

Examining National Trends in Worker Health with the National Health Interview Survey



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Outline

- ❑ **Why examine national trends in worker health**
- ❑ **Background about the National Health Interview Survey (NHIS)**
- ❑ **Data available every year from the core NHIS questions**
 - NIOSH publications based on these data
- ❑ **Data available from the 2010 NHIS Occupational Health Supplement**
 - NIOSH publications based on these data
- ❑ **How to access NHIS data**
- ❑ **Conclusions: Implications for Total Worker Health™**

Why Examine National Trends in Worker Health?

- ❑ To track the burden of morbidity, disability, and specific health conditions among all US workers
- ❑ To compare these burdens among worker subgroups in order to prioritize limited public resources for occupational health
- ❑ To provide industry-specific estimates to industry stakeholders to prioritize industrywide interventions
- ❑ To provide industry-specific estimates to employers to benchmark the health of their workers against industry averages and prioritize organization-level interventions

The National Health Interview Survey (NHIS)

- ❑ **Conducted by the National Center for Health Statistics (NCHS) since 1957**
- ❑ **Cross-sectional, in-person household survey**
 - Multistage area probability design
 - 35,000 – 40,000 households surveyed annually
- ❑ **Consists of core questions and sponsored supplements**
 - Detailed demographic & health questions asked of 1 sample adult (& 1 sample child) from each family
 - Core sample adult questions include industry and occupation
 - Occupational health supplements: 1980, 1988, 2010, 2015(?)

Data from Core Sample Adult Questionnaire: General

❑ **Socio-demographics**

- E.g., gender, age, education, race/ethnicity, household income

❑ **Health Conditions**

- Injuries/poisonings (3 month recall period)
- Acute conditions (e.g., head/chest cold in past 2 weeks)
- Chronic conditions (e.g., hypertension, diabetes, low back pain)

❑ **Health Status**

- E.g., bed days, activity limitations

❑ **Health Behaviors**

- E.g., tobacco & alcohol, physical activity, influenza vaccination

❑ **Healthcare utilization**

- E.g., insurance, usual place for care

Data from Core Sample Adult Questionnaire: Related to Work

□ **Employment status**

- Industry and occupation (current job, unless retired)
- Class of worker (e.g., self-employed, government, private)
- Average number of hours worked per week
- Duration of employment
- Employer size

□ **Salary and Benefits**

- Wage/salary
- Employer-sponsored health insurance
- Paid sick leave

□ **Days of work missed due to illness/injury**

Some Recent NIOSH Peer-Reviewed Publications Based on Core NHIS Data

- ❑ Tak S, Calvert GM. **Hearing difficulty** attributable to employment by industry and occupation: An analysis of the National Health Interview Survey--United States, 1997 to 2003. J Occup Environ Med. 2008; 50:46-56.
- ❑ Luckhaupt SE, Tak SW, Calvert GM. The prevalence of **short sleep duration** by industry and occupation in the National Health Interview Survey. Sleep 2010;33(2):149-159.
- ❑ Syamlal G, Mazurek JM, Bang KM. Prevalence of **lifetime asthma and current asthma attacks** in U.S. working adults: an analysis of the 1997-2004 National Health Interview Survey data. J Occup Environ Med. 2009;51(9):1066-74.
- ❑ Bang KM, Syamlal G, Mazurek JM. Prevalence of **Chronic Obstructive Pulmonary Disease** in the U.S. Working Population: An Analysis of Data from the 1997-2004 National Health Interview Survey. J Chronic Obstruc Pul Dis. 2009;6(5):380 – 387.

New Set of NIOSH Documents Based on Core NHIS Data, 1997-2007

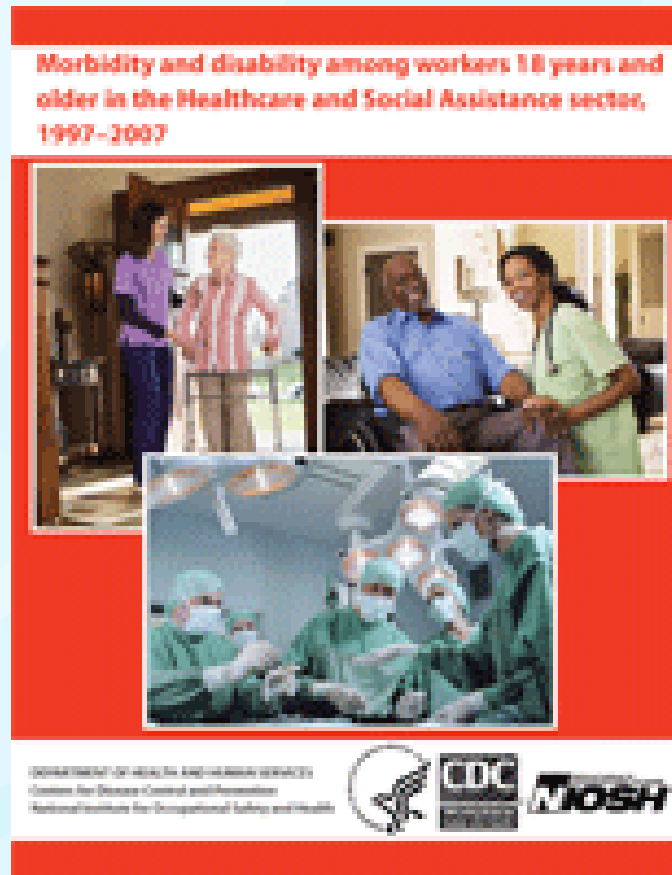
- ❑ Collaboration between NIOSH and the Occupational Research Group at the University of Miami**

- ❑ 8 separate documents for each 2006 National Occupational Research Agenda (NORA) sector**
 - See NIOSH Homepage for NIOSH-Issued Publications @ http://www.cdc.gov/niosh/pubs/all_date_desc_nopubnumbers.html

- ❑ Include charts and tables for 27 outcomes**
 - Prevalence by NORA Sector
 - Prevalence by demographic subgroup within 1 NORA sector
 - Gender, race, ethnicity, age group, education, insurance status

Example:

Morbidity and disability among workers 18 years and older in the Healthcare and Social Assistance sector, 1997-2007



