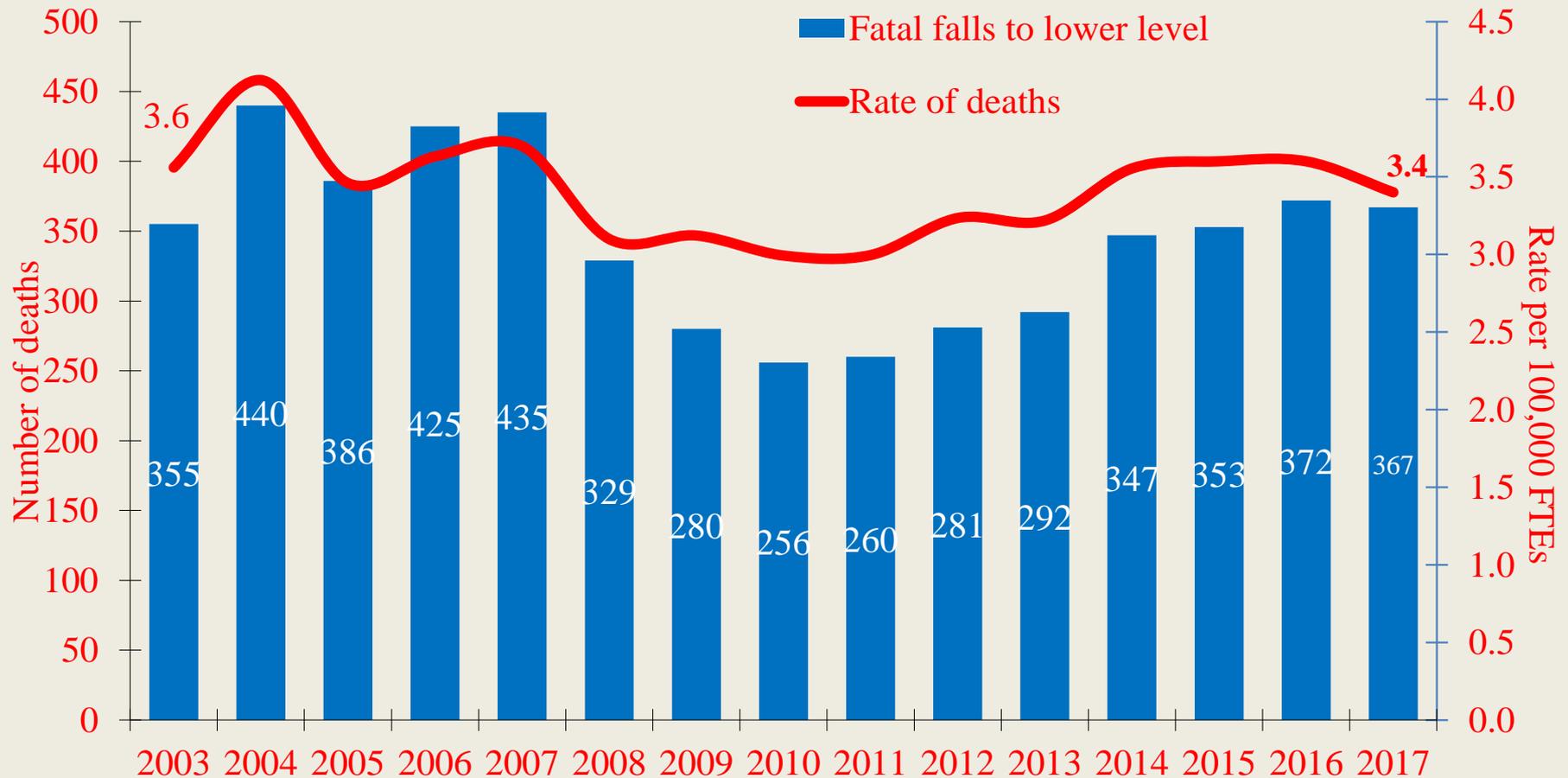
Source: U.S. Bureau of Labor Statistics, 1992-2017 Census of Fatal Occupational Injuries (death numbers were from BLS online database).

# In 2017, more than half of fatal falls to a lower level occurred in construction



Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

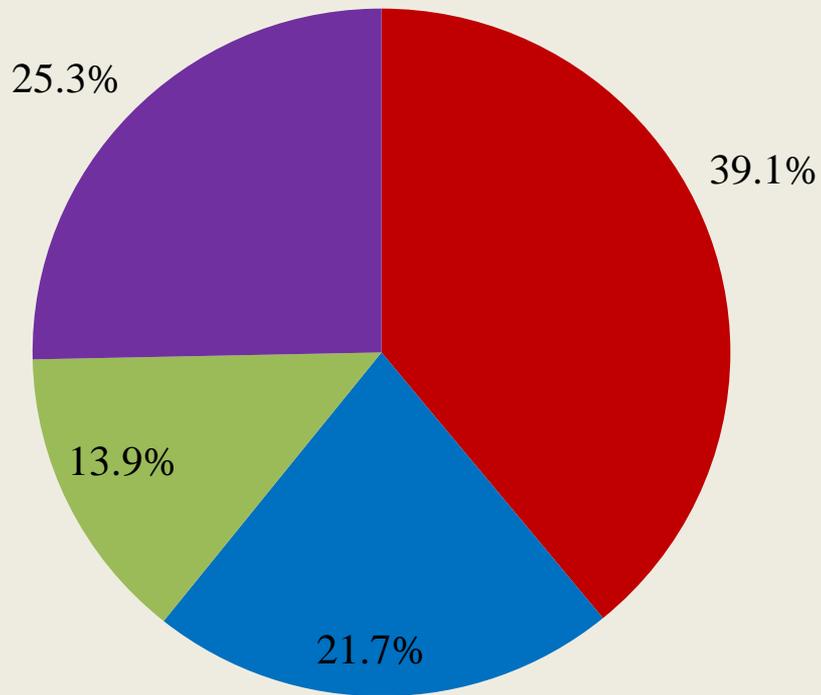
# Although the number of fatal falls increased, the fatality rate was stable



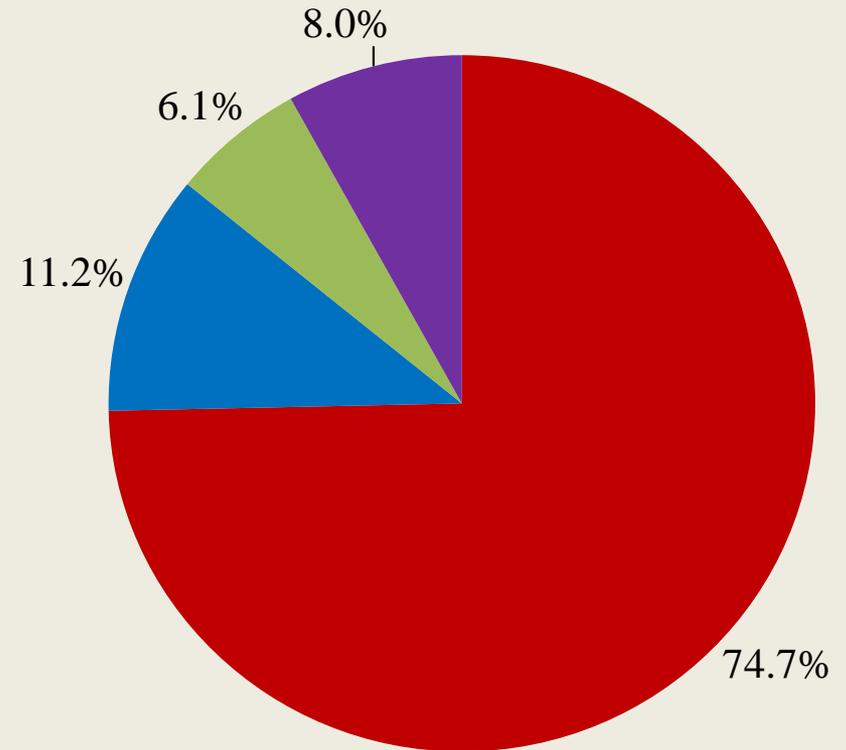
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.

