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## Occupational Injuries among U.S. Correctional Officers, 1999–2008<sup>★</sup>

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### Abstract

**Objective**—This study describes fatal and nonfatal occupational injuries among U.S. correctional officers.

**Methods**—Fatal injuries were obtained from the Census of Fatal Occupational Injuries; nonfatal injuries were identified from the National Electronic Injury Surveillance System- Occupational Supplement.

**Results**—From 1999–2008, there were 113 fatalities and an estimated 125,200 (CI=±70,100) nonfatal injuries were treated in emergency departments. Assaults and violent acts (n = 45, 40%) and transportation related fatalities (n = 45, 40%) were the two primary fatal injury events. Assaults and violent acts (n = 47,500 (CI = ±24,500), 38%) and bodily reaction and exertion (n = 25,400 (CI = ± 16,800), 20%) were the leading events resulting in nonfatal injuries.

**Conclusions**—While workplace violence is the primary cause of both fatal and nonfatal injuries among correctional officers, transportation events and bodily reactions are also leading causes of occupational injury. Future research is needed to identify risk factors unique to these events and develop appropriate prevention and intervention efforts.

**Impact on Industry**—This study adds to the literature on occupational injuries among correctional officers and provides a national level description of fatal and nonfatal injuries across a 10-year period. Given that assaults and violent acts, transportation events, and bodily reaction and exertion were significant injury events, future research should describe detailed injury circumstances and risk factors for correctional officers unique to these events. This would allow appropriate prevention and control efforts to be developed to reduce injuries from these events.

<sup>★</sup>The findings and conclusions in this report have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy.

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#### Disclosure statement

Authors declare that there is no conflict of interest including any financial, personal or other relationships regarding the material discussed in this study.

## Keywords

Prison guard; Correctional officers; Fatal; Nonfatal; Violence

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## 1. Introduction

Because of the nature of their work, correctional officers are exposed to unique occupational hazards and are at significant risk for injuries and illnesses. According to the Bureau of Labor Statistics (BLS), in 2009 correctional officers had one of the highest days away from work (DAFW) nonfatal injury rates (445.6 per 10,000 full-time workers) among all occupations (117.2 per 10,000 full-time workers; BLS, 2010a). In 2008 and 2009, correctional officers incurred the highest number of injuries that resulted in DAFW among all state government employees (BLS, 2010a, 2010b). Prison is a controlled environment and occupational injuries are often the result of assaults by inmates or restraining an inmate during a fight (BLS, 2009b). According to the Bureau of Prisons (BOP, 2009), there were 1,902 inmate initiated work-place assaults reported by federal prison officers in 2009.

In recent years, increasing job demands have been placed on correctional officers due to a rapidly increasing prison population, staffing shortages, and a high turnover rate (Hessl, 2001; Swenson, Waseleski, & Hartl, 2008). From 2000 to 2005, the number of inmates in state and federal facilities rose by 10%, while the number of correctional employees rose by only 3% (Bureau of Justice Statistics [BJS], 2011). While work-related stress and the mental health of correctional officers have been the subject of considerable attention, occupational safety has been relatively ignored. In 2009, the National Public Safety Agenda, which is part of the National Occupational Research Agenda (NORA) for occupational safety and health research and practice in the United States, recognized that there is a significant lack of information on the magnitude and characteristics of occupational injuries to correctional officers (NORA, 2009). Therefore, the purpose of this research was to describe fatal and nonfatal occupational injuries occurring to U.S. correctional officers over a 10-year period. To the authors' best knowledge, this study provides the first national profile of work-related fatal and nonfatal injuries to correctional officers.

## 2. Materials and methods

### 2.1. Data sources

Data on occupational fatalities occurring to U.S. civilian correctional officers between 1999 and 2008 were obtained from the BLS Census of Fatal Occupational Injuries (CFOI). CFOI captures fatalities occurring to non-institutionalized workers who were engaged in a legal work activity or present at a site as a job requirement at the time of the incident. CFOI includes fatalities occurring to paid and volunteer workers and obtains data from all 50 states and the District of Columbia. Data for CFOI are collected from various federal, state, and local source documents, such as death certificates, workers' compensation reports, Occupational Safety and Health Administration (OSHA) investigation reports, medical examiner reports, news media, and police reports. At least two source documents are required to confirm that the fatality was work-related.<sup>1</sup>