<http://www.cdc.gov/niosh/docs/2012-161/pdfs/2012-161.pdf>

134 pages

Sample Size by NORA Sector, NHIS 1997-2007

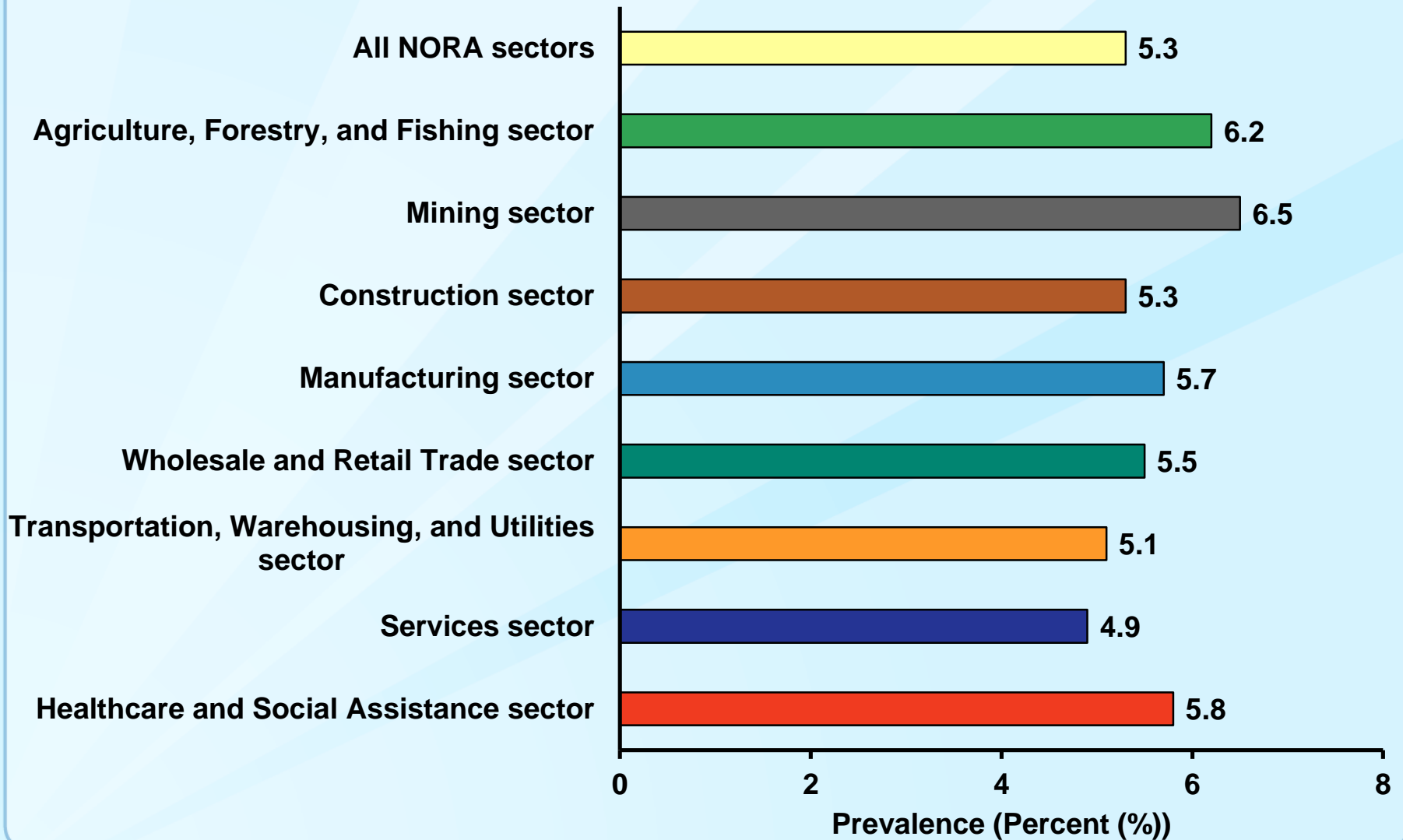
Current US workers by NORA Sector, 1997-2007

NORA Sectors	# in NHIS Sample 1997-2007	Estimated Annual Population Represented by Sample	% of US Workforce
Agriculture, Forestry & Fishing Sector	4,378	2,694,267	2.12
Construction Sector	13,626	9,442,958	7.44
Healthcare & Social Assistance Sector	27,304	16,548, 227	13.04
Manufacturing Sector	26,679	17,581,632	13.85
Mining Sector	726	514,699	0.41
Services Sector	77,835	49,913,381	39.33
Transportation, Warehousing & Utilities Sector	12,871	8,317,014	6.55
Wholesale and Retail Trade Sector	33,505	21,885,852	17.25
Total	196,924	126,898,030	100

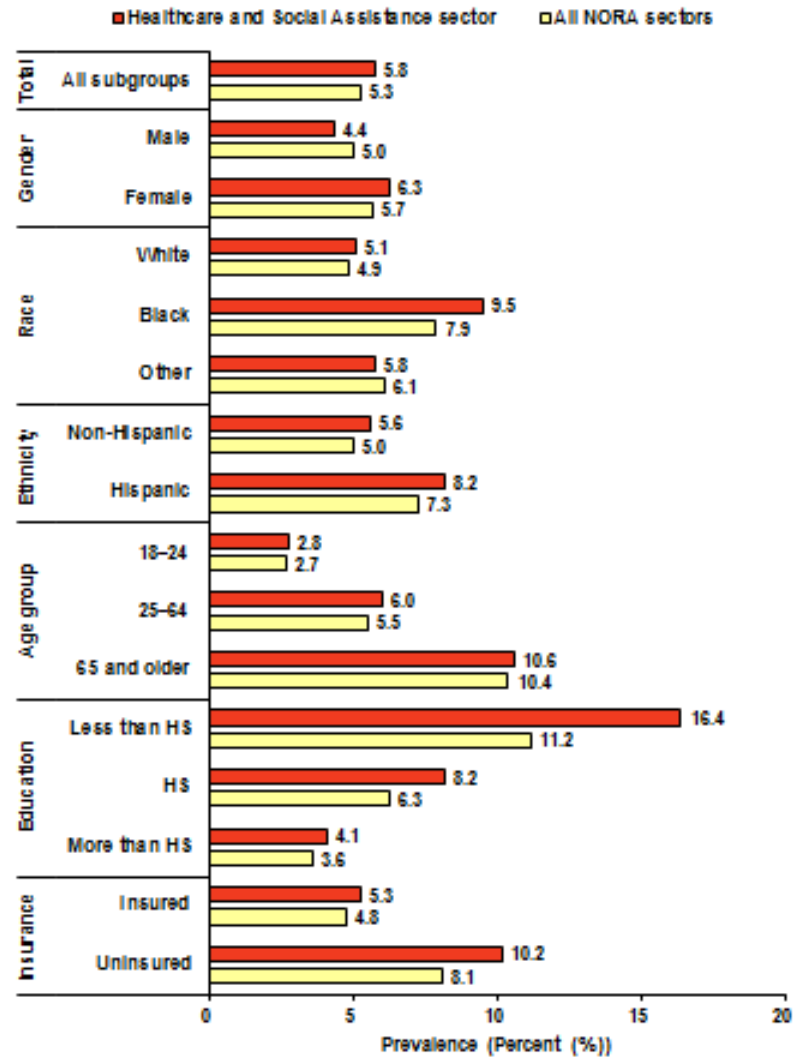
Outcomes, NHIS 1997-2007: Health Status

- ❑ **Reported decline in health (vs. 12 months ago)**
- ❑ **Fair or poor self-rated health**
- ❑ **Bed disability days (past 12 months)**
 - Mean number
 - % with ≥ 2
- ❑ **Work loss days**
 - Mean number
 - % with ≥ 6

Prevalence of fair or poor self-rated health status estimated for workers 18 years and older by NORA sectors, National Health Interview Survey, 1997–2007