# Small employers (1-19 employees) accounted for 75% of fatal falls

## Employees



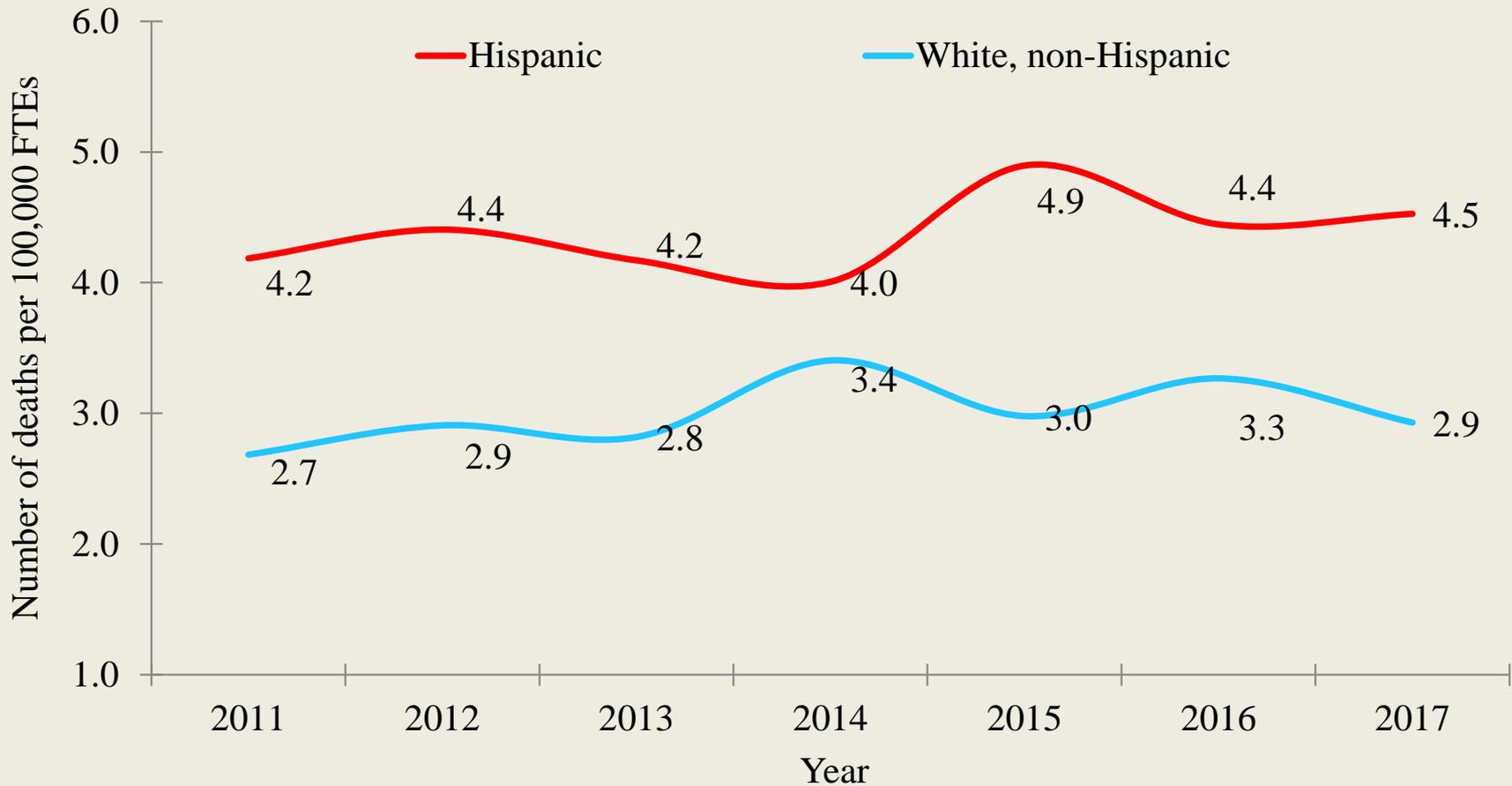
## Fatal Falls



■ 1-19 employees   ■ 20-49 employees   ■ 50-99 employees   ■ 100+ employees

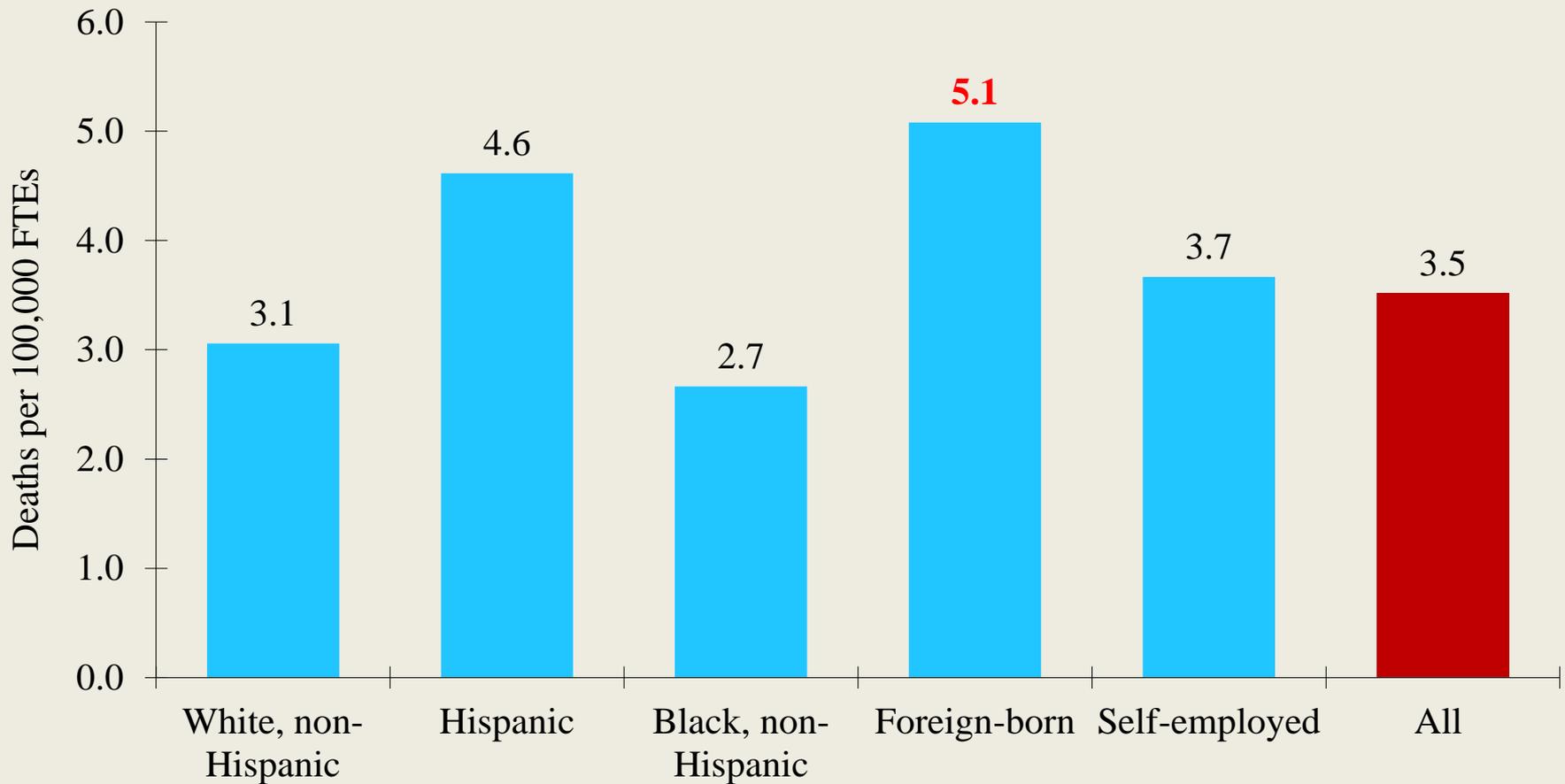
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Data on employees by establishment size from the QCEW. Calculations by the CPWR Data Center.

# Rate of fatal falls was consistently higher among Hispanic construction workers than white, non-Hispanic workers



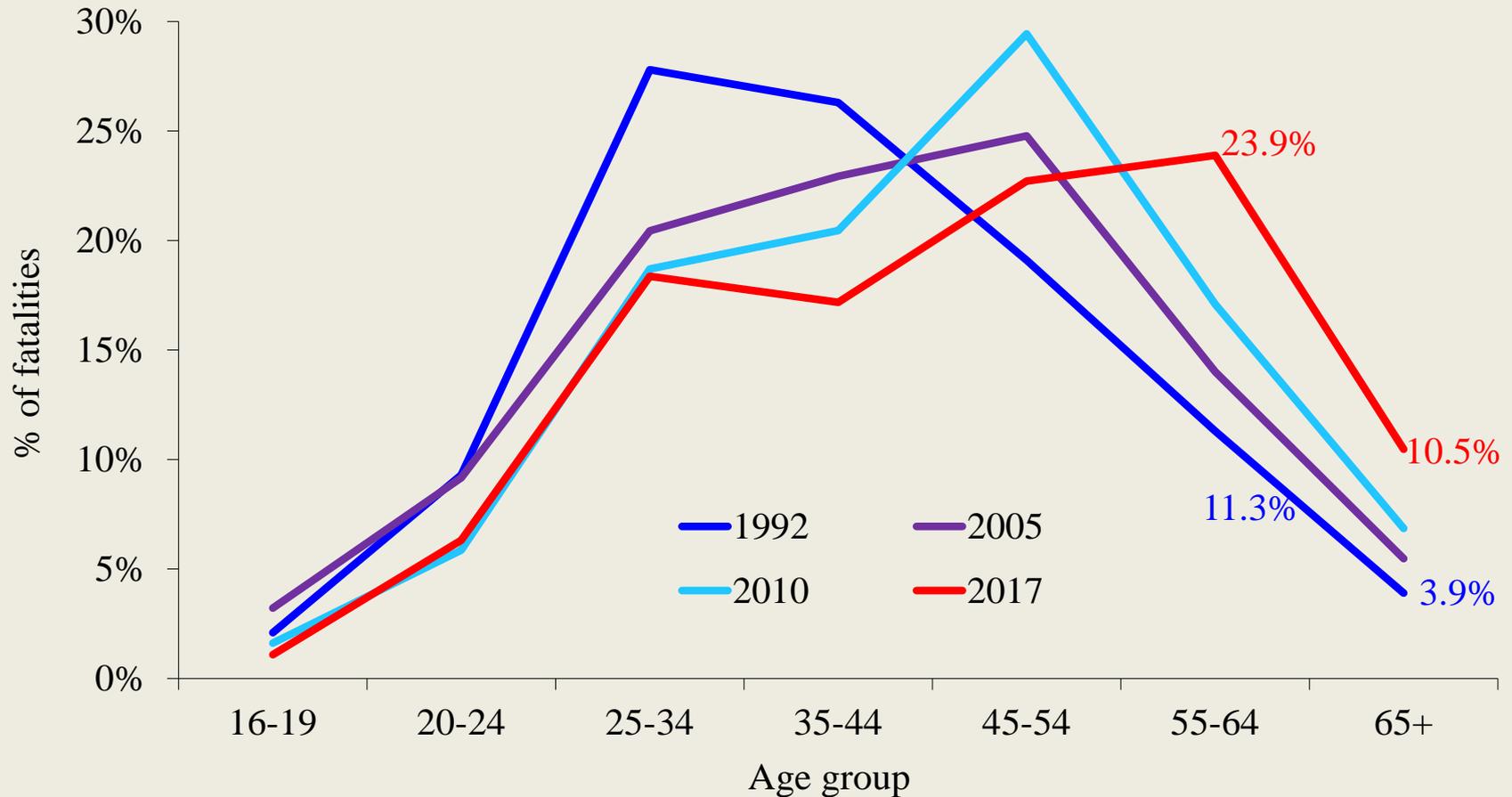
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.