Nonfatal occupational injuries<sup>2</sup> occurring to civilian correctional officers were obtained from the National Electronic Injury Surveillance System occupational injury supplement (NEISS-Work). NEISS-Work data are obtained from a national stratified probability sample of 67 hospitals with 24-hour emergency departments (EDs). These hospitals were selected from the approximately 5,300 rural and urban hospitals after stratification by total number of ED visits (Marsh, Derk, & Jackson, 2006). An injury is considered work-related if it occurred to a civilian, non-institutionalized worker who was working for pay or other compensation, working on a farm or performing farm-related activities, or volunteering for an organized group. Cases are identified from ED medical charts and coded by trained personnel at each participating hospital. Each case is assigned a statistical weight based on the treating hospital's probability of selection in the sample. NEISS-Work data include demographics, a short narrative description of the injury event, occupation, business type, business name, source of injury, injury event, nature of injury, body part injured, medical diagnosis, and disposition from the ED.<sup>3</sup> The injury source and event are coded using the Occupational Injury and Illness Classification System (OIICS; BLS, 1992b).

## 2.2. Case identification

CFOI used occupational codes from the 1990 Bureau of Census Occupation (BOC) codes from 1992 to 2002 (U.S. Census Bureau, 1992) and the 2002 Standard Occupational Classification (SOC) from 2003 to 2008 (OMB, 2000). The 1990 BOC codes used to identify correctional officers were 'Correctional Institution Officers' (424) and 'Supervisors & Guards of Correctional Institution Officers' (415). Starting in 2003, correctional officers were identified by the SOC codes of 'First-line Supervisors/Managers of Correctional Officers' (33-1011) and 'Correctional Officers & Jailers' (33-3012). Identification of correctional officers was not affected by the change in occupational coding systems.

Cases of nonfatal injuries to correctional officers were identified using a stepwise process to search the NEISS-Work text fields describing industry, occupation, and injury incident for keywords related to correctional officers. All cases were manually reviewed to confirm they were correctional officers. Cases were classified as correctional officers with certainty if the occupation was listed as correctional officer, detention officer, prison guard, or jailor. If the industry was listed as correctional facility or law enforcement (excluding police) and the occupation was questionable or not reported, the work activity at the time of the injury was examined. Those cases engaged in work activities considered relatively unique to corrections officers such as supervision of inmates, restraint of inmates, altercations with inmates, on-the-job training exercises, contraband searches, opening and closing of cell doors, and inmate transport were included as correctional officers. All questionable cases were reviewed by two additional researchers. Only cases that were assuredly identified as correctional officers remained in the final dataset. We identified 2,300 unweighted potential

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<sup>1</sup>More information on CFOI can be found at <http://www.bls.gov/iif/oshcfoil.htm>.

<sup>2</sup>NEISS-Work collect data on all work-related injuries and illnesses treated in an emergency department (ED). The majority (90–95%) of NEISS-Work cases are injuries. Thus, further reference to cases in this article will simply be referred to as injuries. However, this analysis does not include illnesses.

<sup>3</sup>More information on NEISS-Work can be found at <http://www2.cdc.gov/risqs/wrtechinfo.asp#WorkerPopulation>.

correctional officer cases for review. Of those, 1,700 cases were identified as correctional officers and included in the final dataset for analysis.

### 2.3. Statistical analysis

Fatal and nonfatal injury rates were calculated using denominator data from two BLS population surveys: the Occupational Employment Statistics survey (OES) and the Current Population Survey (CPS). The OES is a survey of nearly 140,000 businesses and government agencies conducted by BLS (BLS, 1992a, 1992c). The occupation field in OES is coded with detailed SOC codes, providing an estimate of the number of correctional officers without the inclusion of other occupations such as bailiffs. OES data were used to estimate the number of correctional officers. The CPS is a national monthly household survey of approximately 50,000 non-institutionalized residents aged 15 years and older that provides information on their current employment, including occupation, industry, hours of work, and a variety of other work-related characteristics (BLS, 1992c). The CPS provides information on the number of workers and full-time equivalent (FTE) workers (1 FTE = 2,000 hours per year) based on BOC occupation codes. FTE estimates included hours worked in correctional officer related occupations for primary and secondary jobs (i.e., included full- and part-time workers in first or second jobs). Starting in 2003, the CPS included bailiffs, correctional officers, and jailers in a single occupation group (i.e., BOC code 3800; Census Bureau, 2003). To get labor estimates exclusively for correctional officers and jailers, the CPS data were reduced by 4.1% (i.e., the average proportion of bailers within the occupation group (BOC code 3800) as derived from OES for 2003–2008). Variances for the CPS labor estimates were calculated as specified in BLS Employment and Earnings (BLS, 1999).