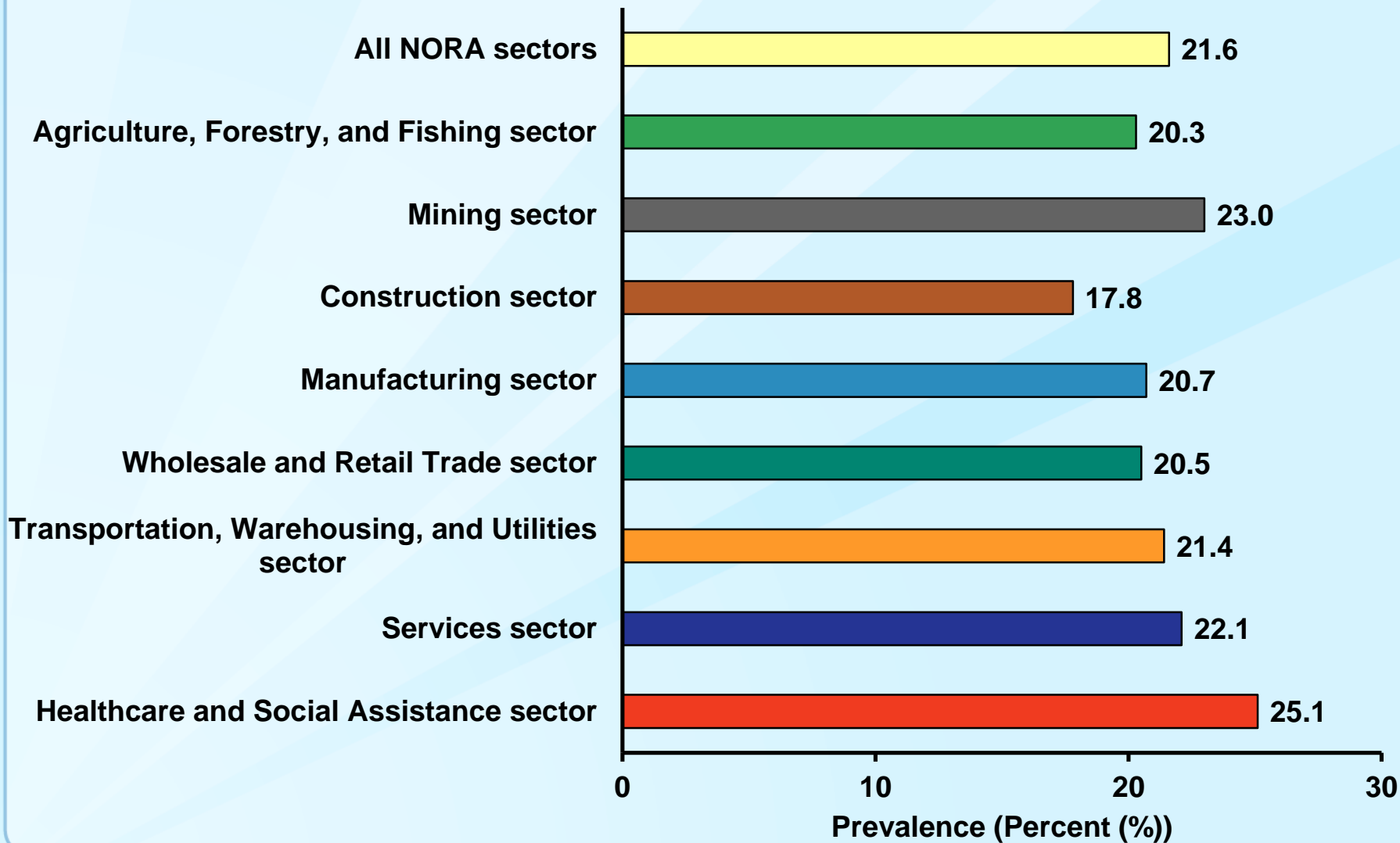
Prevalence of fair or poor self-rated health status estimated for workers 18 years and older



Outcomes, NHIS 1997-2007: Physical Activity Limitations

- ❑ Health problems requiring use of special equipment**
- ❑ Any functional limitations**
- ❑ Hearing difficulty**
- ❑ Visual impairment**

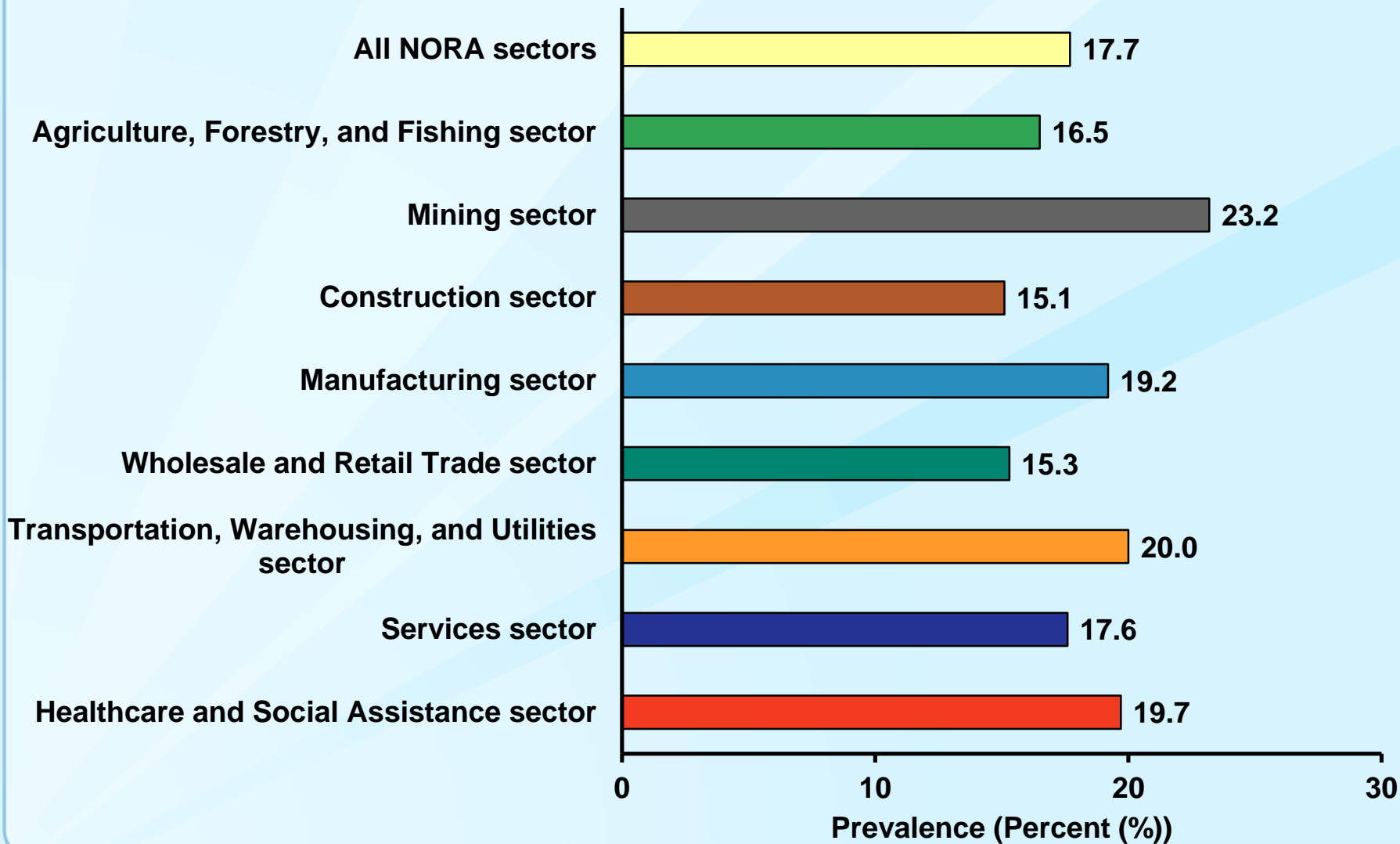
Prevalence of any functional limitations estimated for workers 18 years and older by NORA sectors, National Health Interview Survey, 1997–2007