# Immigrant construction workers had a higher rate of fatal falls than any other worker group (Average of 2015-2017)



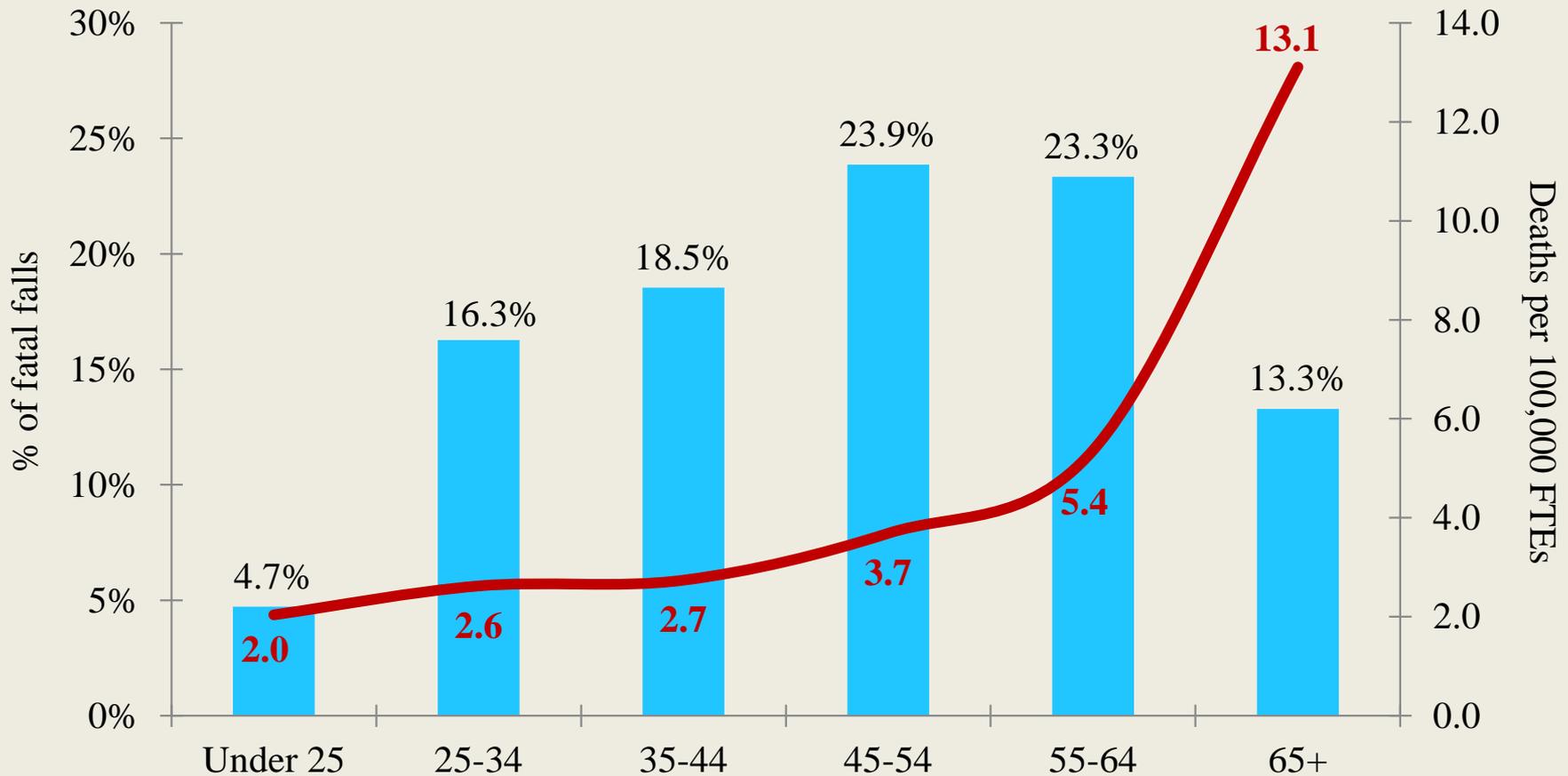
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.

# Proportion of fatalities among construction workers aged 55 years and older more than doubled in 2017 compared to 1992



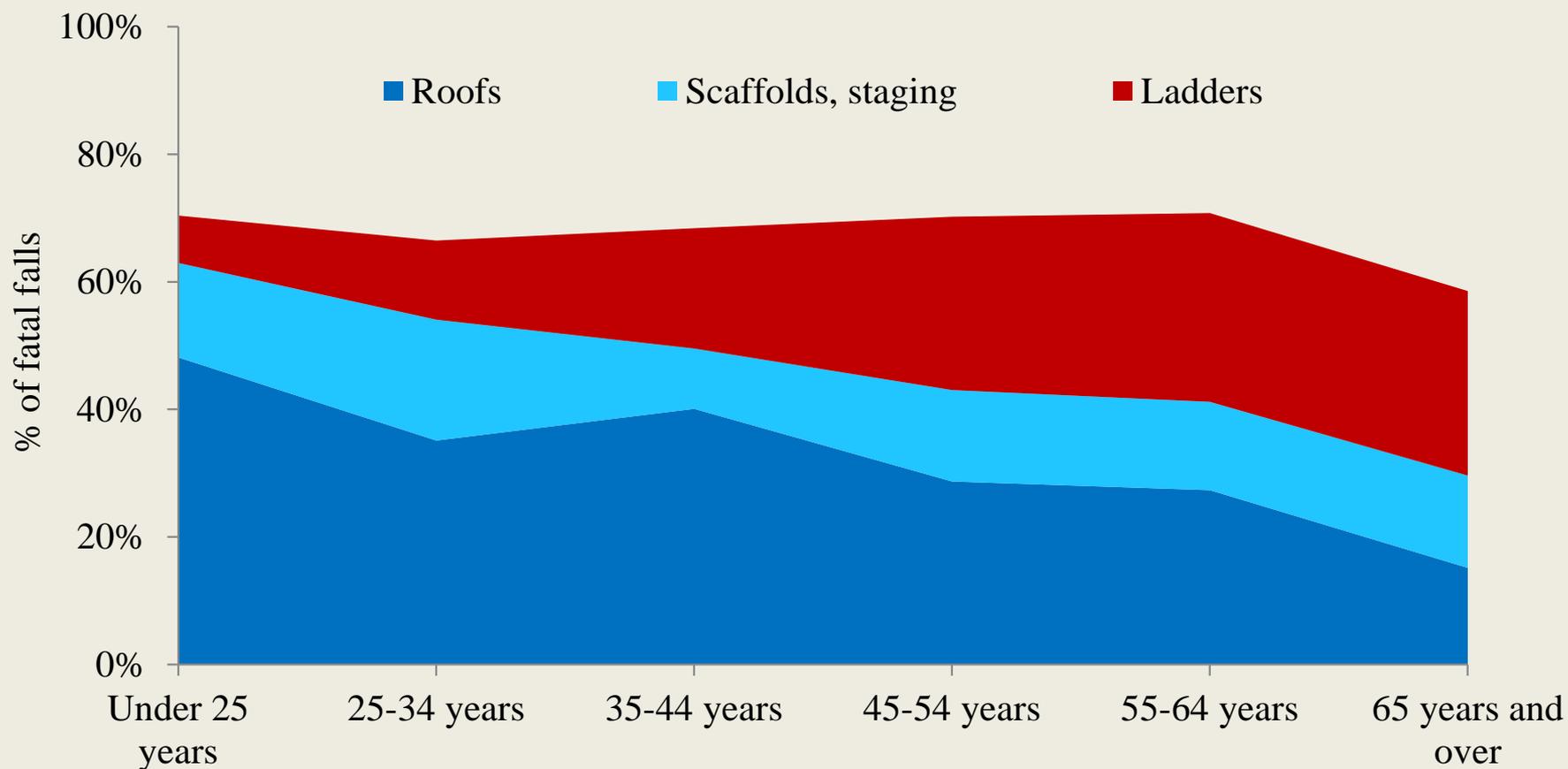
Source: U.S. Bureau of Labor Statistics, 1992, 2005, 2010, and 2017 Census of Fatal Occupational Injuries. Numbers were from the online CFOI database.