Fatality rates were calculated as the number of fatalities divided by the estimated number of workers or FTE and expressed per 100,000 workers or FTE per year. The 95% confidence intervals (95% CI) were calculated accounting for the variance in the CPS estimates.

Nonfatal injury rates were calculated as the estimated number of nonfatal injuries divided by the estimated number of workers or FTE and expressed per 100 workers or FTE per year. National nonfatal injury estimates were obtained by summing the adjusted statistical weights assigned to each case. The 95% CI were calculated accounting for the stratified nature of the sample design of NEISS. The 95% CI for nonfatal injury rates were calculated by pooling the variances for the NEISS-Work injury data and the CPS data. Analyses were performed using SAS, version 9.2.

## 3. Results

### 3.1. Fatal occupational injuries

From 1999 to 2008, there were 113 occupational fatalities among civilian correctional officers, for a fatality rate of 2.7 per 100,000 FTE per year (95% CI =  $\pm 0.8$ ; Table 1). Eleven occupational fatalities were reported on average per year. The majority of fatalities occurred to male correctional officers (n = 100, 89%) (Table 2). More than half of the fatal occupational injuries occurred to those between 35 and 54 years of age (n = 58, 51%). Most fatalities were related to transportation related incidents (n = 45, 40%) and assault and

violent acts (n = 45, 40%; Table 3). Among these intentional fatalities, the majority of fatalities were the result of workplace homicide (n = 28, 62%) and 17 were suicides by self-inflicted gunshot wounds (38%). Of the homicides, the majority of correctional officers were killed by inmates (n = 18). The remaining 10 homicides were committed by either coworkers, strangers, or personal relations of the correctional officer.

### 3.2. Nonfatal occupational injuries

From 1999–2008, an estimated 125,200 (95% CI =  $\pm 70,100$ ) nonfatal occupational injuries were treated in EDs for a rate of 3.0 (95% CI =  $\pm 1.9$ ) per 100 FTE (Table 1). Approximately 96% of correctional officers were treated and released from the ED. Seventy-three percent of injuries occurred to male correctional officers (Table 4). More than half of the injuries occurred to those 35 years and older (54%). Assaults and violent acts (38%) were the leading nonfatal injury events, followed by bodily reaction<sup>4</sup> and exertion (20%; Table 5). The primary source of injuries was the major source category of person, plants, animals, and minerals (53%). Of these, the largest portion of injuries was associated with interaction with another person (66%). The remaining sources of injury were from insects, infectious and parasitic agents, and bodily condition or position<sup>5</sup> of the injured correctional officer. Nearly one-third of nonfatal injuries occurred to upper extremities (30%); 63% of these injuries affected the hand and fingers (Table 5). Correctional officers were most commonly treated for sprains and strains (30%) and contusions and abrasions (28%). Sprains and strains were most often related to overexertion and body reaction that occurred while responding to inmate-related incidents such as restraining an inmate or breaking up a fight.

## 4. Discussion

In the current study, it was shown that assault and violent acts were the leading occupational injury events for correctional officers. These findings mirror that of the recent BLS Survey of Occupational Injuries and Illnesses (SOII) that reported assaults and violent acts as one of the leading events of injuries (22%) among correctional officers (BLS, 2010b). In our analysis, more than one-third of these injuries occurred while restraining or interacting with an inmate during a fight (37%). The nature of the job of correctional officers puts them at significant risk for intentional violent injury. Correctional officers may be required to work alone, work late at night, have close contact with inmates, and work unarmed (Kraus, 1987; Lincoln, Chen, Mair, Biermann, & Baker, 2006). Institutional factors such as inmate overcrowding, inadequate officer training, inmate gangs, and staffing shortages also contribute to this increased risk (BOP, 2011; Light, 1990). In addition, inmates devise dangerous weapons from innocuous items including toothbrushes, padlocks, disposable razors, and hairbrushes for the purpose of assaulting correctional staff (Lincoln et al., 2006).

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<sup>4</sup>Bodily reaction refers to non-impact injuries, generally includes slips and trips without a fall, resulted from free bodily motion, from excessive physical effort, from repetition of a bodily motion, from an unnatural position, or from remaining in the same position over a period of time.