Outcomes, NHIS 1997-2007: Health and Chronic Conditions

- ❑ Cancer**
- ❑ Hypertension**
- ❑ Heart disease**
- ❑ Asthma**
- ❑ Diabetes**
- ❑ Severe psychological distress**

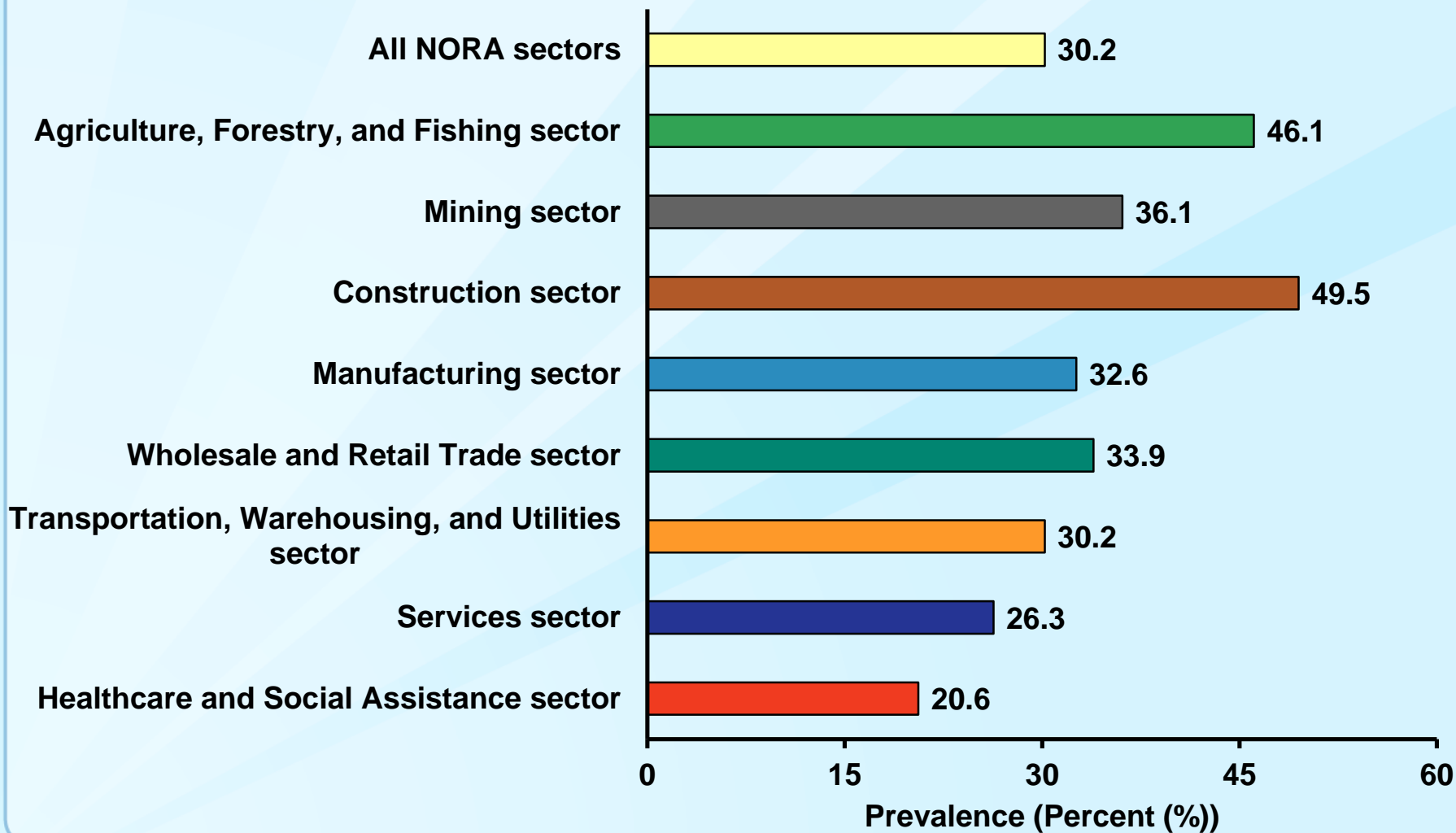
Prevalence of hypertension estimated for workers 18 years and older by NORA sectors, National Health Interview Survey, 1997–2007



Outcomes, NHIS 1997-2007: Health Care Utilization (past 12 months)

- ❑ No visit to primary care provider**
- ❑ No contact with dentist**
- ❑ Surgery**
- ❑ Hospital emergency room visit**

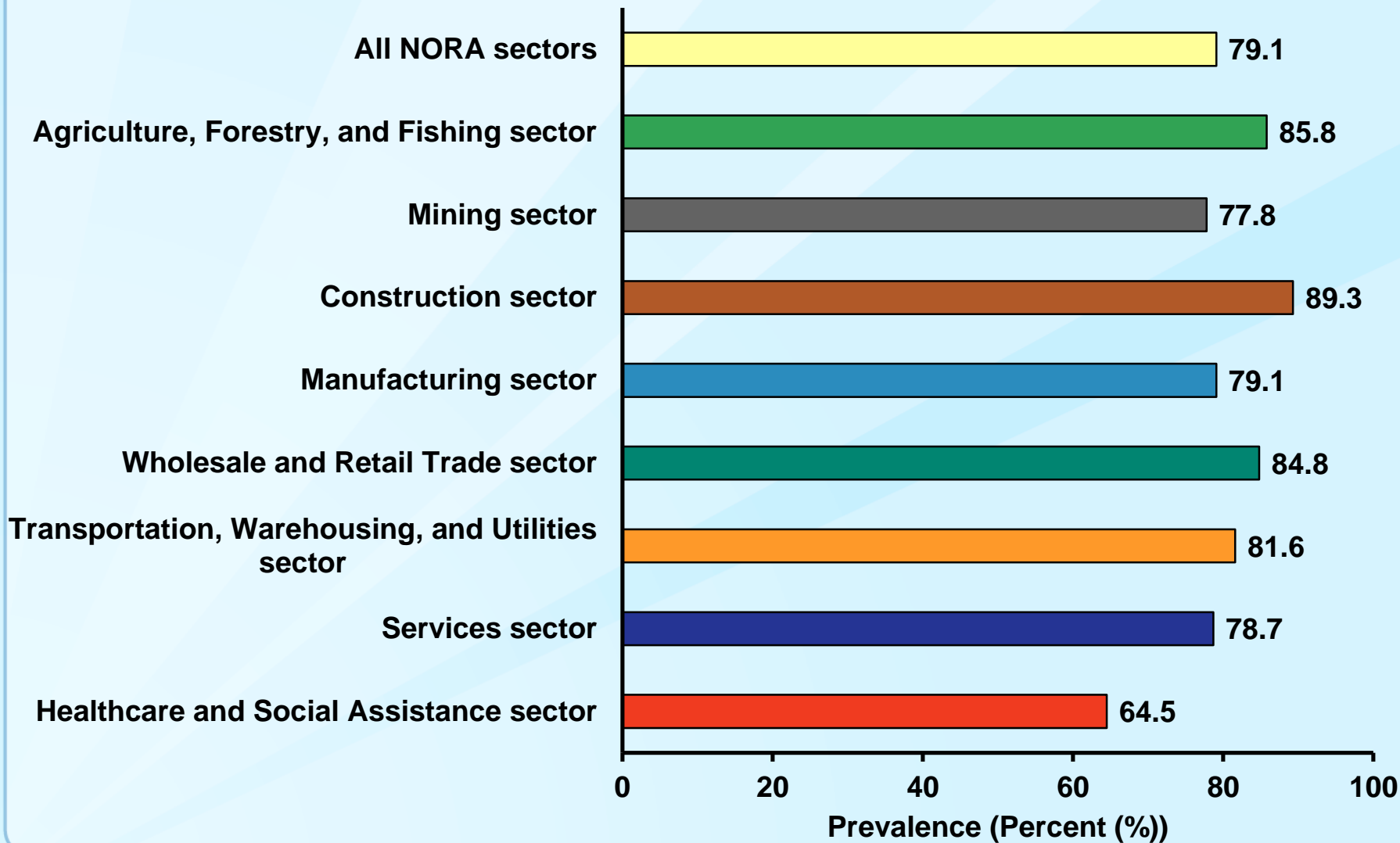
Prevalence of not having seen a primary health care provider during the past 12 months estimated for workers 18 years and older by NORA sectors, National Health Interview Survey, 1997–2007