# Rate of fatal falls increased with age and was the highest for those aged 65 years and older

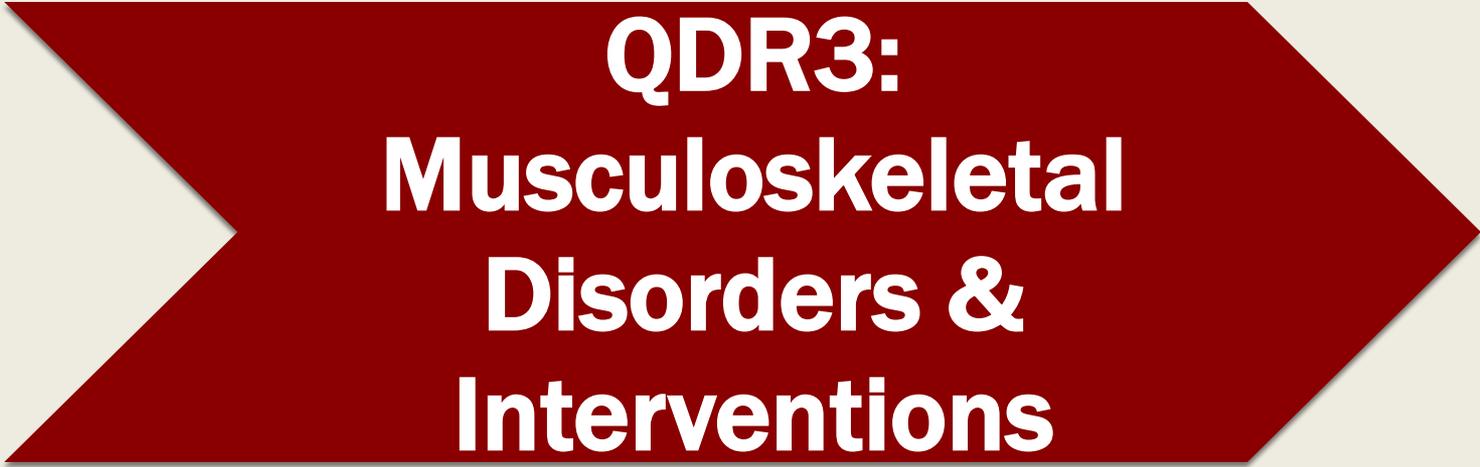


Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.

# Older construction workers had a higher risk of fatal falls from ladders than younger workers



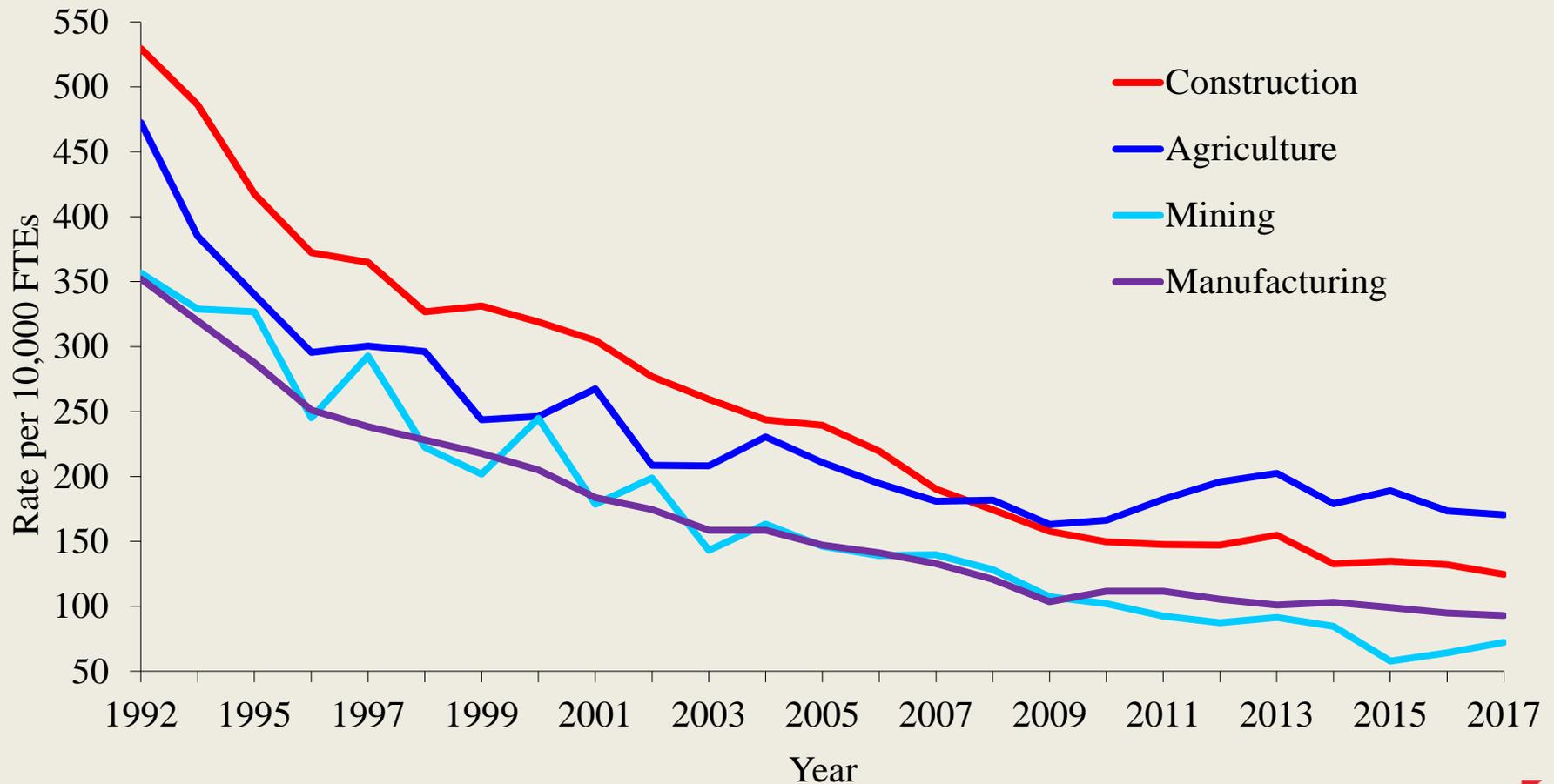
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.



# **QDR3: Musculoskeletal Disorders & Interventions**

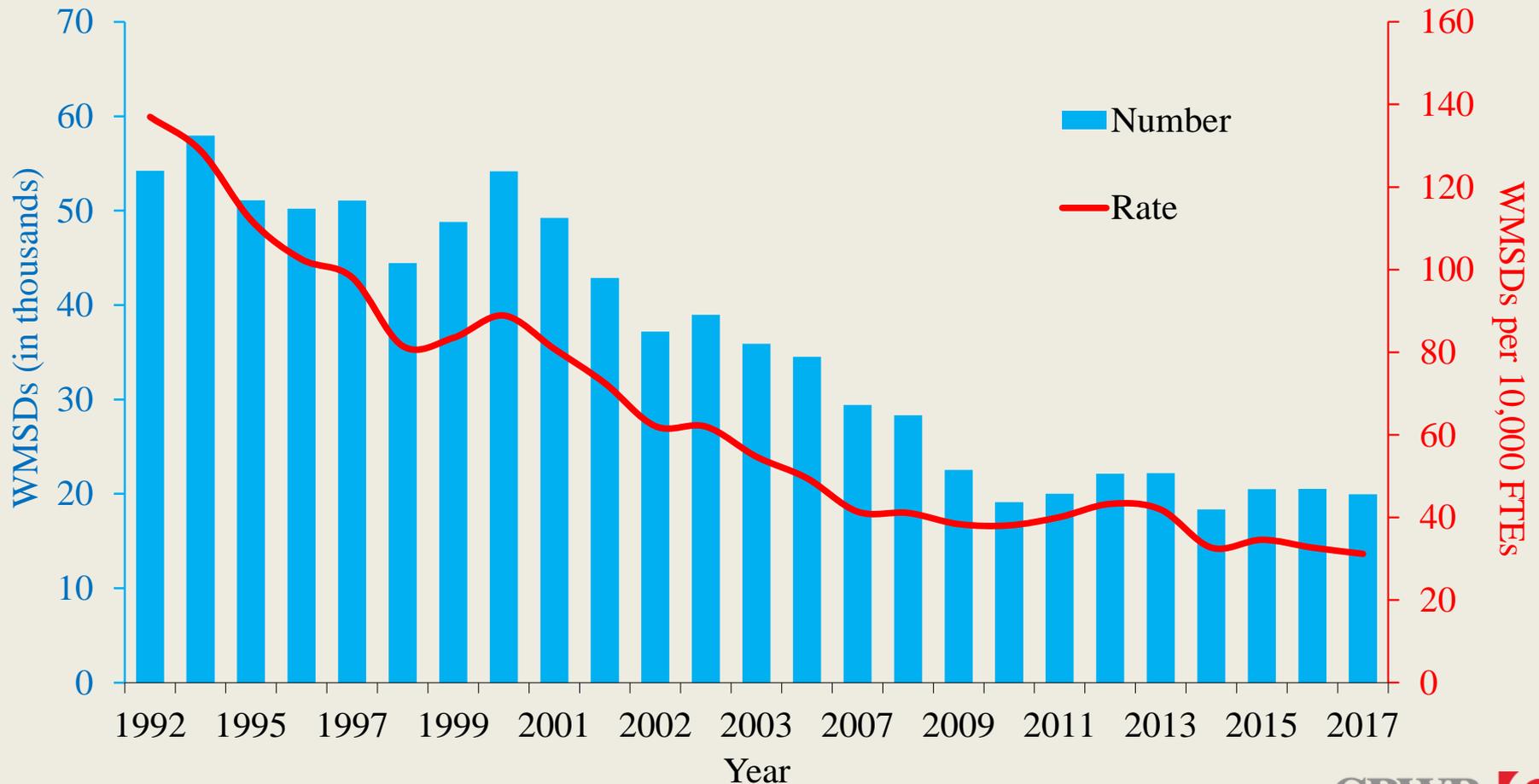
<https://www.cpwr.com/publications/trends-musculoskeletal-disorders-and-interventions-construction-industry>