<sup>5</sup>Bodily condition or position of injured source group classifies physical, mental, or emotional conditions such as unexplained fainting; stress or strains induced by a free movement of the body or its body parts. This group is also used for coding awkward or sustained positions of the injured worker.

Our study demonstrated that transportation related fatalities were as prevalent as intentional fatalities among U.S. correctional officers. Correctional officers transport inmates to and from correctional facilities, hospitals, and court appearances. Our analyses revealed that transportation related fatalities among correctional officers most often occurred on state highways and local roads. In previous studies, factors such as seatbelt use, fatigue, and unsafe driving speed were attributed to motor-vehicle crashes; however, CFOI does not collect data on these type of factors and the narrative text associated with each fatality is limited (Centers for Disease Control and Prevention [CDC], 1999, 2003). Further research should be conducted to examine occupational risk factors for transportation related fatalities among correctional officers.

We found that more than one-third of violence events involved suicides. Results from a previous study indicated that correctional officers have a 39% higher risk for suicide than the average working population (Stack & Tsoudis, 1997). According to a New Jersey Police Task Force report on suicides, from 2003 through 2007, New Jersey correctional officers had more than two times higher suicide rate (34.8 per 100,000) than police officers (15.1 per 100,000) and the general population (14.0 per 100,000; New Jersey Police Task Force Report, 2009). Several studies have shown that work-related stress, anxiety, and frustration are high among correctional officers. Factors contributing to these issues include shift work, job dissatisfaction, closed work environment, and the pressure of dealing with incarcerated criminals (Swenson et al., 2008; Hessler, 2001; Cullen, Link, Cullen, & Wolfe, 1989; Morse, Dussetschleger, Warren, & Cherniack, 2011). In the present study, the number of suicides primarily represents those occurring in the workplace. If source documentation clearly states a work relationship, CFOI may include suicides occurring outside of the workplace or not on work time. However, such case determinations are very difficult and not usually captured as work-related. Thus, CFOI suicide counts are not representative of all work-related suicides (BLS, 2009a). Previous literature on suicides indicated that the majority of suicides occur at home (Violanti, 1996). It was found that job stress does not end with the work shift and it is carried to home (Morse et al., 2011). Thus, the number presented in this study is likely an underestimate of the true number. Job stress issues are linked to health behaviors, psychological disorders, as well as suicides. (CDC, 1999) However, further research is needed to understand a relationship between job stress and suicides among correctional officers.

According to the Bureau of Justice Statistics, approximately 95% of correctional officers are employed in the public sector (BJS, 2008). Historically, the BLS collected injury and illness data through SOII for selected states only. Beginning in 2008, the BLS reported national level data for public sector workers, including correctional officers in state and local governments (Brown, 2011). In 2008, the BLS reported an estimated 18,650 nonfatal injuries involving DAFW occurred to correctional officers (BLS, 2010b). As the BLS did not report public sector correctional officer injury rates for that year, we calculated the 2008 nonfatal injury rate as 4.4 per 100 FTE for correctional officers involving DAFW, using the CPS labor force estimate as a denominator. The NEISS-work nonfatal injury rate was 2.8–3.0 per 100 FTE or workers. According to the 1988 National Health Interview Survey Occupational Supplement, occupational injuries treated in EDs represented about one-third (34%) of all occupational injuries (CDC, 1998). To get a better idea of the overall injury rate

among correctional officers, we extrapolated the rate assuming that this proportion of ED-treated occupational injuries is not changing over time. The overall rate of national nonfatal occupational injury rate for correctional officers would be approximately 8.2–8.8 per 100 workers or FTE depending upon the source and type of labor force estimate used. This extrapolated rate includes work-related injuries requiring medical treatment or resulting in more than one day of lost work time.

Our data indicate that 73% of nonfatal occupational injuries occurred to male correctional officers and 27% injuries occurred to female correctional officers. Similarly, in 2008 SOII data reported that 70% male correctional officers and 30% female correctional officers experienced nonfatal injuries resulting in DAFW. We have estimated that more than half (54%) of injuries occurred to 34 years and older correctional officers. In 2008 SOII data reported that 62% of injuries incurred among 34 years and older correctional officers (BLS, 2010b). According to BJS, in 2005 the overall percentages of male and female correctional officers working in state or federal correctional facilities are 75% and 25% (BJS, 2008). Assuming that this proportion is the same during the 10-year period, the risk for nonfatal injury is slightly higher among female correctional officers as compared to male correctional officers; whereas male correctional officers (89%) have an increased risk for death as compared to female correctional officers (11%). We were unable to calculate fatal and nonfatal injury rates by socio-demographic characteristics using BLS labor force, because starting from year 2003 bailiffs and correctional officers were included in a single occupation group and knowledge of proportion of correctional officers by socio-demographic characteristics in that occupation group is unknown (i.e., BOC code 3800; Census Bureau, 2003).