Outcomes, NHIS 1997-2007: Health Risk Factors or Behaviors

- ❑ Current smokers**
- ❑ Current alcohol drinkers**
- ❑ Obesity**
- ❑ Meeting CDC recommendations for leisure time physical activity**
- ❑ Lifetime HIV test**
- ❑ No influenza vaccination (past 12 months)**
- ❑ No pneumococcal vaccination (ever, among those ≥ 60)**

Prevalence of not receiving an influenza vaccination during the past 12 months estimated for workers 18 years and older by NORA sectors, 1997–2007





OCCUPATIONAL HEALTH SUPPLEMENT

NATIONAL HEALTH INTERVIEW SURVEY

Purpose:

To collect information on the prevalence and correlates of work-related health conditions and exposures in the US working population

- Beyond what is available from the core NHIS questions**

Content of the 2010 NHIS-OHS

- ❑ **Supplemental work history**
 - Current/most recent job
 - Longest-held job

- ❑ **Work organization factors**
 - Work arrangements
 - Work hours/shifts

- ❑ **Psychosocial occupational exposures**
 - Job insecurity
 - Work-family imbalance
 - Hostile work environment (harassment)

Content of the 2010 NHIS-OHS (cont.)

- ❑ **Physical/chemical occupational exposures**
 - Potential skin hazards
 - Outdoor work
 - Second-hand smoke
 - Vapors, gas, dust, or fumes

- ❑ **Work-relatedness of common health outcomes**
 - Asthma
 - Dermatitis
 - Carpal tunnel syndrome
 - Injuries

NIOSH Publications Based on 2010 NHIS-OHS

❑ *American Journal of Industrial Medicine (online)*

- Luckhaupt et al. Prevalence and work-relatedness of **carpal tunnel syndrome** in the working population, United States, 2010...
- Luckhaupt et al. Prevalence of **dermatitis** in the working population, United States, 2010 National Health Interview Survey.
- Calvert et al. The prevalence of selected **potentially hazardous workplace exposures** in the US...
- Alterman et al. Prevalence rates of **work organization exposures** among workers in the U.S...
- Alterman et al. **Job insecurity, work-family imbalance, and hostile work environment**: prevalence data from the 2010 National Health Interview Survey

NIOSH Publications Based on 2010 NHIS-OHS

❑ *Morbidity and Mortality Weekly Report*

- **Short sleep duration** among workers—United States, 2010. MMWR 2012;61; 281-285.
- QuickStats: Percentage of employed adults aged 18-64 years who had **carpal tunnel syndrome** in the past 12 months, by sex and age group. MMWR 2011; 60;1680.
- QuickStats: Percentage of employed adults aged 18-64 years with **current asthma, skin condition, or carpal tunnel syndrome** who were told their condition was **work-related**, by sex. MMWR 2011;60; 1712.

❑ **Other**

- Mazurek JM, Storey E. Physician-patient communication regarding **asthma** and work. Am J Prev Med. 2012 Jul;43(1):72-5.
- Tsai, Rebecca. **Shift Work and Cancer Screening: Do Women Who Work Alternative Shifts Undergo Recommended Cancer Screening. Poster #15**

NORA Sector Profiles Based on 2010 NHIS-OHS

(currently under review)

- ❑ **Will be available online**
- ❑ **13 profiles break sectors down by industry subsector and/or occupational category**
 - Charts and tables for 16 outcomes
- ❑ **One profile compares all sectors**
 - Includes some additional outcomes

Sample Sizes for 2010 NHIS-OHS Sector Profiles

US workers (employed in past 12 months) by NORA Sector, 2010

NORA Sectors	# in NHIS Sample	Estimated Population Represented by Sample	% of US Workforce
Agriculture, Forestry & Fishing Sector	269	2,307,864	1.51
Construction Sector	1,115	10,639,327	6.95
Healthcare & Social Assistance Sector	2,478	20,520,877	13.41
Manufacturing Sector	1,590	14,555,583	9.51
Mining and Oil and Gas Extraction Sectors	75	720,938	0.47
Public Safety Sector	204	1,771,159	1.16
Services Sector	8,467	73,941,622	48.33
Transportation, Warehousing & Utilities Sector	854	7,638,934	4.99
Wholesale and Retail Trade Sector	2,191	20,994,763	13.72
Total	17,227	152,978,419	100

Notes:

1. All sectors were defined by industry codes, except for Public Safety, which was defined by occupation codes. Public Safety workers in Service industries (n=188) are excluded from the Services Sector estimates; but, Public Safety workers in other industries are included in the estimates for those industry sectors in addition to being included in the Public Safety Sector estimates.
2. The Mining and Oil and Gas Extraction Sectors were combined due to small sample sizes.