# Rate of nonfatal injuries resulting in days away from work in construction has declined since 1992



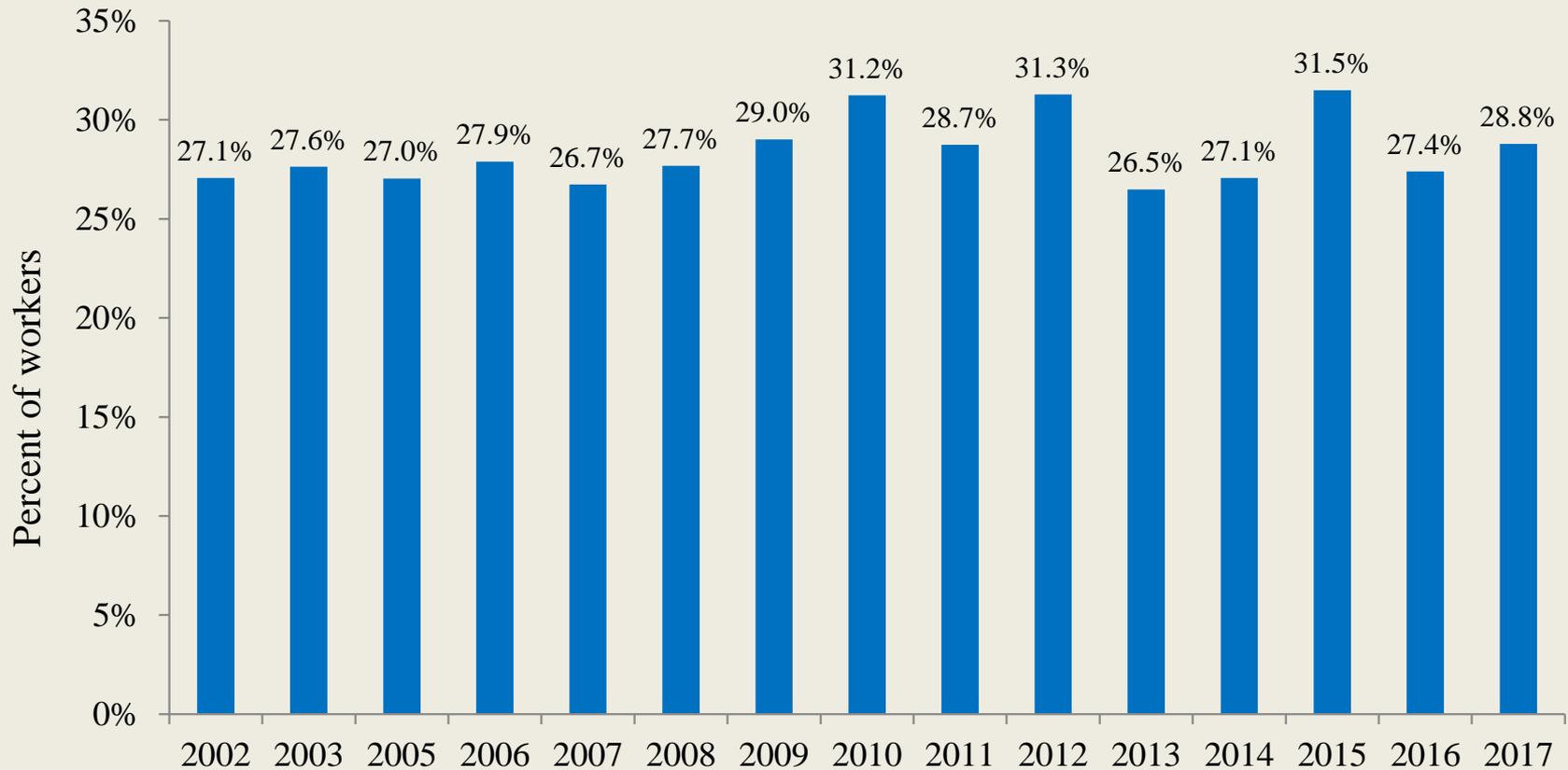
Note: Due to the revised record keeping rules, the estimates since the 2002 survey are not comparable with previous years for nonfatal injuries.  
Source: U.S. Bureau of Labor Statistics, 1992-2017 Survey of Occupational Injuries and Illnesses.

# Both number and rate of work-related musculoskeletal disorders in construction have declined since 1992



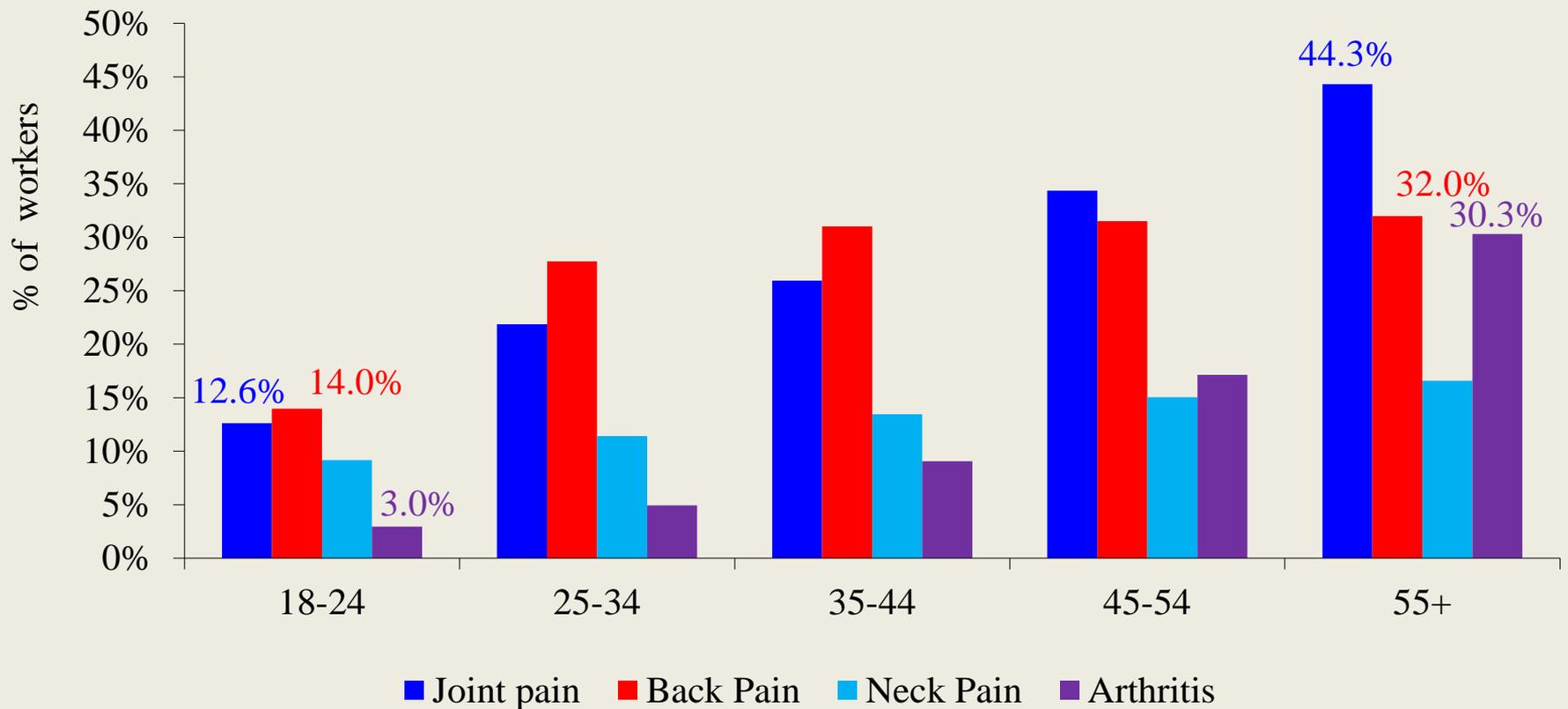
Source: U.S. Bureau of Labor Statistics, 1992-2017 Survey of Occupational Injuries and Illnesses.