While assault and violent acts were major events associated with fatal and nonfatal injuries among correctional officers, this study also demonstrated that correctional officers were at risk for nonfatal injury due to bodily reaction and exertion. Similarly, in 2008 the SOII data reported that approximately 12% of injuries resulting in DAFW were due to bodily reaction and exertion for correctional officers. We also found sprains and strains (30%) and contusions and abrasions (28%) were leading nonfatal injury diagnoses among correctional officers. Similarly, the SOII indicated that the leading injury diagnoses in 2008 were sprains, strains and tears (39%) and contusions and bruises (14%) for correctional officers (BLS, 2010b).

All departments of corrections provide training to correctional officers in state correction's training academies including self-defense skills, personal safety, and tactical responses during disturbances, riots, and hostage situations. Training in academies is based on the guidelines established by the American Correctional Association and the American Jail Association. In addition, all correctional facilities provide on-the-job training. However, on-the-job training is inconsistent from facility to facility (BLS, 2009b). To our knowledge, there is no research study evaluating the effectiveness of training and interventions in reducing the risk of injuries among correctional officers.

The case capture for NEISS-Work and SOII do not represent a complete count of correctional officers for reasons unique to each system. The NEISS-Work estimates are

underestimates due to cases with sparse details in the narrative text that would not allow for correctional officers case identification with certainty. In our case identification process we reviewed 2,300 unweighted cases. Of those, 600 cases were within the corrections industry, but lacked occupational information or detail regarding their activity at the time of the injury that is considered unique to correctional officers. For example, “Prison employee strained back when at work” or “Patient fractured knee when he fell on steps at work in prison.” Nearly two-thirds of workers in the corrections industry are correctional officers (BJS, 2008) and there is a strong likelihood that there were additional cases of correctional officers within these 600 cases. However, with no ability to make positive case confirmations, these cases were not included in the final data analysis. The SOII data excludes injuries to federal government employees. Therefore, it omits portion of injuries occurring to correctional officers working in federal correctional facilities (Brown, 2011).

The current study has several limitations associated with NEISS-Work. First, large standard errors associated with the small sample sizes restrict detailed reporting of injury characteristics (Reichard & Jackson, 2010). Second, the national estimates reported in this study are probably underestimates due to the difficulty in case identification of correctional officers with certainty. Third, because correctional facilities often have onsite medical staff, some correctional officers may choose to receive medical care at their workplace. Therefore, surveillance based on ED data may result in underestimates of nonfatal injuries to these workers.

## 5. Conclusion

This analysis is an initial step to identify characteristics of work-related deaths and injuries among correctional officers. Although correctional officers’ specific duties and detailed injury circumstances can vary depending upon on the type of security facility, location of their work within the facility, and prison population, there are always common hazards and risk for injury. Overall safety of the correctional facility may be improved by addressing staffing issues, providing adequate facilities, and following good operational procedures (NIC, 2008). To reduce assaults and violent acts, research on effective training, team work, and use of appropriate protective equipment should be emphasized (BOP, 2011; Thornton & Shireman, 1993; National institute of Corrections Review Team Report [NIC Review Team], 2011).

The predominance of inmate incidents associated with sprain and strain injuries from bodily reaction and exertion suggests a need for improved correctional officer personal safety while interacting with inmates. Sprain and strain injuries may also be reduced by interventions focused on increasing physical fitness. Research among police officers, an occupation with similar physical demands, has shown that higher levels of physical activity and fitness are associated with a lower prevalence of musculoskeletal injuries (Nabeel, Baker, McGrail, & Flottemesch, 2007).