Sample Results from 2010 NHIS-OHS By NORA Sector

Figure 8. Prevalence of non-standard shifts among U.S. adults who worked in the past 12 months by NORA sector, 2010

*NHIS Question: Which of the following best describes the hours you usually [work/worked]?
(Non-standard shift = a regular evening shift; a regular night shift; a rotating shift; or some other schedule not including a regular daytime schedule)*

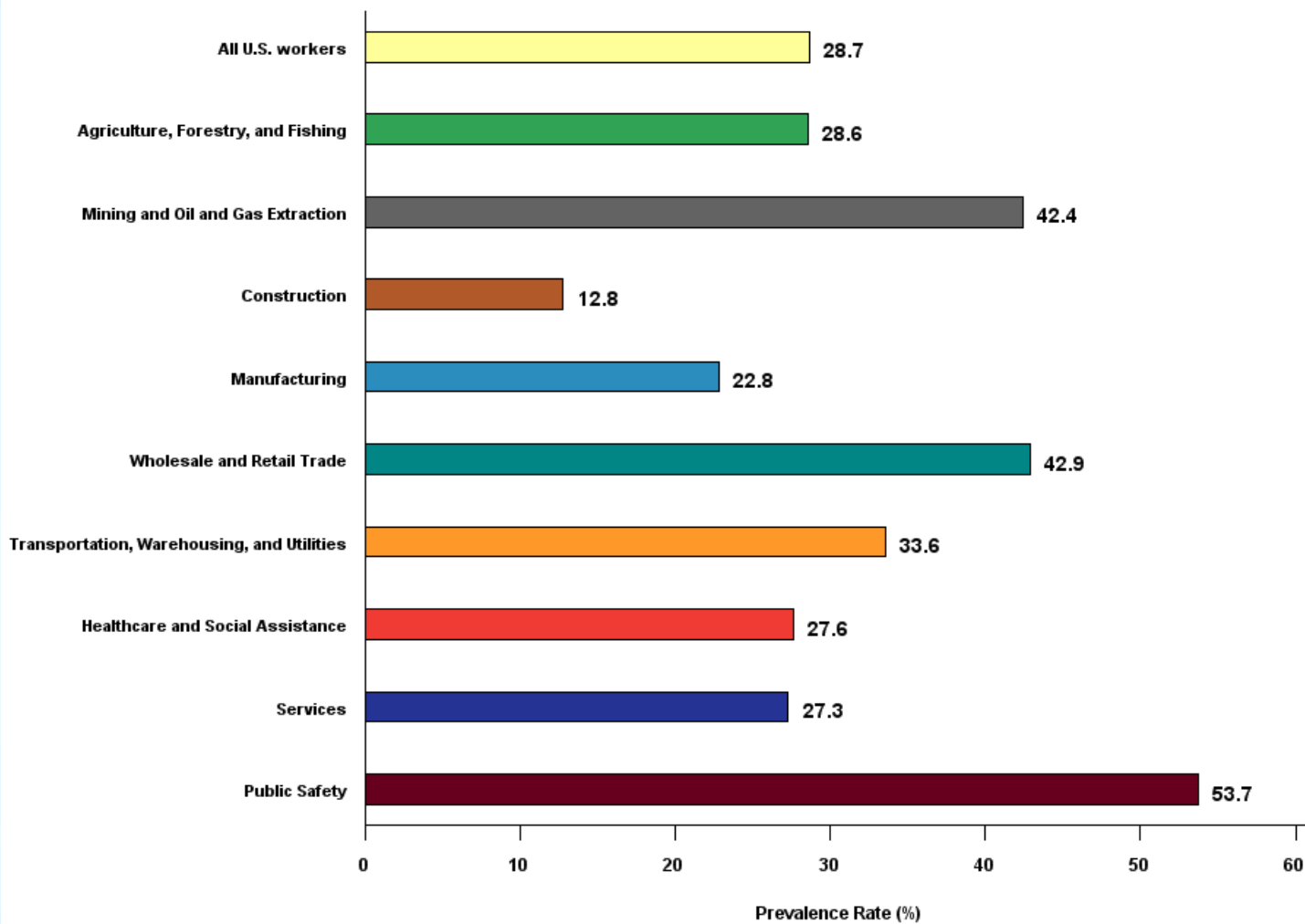
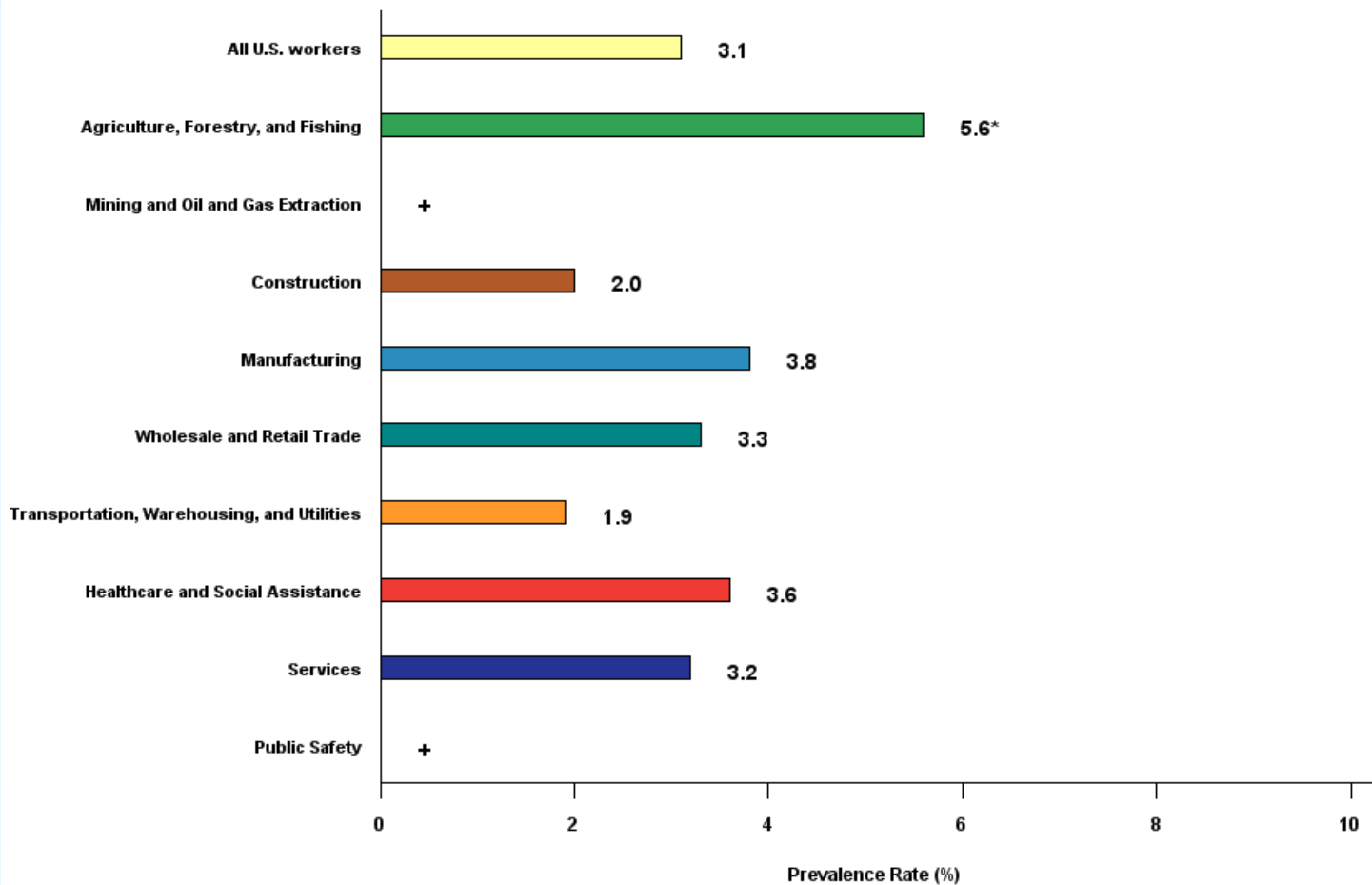


Figure 3a. Prevalence of carpal tunnel syndrome in the past 12 months among U.S. adults who worked in the past 12 months by NORA sector, 2010

NHIS Question: Have you ever been told by a doctor or other health professional that you have a condition affecting the wrist/hand called carpal tunnel syndrome? During the past 12 months, have you had carpal tunnel syndrome?