# Nearly one of three construction workers reported that they experienced low back pain in the last three months



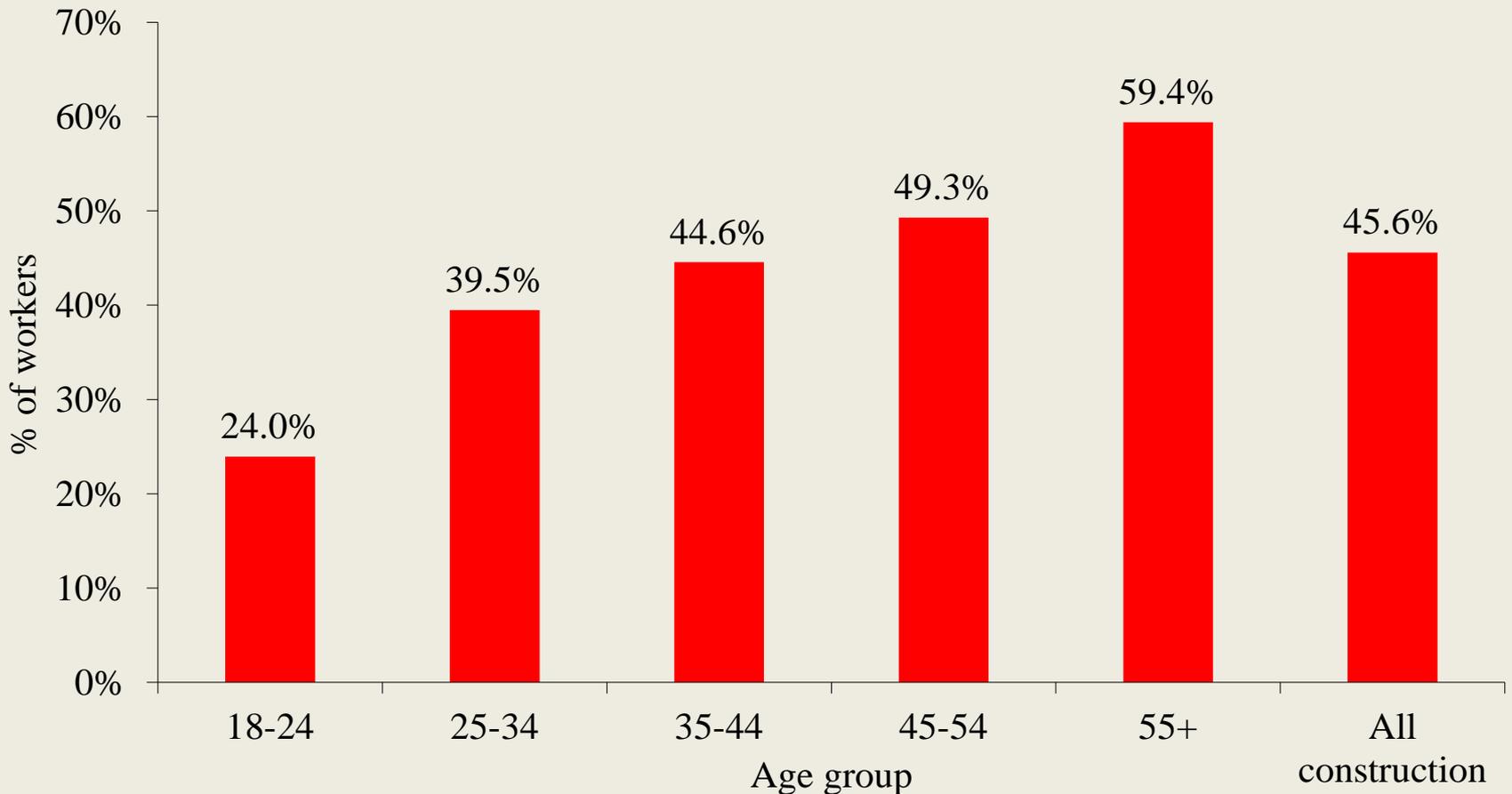
Source: National Center for Health Statistics, 2002 - 2017 National Health Interview Survey. Calculations by the CPWR Data Center.

# MSD-related symptoms are common among contraction workers



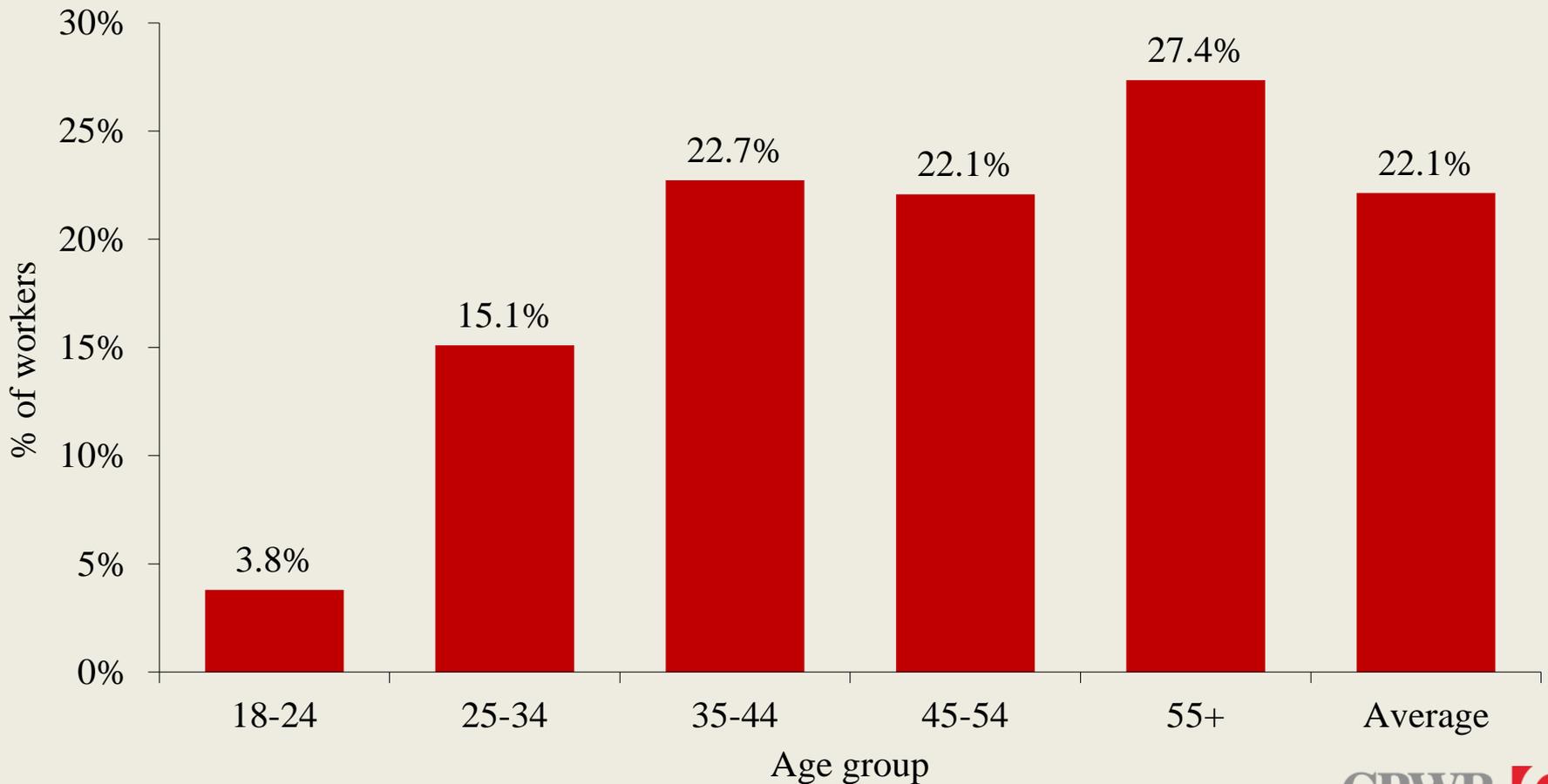
Source: National Center for Health Statistics, 2015 - 2017 National Health Interview Survey. Calculations by the CPWR Data Center.