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## References

- Brown DJ. Nonfatal injuries and illnesses in State and local government workplaces in 2008. *Monthly Labor Review*. 2011; 134(2)
- Bureau of Justice Statistics [BJS]. [Last accessed 16 May 2011] Census of State and Federal Correctional Facilities, 2005. 2008. (Appendix table 12. All employees and correctional officers in correctional facilities) <http://bjs.ojp.usdoj.gov/content/pub/pdf/csfcf05.Pdf>
- Bureau of Justice Statistics [BJS]. [Last accessed 6 April 2011] State and Federal prisoners and prison facilities—Summary findings. 2011. <http://bjs.ojp.usdoj.gov/index.cfm?ty=tp&tid=13>
- Bureau of Labor Statistics [BLS]. Occupational Employment Statistics: National Occupational Employment and Wage Estimates. Washington (DC): US Department of Labor; 1992a. <http://www.bls.gov/opub/ee/home.htm> [Last accessed 12 December 2010]
- Bureau of Labor Statistics [BLS]. Occupational injury and illness classification manual. Washington, DC: U.S. Department of Labor; 1992b.
- Bureau of Labor Statistics [BLS]. [Last accessed 12 December 2010] Current population survey (1999–2008 micro data files) and labor force, employment, and unemployment from the current population survey. 1992c. <http://www.bls.gov/cps/home.htm>
- Bureau of Labor Statistics [BLS]. USDOL, Employ Earnings. 1999; 46(1):247–250.
- Bureau of Labor Statistics [BLS]. Occupational suicides: Census of fatal occupational injuries: Fact sheet. Washington, DC: US Department of Labor; 2009a. <http://www.bls.gov/iif/oshwc/cfoi/osar0010.pdf> [Last accessed 11 January 2011]
- Bureau of Labor Statistics [BLS]. Occupational Outlook Handbook. Correctional Officers; Washington, DC: US Department of Labor; 2009b. 2010–2011 edition
- Bureau of Labor Statistics [BLS]. [Last accessed 20 October 2011] Nonfatal occupational injuries and illnesses requiring days away from work for state government and local government workers, 2009. (Table 3. Number, incidence rate, and median days away from work.). 2010a. [http://www.bls.gov/news.release/archives/osh2\\_11092010.pdf](http://www.bls.gov/news.release/archives/osh2_11092010.pdf)
- Bureau of Labor Statistics [BLS]. [Last accessed 6 April 2011] Nonfatal occupational injuries and illnesses requiring days away from work for state government and local government workers, 2008. (Table 4. Number of nonfatal occupational injuries and illnesses involving days away from work for state and local government workers). 2010b. [http://www.bls.gov/news.release/archives/osh2\\_02242010.pdf](http://www.bls.gov/news.release/archives/osh2_02242010.pdf)
- Bureau of Prisons [BOP]. Assaults Graph Spreadsheets by Year, 2009. Washington, DC: U.S. Department of Justice; 2009. [http://www.bop.gov/news/research\\_projects/assaults/assault\\_spreadsheets/assaults\\_graph\\_spreadsheets\\_by\\_year.jsp](http://www.bop.gov/news/research_projects/assaults/assault_spreadsheets/assaults_graph_spreadsheets_by_year.jsp) [Last accessed 18 February 2011]
- Bureau of Prisons [BOP]. Evaluating the Impact of Protective Equipment Could Help Enhance Officer Safety. Washington, DC: U.S. Department of Justice; 2011. <http://www.gao.gov/products/GAO-11-410> [Last accessed 15 February 2011]
- U.S. Census Bureau. [Last accessed 12 December 2010] 2002 Census Classified Index of Occupations. 2003. Available at <http://www.census.gov/hhes/www/ioindex/ioindex02/txtnew02.html#3800>
- Centers for Disease Control and Prevention [CDC]. Surveillance of nonfatal occupational injuries treated in hospital emergency departments—United States, 1996. *Morbidity and Mortality Weekly Report*. 1998; 47:302–306. [PubMed: 9579966]
- Centers for Disease Control and Prevention [CDC]. Stress at Work. Atlanta, GA: Author; 1999. DHHS (NIOSH) Publication Number 99–101 <http://www.cdc.gov/niosh/docs/99-101/> [Last accessed 14 May 2012]
- Centers for Disease Control and Prevention [CDC]. Work-Related Roadway Crashes: Challenges and Opportunities for Prevention. Atlanta, GA: Author; 2003. DHHS (NIOSH) Publication Number 2003-119. <http://www.cdc.gov/niosh/docs/99-101/> [Last accessed 14 May 2012]
- Cullen F, Link B, Cullen J, Wolfe N. How satisfying is prison work? A comparative occupational approach? *Journal of Offender Counseling, Services and Rehabilitation*. 1989; 14:89–108.
- Hessl SM. Police and corrections. *Occupational Medicine*. 2001; 16:39–49. [PubMed: 11107223]