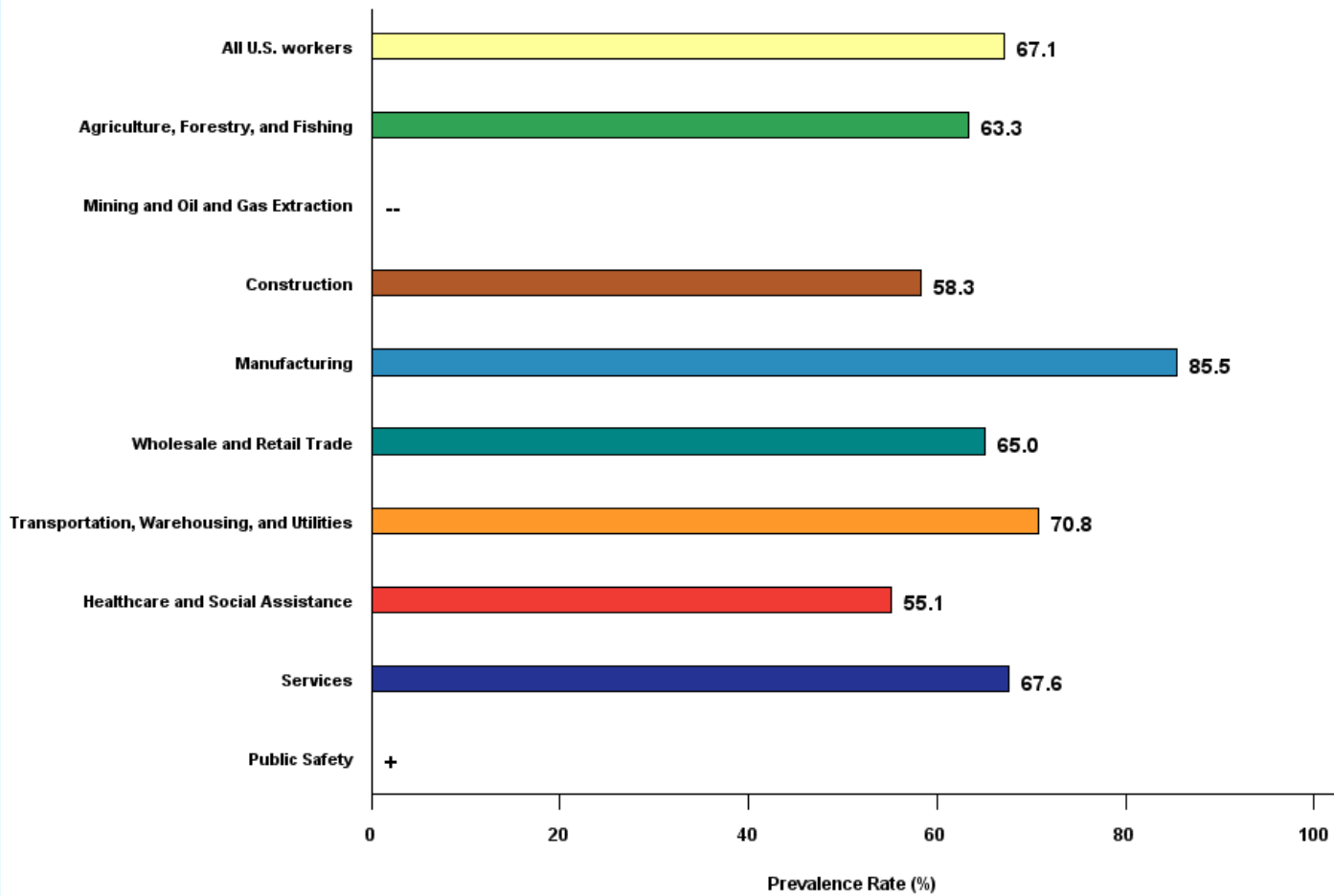


* These estimates have a relative standard error >30% and <50% and should be used with caution as they do not meet NCHS reliability/precision standards.

+ Estimates with a relative standard error >50% are not shown as they do not meet NCHS reliability/precision standards.

Figure 3b. Proportion of carpal tunnel syndrome cases attributed to work by a healthcare professional among U.S. adults who worked in the past 12 months by NORA sector, 2010

NHIS Question: Have you been told by a doctor or other health professional that your carpal tunnel syndrome was probably work-related?



+ Estimates with a relative standard error >50% are not shown as they do not meet NCHS reliability/precision standards.

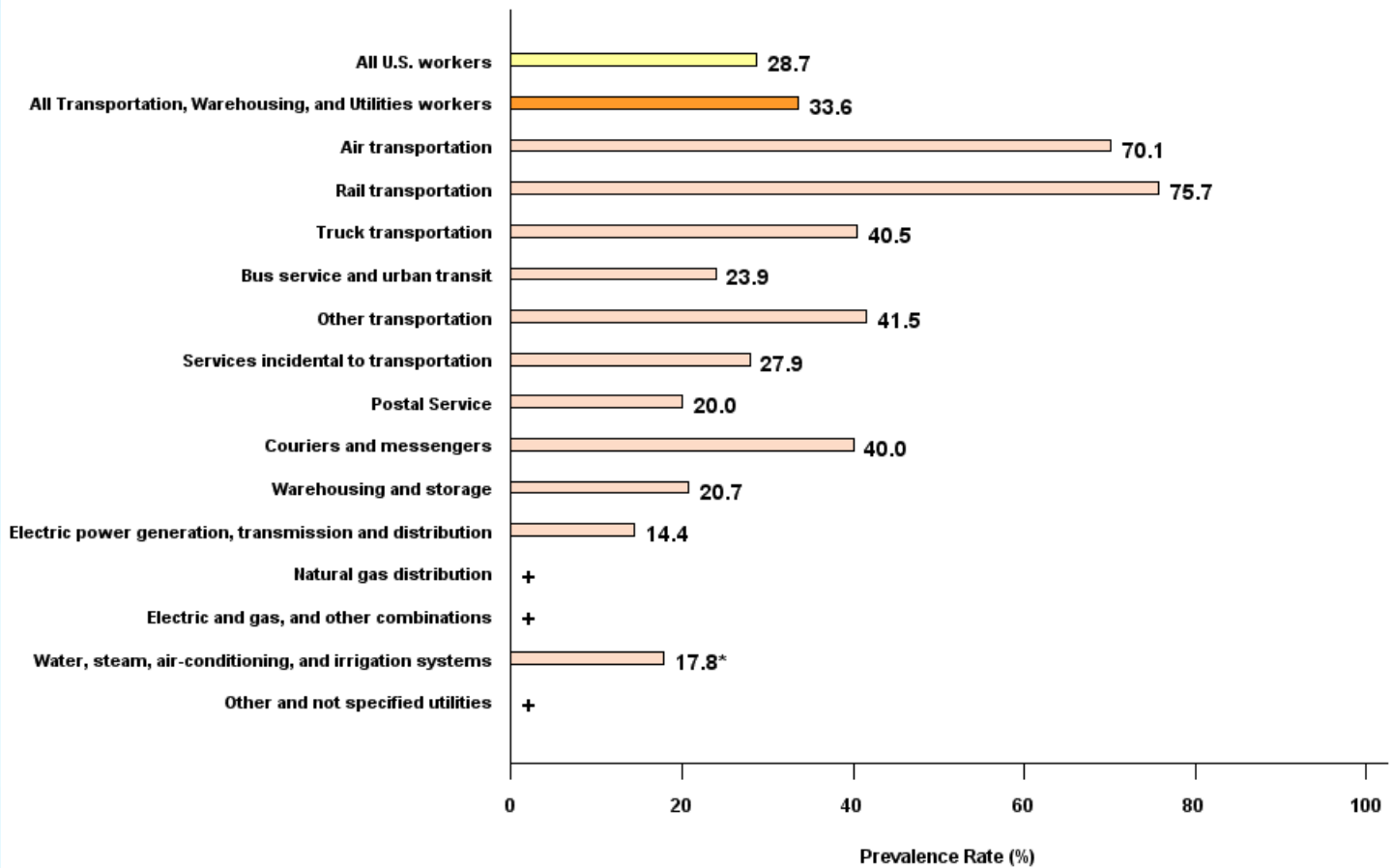
-- No cases detected, likely due to insufficient sample size.