# Nearly 60% of construction workers aged 55 years and older had one or more MSD symptoms



Source: CPWR, 2019. Quarterly Data Report, Third Quarter: Trends of Musculoskeletal Disorders and Interventions in the Construction Industry, <https://www.cpwr.com/sites/default/files/publications/Quarter3-QDR-2019.pdf>

# More than 27% of construction workers aged 55 years and older reported that joint pain limited their usual activities

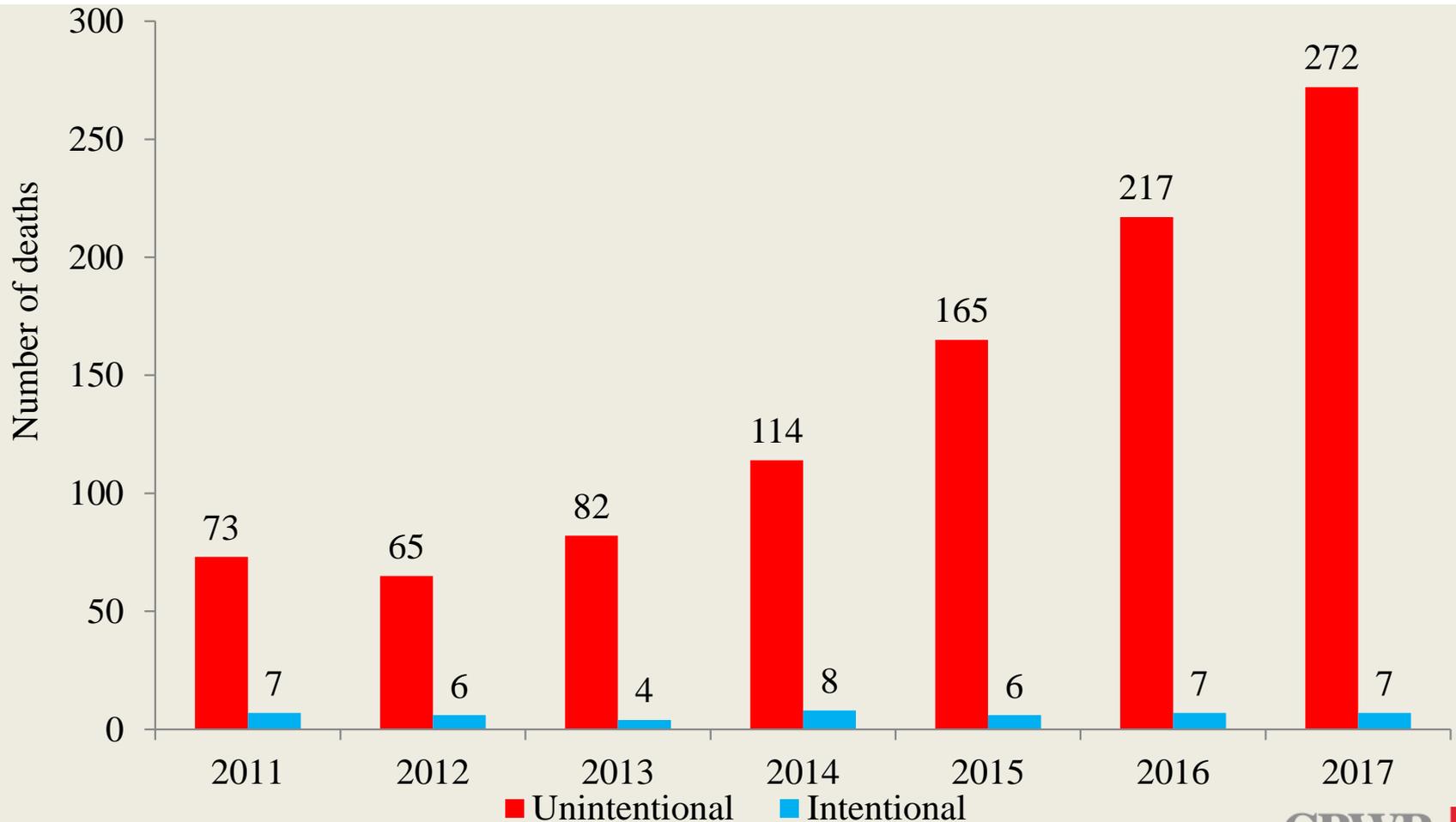


Source: National Center for Health Statistics, 2015-2017 National Health Interview Survey. Calculations by the author.



**QDR4:  
Opioid/Drug  
Use/Misuse  
& Overdose Fatalities**

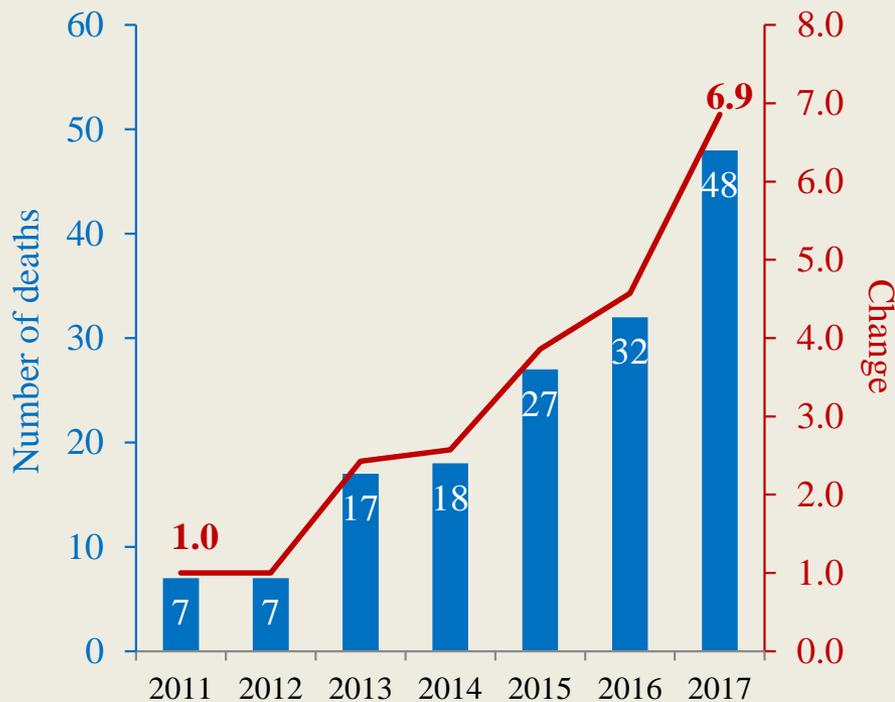
# The majority of overdose fatalities were unintentional (All industries, 2011-2017)



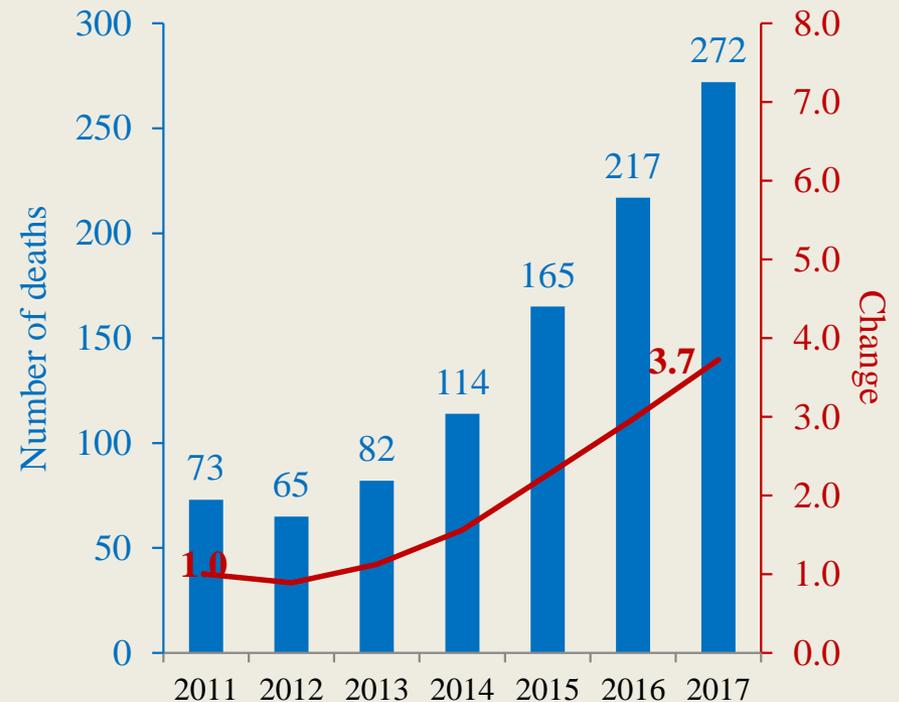
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