- Kraus JF. Homicide while at work: Persons, industries, and occupations at high risk. *American Journal of Public Health*. 1987; 77:1285–1289. [PubMed: 3631361]
- Light CS. The severity of assaults on prison officers: A contextual study. *Social Science Quarterly*. 1990; 71(2):267–284.
- Lincoln JM, Chen LH, Mair JS, Biermann PJ, Baker SP. Inmate-made weapons in prison facilities: assessing the injury risk. *Injury Prevention*. 2006; 12:195–198. [PubMed: 16751452]
- Marsh SM, Derk SJ, Jackson LL. Nonfatal occupational injuries and illnesses among workers treated in hospital emergency departments—United States, 2003. *Morbidity and Mortality Weekly Report*. 2006; 55:449–452. [PubMed: 16645569]
- Morse T, Dussetschleger J, Warren N, Cherniack M. Talking About Health Correction Employees' Assessments of Obstacles to Healthy Living. *Journal of Occupational and Environmental Medicine*. 2011; 53(9):1037–1045. [PubMed: 21860329]
- Nabeel I, Baker BA, McGrail MP Jr, Flottemesch TJ. Correlation between physical activity, fitness, and musculoskeletal injuries in police officers. *Minnesota Medicine*. 2007; 90(9):40–43. [PubMed: 17966263]
- National Institute of Corrections [NIC]. *Managing Risk in Jails*. Washington, DC: U.S. Department of Justice; 2008. NIC Accession Number 022666 <http://static.nicic.gov/Library/022666.pdf> [Last accessed 20 April 2011]
- National Institute of Corrections Review Team Report [NIC Review Team]. [Last accessed 9 April 2011] Incident Review of Death of Correctional Officer Jayme Biendl. 2011. <http://static.nicic.gov/Library/024937.pdf>
- National Occupational Research Agenda [NORA]. [Last accessed 12 December 2010] National Public Safety Agenda for Occupational Safety and Health research and practice in the US public safety sub sector. 2009. <http://www.cdc.gov/niosh/nora/comment/agendas/pubsafsub/pdfs/PubSafSubApr2009.pdf>
- New Jersey Police Task Force Report. [Last accessed 16 May 2011] Table 1. Suicide Rates of Law Enforcement Officers versus Males 25–64 years, New Jersey, 2003–2007. 2009. [http://www.state.nj.us/lps/library/NjPoliceSuicideTaskForceReport-January-30-2009-Final\(r2.3.09.pdf](http://www.state.nj.us/lps/library/NjPoliceSuicideTaskForceReport-January-30-2009-Final(r2.3.09.pdf)
- Office of Management and Budget [OMB]. *Office of the President: Standard Occupational Classification Manual*. Lanham, MD: Bernan Associates; 2000.
- Reichard AA, Jackson LL. Occupational Injuries Among Emergency Responders. *American Journal of Industrial Medicine*. 2010; 53:1–11. [PubMed: 19894221]
- Stack S, Tsoudis O. Suicide risk among correctional officers: A logistic regression analysis. *Archives of Suicide Research*. 1997; 3:183–186.
- Swenson D, Waseleski D, Hartl R. Shift Work and Correctional officers: Effects and Strategies for Adjustment. *Journal of Correctional Health Care*. 2008; 14:299–310.
- Thornton, RL.; Shireman, JH. *New approaches to staff safety*. Washington, DC: National Institute of Corrections (NIC); 1993. Available at: <http://static.nicic.gov/Library/018444.pdf> [Last accessed 20 April 2011]
- U.S. Census Bureau. 1990 census of population: Alphabetical index of industries and occupations. Washington, DC: United States Government Printing Office; 1992.
- Violanti, JM. *Police suicide: Epidemic in blue*. Springfield, IL: Charles C. Thomas; 1996.

## Biographies

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**Audrey A. Reichard**, MPH, OTR, has been an epidemiologist with the National Institute for Occupational Safety and Health, Division of Safety Research for nine years. Her research activities focus on national surveillance of occupational injuries. Current areas of study include injuries to emergency medical service workers, work-related traumatic brain injuries, work-related burn injuries, and worker reporting of occupational injuries. She has also worked on developing and testing questionnaires, evaluating programs, and developing an on-line query system. Prior working in public health, Audrey practiced as an occupational therapist, treating individuals with physical and developmental disabilities.