Sample Results from 2010 NHIS-OHS By Industry Subsector

Transportation, Warehousing, and Utilities

Figure 8. Prevalence of non-standard shifts among U.S. adults who worked in the past 12 months by Transportation, Warehousing, and Utilities subsector, 2010

*NHIS Question: Which of the following best describes the hours you usually [work/worked]?
(Non-standard shift = a regular evening shift; a regular night shift; a rotating shift; or some other schedule not including a regular daytime schedule)*

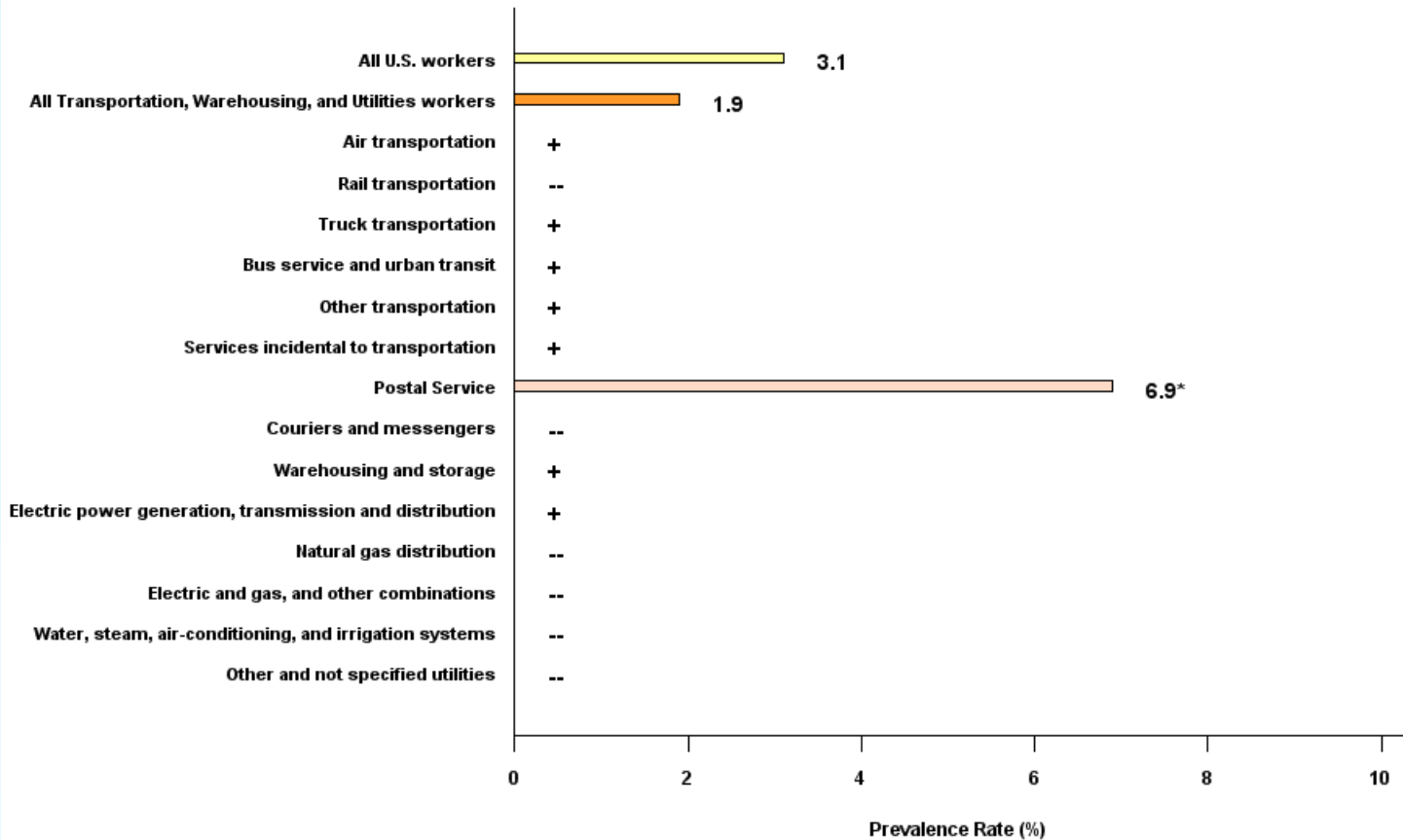


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Figure 3. Prevalence of carpal tunnel syndrome in the past 12 months among U.S. adults who worked in the past 12 months by Transportation, Warehousing, and Utilities subsector, 2010

NHIS Question: Have you ever been told by a doctor or other health professional that you have a condition affecting the wrist/hand called carpal tunnel syndrome? During the past 12 months, have you had carpal tunnel syndrome?



* These estimates have a relative standard error >30% and <50% and should be used with caution as they do not meet NCHS reliability/precision standards.

+ Estimates with a relative standard error >50% are not shown as they do not meet NCHS reliability/precision standards.

-- No cases detected, likely due to insufficient sample size.

Accessing and Analyzing NHIS Data

❑ Public dataset available on NCHS website

- http://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm
- Multiple files for each year: Household, Family, Person, Sample Adult, Sample Child
- Extensive survey documentation and sample programs available

❑ Complex sample design requires special analytic procedures

- E.g., SAS survey procedures, SUDAAN

❑ NHIS data also available through the Integrated Health Interview Series (IHIS) website

- Created by University of Minnesota: <http://www.ihis.us/ihis/>
- Facilitates creation of multi-year data files
- Some online analytic capability

Conclusions:

Implications for Total Worker Health™

- ❑ **Published estimates from the NHIS can be used to:**
 - Estimate the burden of morbidity, disability, and specific health conditions among US workers
 - Prioritize limited public resources for occupational health
 - Prioritize industrywide interventions
- ❑ **NHIS data are publicly available for researchers or employers to:**
 - Calculate other national estimates of interest
- ❑ **Including NHIS questions in workplace surveys allows researchers and employers to:**
 - Benchmark the health of their study population/ workers against NHIS national estimates

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