# In 2017, deaths from unintentional overdose while at work in construction were 7 times higher than 2011

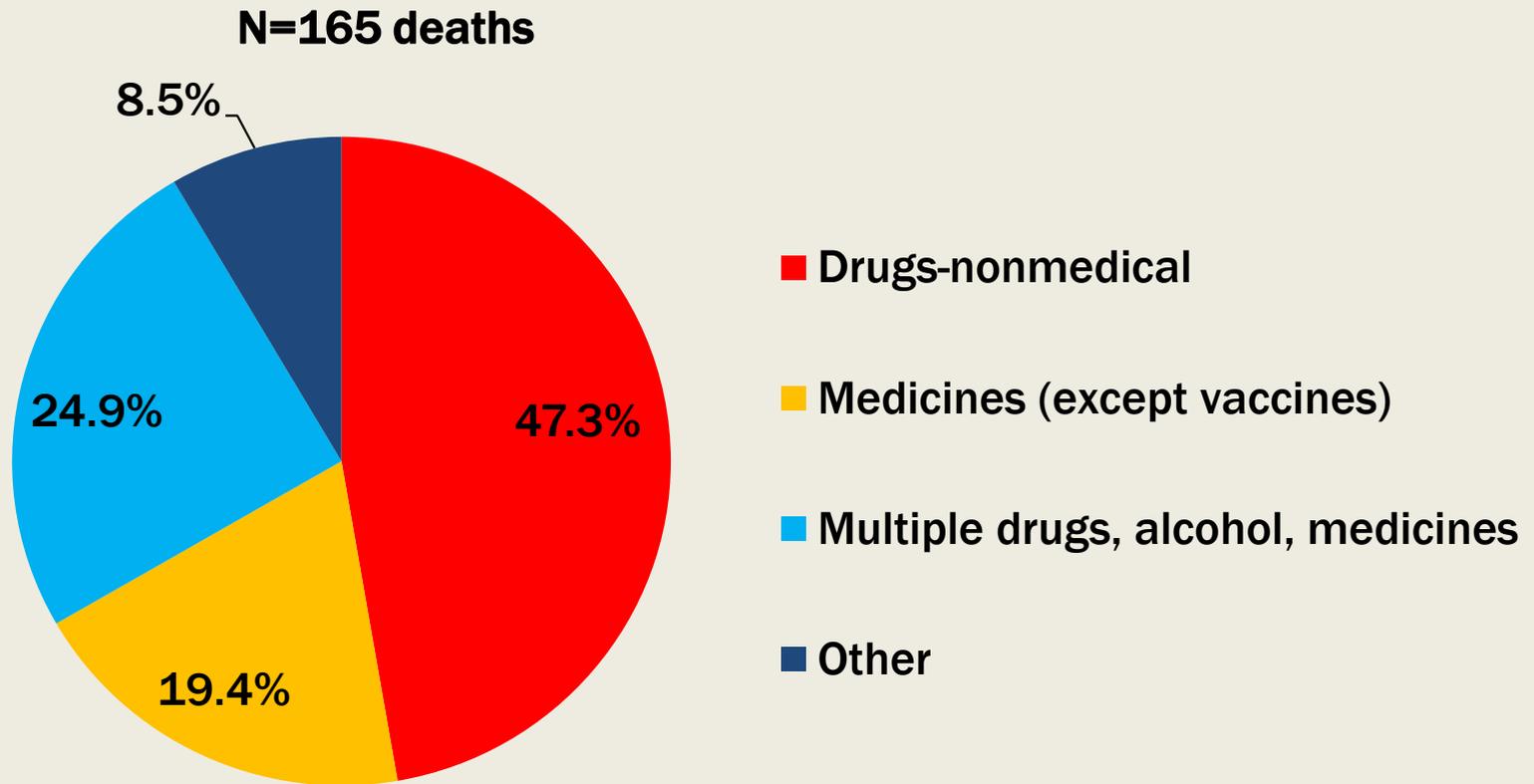
## Construction



## All Industries



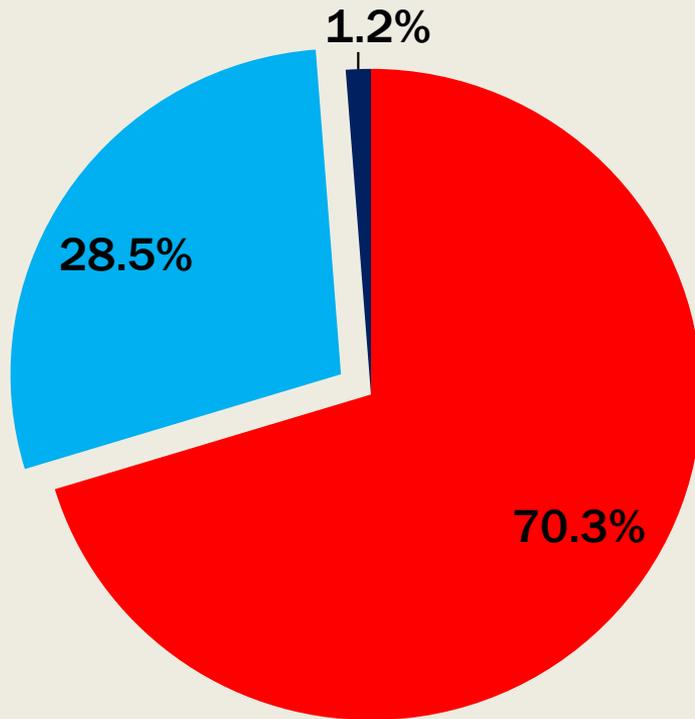
# Nearly half of overdose fatalities were caused by drugs-nonmedical (Construction, 2011-2017)



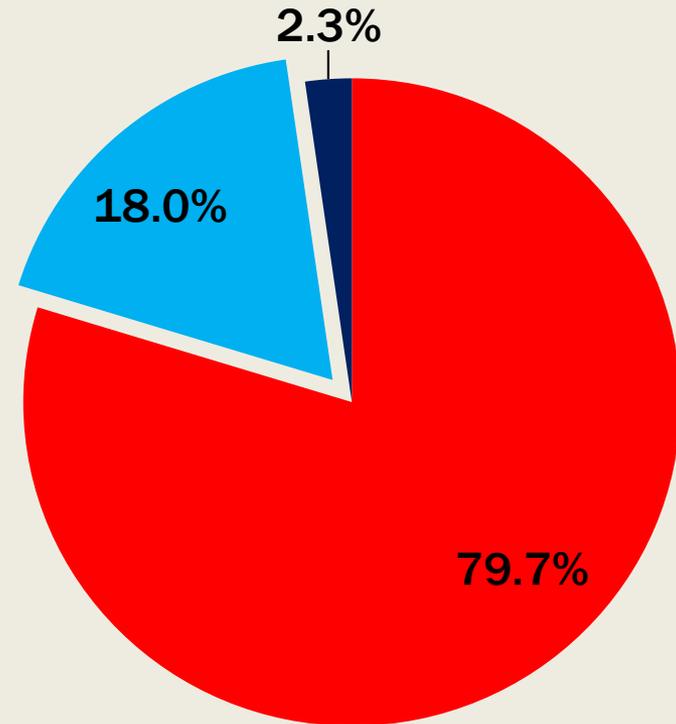
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

# Overdose fatalities were more likely to occur among self-employed construction workers

Overdose (N=165 deaths)



Other causes (N=6,286 deaths)

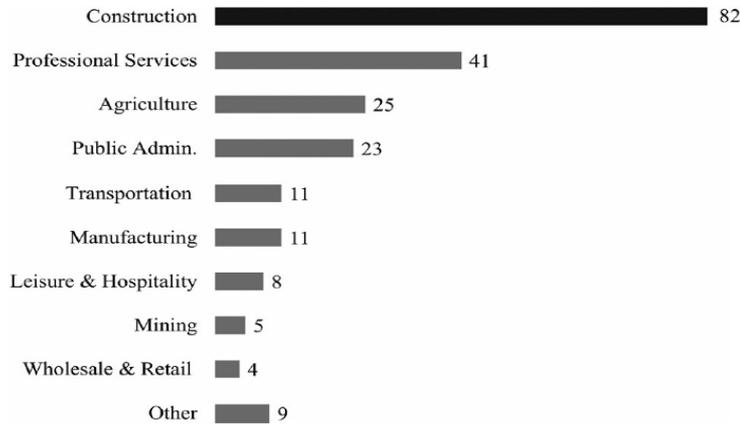


■ Wage and salary ■ Self-employed ■ Others

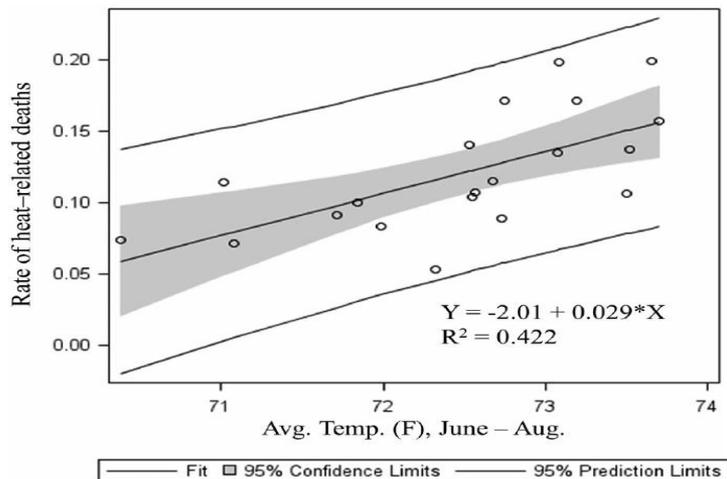
Note: Others include work for family business, volunteer, and type of employment not reported

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

# Construction workers accounted for 36% of all occupational heat-related deaths from 1992 to 2016



**FIGURE 1** Number of heat-related deaths, by major industry,



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## RESEARCH ARTICLE

AMERICAN JOURNAL  
OF  
INDUSTRIAL MEDICINE WILEY

## Heat-related deaths among construction workers in the United States

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### Abstract

**Background:** Heat is a severe hazard for construction workers and may be worsening with global warming. This study sought to explore heat-related deaths among U.S. construction workers and a possible association with climate change.

**Methods:** Heat-related deaths in the Census of Fatal Occupational Injuries from 1992 to 2016 were analyzed. Denominators estimated from the Current Population Survey were matched with demographic and occupational categories in rate calculations. Statistical tests were used to examine heat-related deaths in relation to time, geographic region, and temperature.

**Results:** Construction workers, comprising 6% of the total workforce, accounted for 36% ( $n = 285$ ) of all occupational heat-related deaths from 1992 to 2016 in the U.S. Mean temperatures from June to August increased gradually over the

# Highlights

- Fall injuries remain the leading cause of fatalities in construction
- Hispanic construction workers, immigrant workers, and those working in small businesses have a higher risk of fatal falls
- Amount of unintentional drug overdoses are increasing
- Young construction workers were more likely to experience opioid/drug use/abuse
- Risk of musculoskeletal disorders in construction could be underestimated
- Trend of the aging workforce will continue; injury risks and patterns vary by age



**THANKS!**  
**QUESTIONS???**

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**<https://www.cpwr.com>**