**Hope Tiesman** is an epidemiologist with the National Institute for Occupational Safety and Health. She completed her MSPH in Epidemiology from the University of South Florida and PhD from the University of Iowa where she was a fellow in the occupational injury prevention research program. Prior to her PhD, she worked for the Department of Veterans Affairs where she developed and evaluated occupational injury prevention programs. She has an adjunct academic appointment with the West Virginia University Injury Control Research Center. Her research interests include the prevention of workplace violence, urban-rural injury disparities, and occupational safety of law enforcement officers.

**Table 1**

Labor estimates, fatal and nonfatal injury rate of U.S correctional officers, 1999–2008.

Data source and units	Aggregate labor estimate	Fatal injuries (N = 113)	Nonfatal injuries (N = 125,200 (±70,100))
		Rate per 100,000 FTE or workers (±CI) <sup>a</sup>	Rate per 100 FTE or workers (±CI)
CPS-FTE <sup>b</sup>	4,173,000	2.7 (±0.8)	3.0 (±1.9)
CPS-COUNT <sup>c</sup>	4,272,600	2.6 (±0.8)	2.9 (±1.9)
OES-COUNT <sup>d</sup>	4,451,400	2.5 <sup>e</sup>	2.8 (±1.6) <sup>f</sup>

<sup>a</sup>95% Confidence interval (CI).<sup>b</sup> Full-time equivalent (1FTE=2,000 hr) correctional officers for hours worked in primary and secondary jobs from the Current Population Survey (CPS).<sup>c</sup> Number of correctional officers worked in primary and secondary jobs from the CPS.<sup>d</sup> Number of correctional officers from Occupational Employment Statistics (OES).<sup>e</sup> Error associated with labor estimates (OES) is not available.<sup>f</sup> Confidence interval for the rate excludes error associated with the labor estimate (OES) and likely underestimates the total rate variance.

**Table 2**

Number and percentage of fatal injuries to U.S correctional officers by demographics and year: CFOI, 1999–2008.

Characteristics	Number	Percent
Sex		
Male	100	89
Female	13	11
Age group		
18–24 Years	10	9
25–29 Years	9	8
30–34 Years	10	9
35–39 Years	18	16
40–44 Years	16	14
45–49 Years	15	13
50–54 Years	9	8
55–59 Years	12	11
60–65 Years	8	7
65 and older	6	5
Year		
1999	10	9
2000	12	11
2001	7	6
2002	16	14
2003	13	12
2004	5	4
2005	6	5
2006	11	10
2007	14	12
2008	19	17
Total	113	100

**Table 3**

Number and percentage of U.S. correctional officer fatalities by event of death: CFOI, 1999–2008.

<b>Event of death</b>	<b>Number</b>	<b>Percent</b>
Intentional	45	40
Homicides	28	25
Suicides	17	15
Transportation related	45	40
Falls	16	14
Other	7	6
Total	113	100

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**Table 4**

Number and percentage of U.S. correctional officer injuries treated in a hospital emergency department by sex, age group, and year: NEISS-Work, 1999–2008.

Characteristic	National estimate <sup>a</sup>	±95% CI	Percent
<i>Sex</i>			
Male	91,700	±55,800	73
Female	33,500	±15,200	27
<i>Age group (years)</i>			
18–24	10,100	±5,300	8
25–29	21,900	±13,500	18
30–34	24,900	±15,900	20
35–39	20,300	±11,700	16
40–44	19,900	±10,900	16
45+	27,900	±16,300	22
<i>Year</i>			
1999	10,200	±6,500	8
2000	13,000	±7,000	10
2001	12,800	±7,800	10
2002	15,400	±9,900	12
2003	14,100	±9,400	11
2004	8,600	±5,400	7
2005	11,000	±6,200	9
2006	17,300	±11,400	14
2007	12,100	±7,000	10
2008	10,700	±7,000	9
<i>Total</i>	125,200	±70,100	100

<sup>a</sup>National estimates do not sum to total because of rounding.

**Table 5**

Number and percentage of U.S. correctional officer injuries treated in a hospital emergency department by selected events and body parts: NEISS-Work, 1999–2008.

Characteristic	National estimate	±95% CI	Percent
<i>Event</i>			
Assaults and violent acts	47,500	±24,500	38
Bodily reaction and exertion	25,400	±16,800	20
Contact with objects and equipment	21,900	±12,500	18
<i>Body part</i>			
Upper extremities	37,500	±19,500	30
Hand & finger	23,500	±12,200	19
Trunk, Neck, and shoulder	30,200	±16,900	24
Lower extremities	26,200	±16,200	21
Head, face, including eye, ear, and mouth	21,700	±11,800	17